

# **AN EXPLORATION OF TEACHING STRATEGIES UTILISED IN THE FACILITATION OF LEARNING FOR FIRST LEVEL STUDENTS IN GENERAL NURSING SCIENCE.**

**A DISSERTATION BY**

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## DECLARATION

I, **Phumzile Cordelia Sithole**, declare that this dissertation entitled “**An exploration of teaching strategies utilised in the facilitation of learning for first level students in general nursing science**” is my own work, and all the sources that I have used, or quoted, have been indicated and acknowledged by means of a complete reference. The declaration has not been previously submitted for any degree or examination to any other university.

**PHUMZILE CORDELIA SITHOLE**

.....

**Date**



## ABSTRACT

Lecturers at three Nursing Colleges in the Gauteng Province in South Africa where this study was conducted raised their concern that a large proportion of learners reaching the senior phase have difficulty solving patient care problems and even making specific decisions regarding patient care. These learners are also unable to formulate nursing diagnoses and develop nursing care plans. This lack of essential critical thinking skills is evident during the assessment of their assignments, tests as well as clinical formative assessments.

These skills can be developed within learners throughout their four-year training, if exposed to outcomes-based education (OBE) and problem-based teaching strategies especially starting on the first level of their training course. The current nursing education programme, at these Nursing Colleges where this study was conducted is an outcomes- and problem-based curriculum. It is important that teaching strategies utilized by nurse educators are appropriate for the specific curriculum implemented because they greatly differ from the traditional teaching strategies.

The purpose of this study was to investigate the teaching and assessment strategies utilized in the facilitation of learning for the first year level students in the subject General Nursing Science (GNS I). The focus of the study was on the first year of training because it is expected that development of critical thinking be started at this level. A quantitative, contextual descriptive research method was utilised. The sample consisted of lecturers (N=23) and students (N=680).

The lecturers from each of the three colleges were addressed during a personnel meeting regarding the study and a suitable date and time was set for the distribution of the questionnaires to the lecturers and to first year learners during the last block of the academic year. The questionnaires were distributed to the lecturers and the learners on the agreed date and time and the researcher was present to clarify any misunderstanding regarding the tool. The questionnaire consisted of appendix E, which was distributed to lecturers and appendix F, which was distributed to the learners. Respondents were requested not to give any identifiable information on the

questionnaires and to place completed questionnaires in the box provided in each of the venues to ensure confidentiality and anonymity.

Data from the study indicated that not all of the teaching strategies and assessment methods utilized by the educators are appropriate and conducive for the stimulation of critical thinking skills. The majority of the lecturers facilitate through a lecture method and assessments are mostly done through written tests and examinations. On the other hand teaching facilities at the colleges are inadequate, for instance small group facilities are not available.

Recommendations are as follows:

- More lecturers should be encouraged to obtain a Masters Degree qualification in Nursing.
- All lecturers should utilize the OBE educational strategies.
- In their facilitation of GNS I lecturers should accommodate older students, because they were never exposed to an OBE approach in their basic education.
- Lecturers should utilise a variety of teaching strategies that will ensure development of critical analytical thinking.
- Lecturers should utilize a variety of assessment methods.
- Students should be encouraged to seek information on their own, specifically regarding case studies because this actively involves them as they are solving problems, making decisions and draw conclusions in relation to GNS I.

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## KEY WORDS

- ✓ Critical thinking
- ✓ General Nursing Science
- ✓ Outcomes Based Education
- ✓ Problem Based Learning
- ✓ Nursing Process
- ✓ Teaching strategies
- ✓ Facilitation
- ✓ Assessment
- ✓ Computer skills
- ✓ Educational facilities

## **ABBREVIATIONS**

GNS	General Nursing Science
OBE	Outcomes – Based Education
PBL	Problem Based Learning
SAQA	South African Qualifications Authority
SANC	South African Nursing Council

further research was needed to determine how these higher order thinking skills can be facilitated and assessed during class as well as the clinical setting. The recommendations made by Chabeli, (2006:85) and the findings of Waterson, Harms, Qupe, Maritz, Makobe & Chabeli (2006:60) inspired the researcher to conduct this study. The study will focus on one of the higher order thinking skills, namely critical thinking and will be focused on the theoretical aspect of teaching as it takes place in a classroom setting.

Waterson et al.(2006:56) conducted a qualitative research study at a nursing college in Gauteng on strategies to improve the performance of students. One of the findings of this study indicated that the students were not content with the teaching approach of some lecturers. Students mention lecturers who came to class inadequately prepared, reading from the prescribed books and not sharing their own experiences with students. This teaching approach cannot contribute to the developing of critical and analytical thinking skills of students. Students also indicated that they would have liked to debate and discuss the situations that they experienced in practice in order to promote critical thinking. Waterson et.al. (2006:60) also found that there was inadequate integration of theory and practice, at the same college as well as that teaching and assessment strategies that were used did not facilitate critical thinking. In addition, lecturers lacked knowledge with respect to OBE.

The current nursing education programme, at Gauteng Nursing Colleges is an outcomes- and problem-based curriculum. It is essential that teaching strategies used by lecturers are appropriate for an outcomes-based and problem- based curriculum (Gauteng Nursing Colleges, 2002:2). This study aims to establish whether lecturers are utilizing teaching strategies that will enhance critical and analytical thinking skills in the facilitation of learning for first level students in General Nursing Science (GNS). GNS is taught up to the third level of training, and thus comprises the core general nursing knowledge of the course.

According to the exit level outcomes of the Gauteng revised curriculum students in the first year of training should be able to apply basic knowledge of anatomy and physiology



and integrate a caring philosophy in managing the basic health needs of individuals throughout the lifespan, using a scientific nursing approach. Students should also be able to identify, analyse, formulate and solve basic health problems of the individuals in family and community context (Gauteng Nursing Colleges, 2002:21).

It is crucial for students to be critical thinkers in order to integrate knowledge and to use it in the nursing process. According to Smeltzer, Bare, Hinkle & Cheever, (2008:35) modern nursing practices mandate the use of high level critical thinking skills when applying the nursing process. Teaching strategies aimed at the development of critical thinking should be applied in the theoretical component of GNS in the first year of study in order to prepare the students for the more advanced content of the same subject in subsequent years of study.

Everyday healthcare providers are faced with situations where they have to make decisions. Nurses are required to think critically in order to deliver safe competent nursing care. The challenge facing nursing education today is to develop a curriculum that contains effective teaching/learning strategies for students to develop skills in critical thinking. Utilization of critical thinking gives a care provider the advantage of looking at things from a point of view that is grounded in purposeful and methodological thinking (Bradshaw & Lowenstein, 2011:49)

Lecturers have a responsibility to stimulate the development of critical thinking skills by applying a variety of methods appropriate to the outcomes of the programme. The SANC emphasizes that all programmes for the four- year comprehensive nursing course should be directed specifically at the development of the ability to think and evaluate nursing care analytically, critically, and creatively in order to independently judge the value and use of scientific data in the delivery of nursing care (SANC, Regulation R.425 Guideline, 1985:2).

Critical thinking and decision-making skills are believed to be closely linked to cognitive skills. In the nursing process, the nurse collects data utilizing both inductive and deductive reasoning to be able to make hypothesis or inferential nursing diagnoses as

well as plan, implement and evaluate patient care. Many of the mental processes needed to implement the nursing process successfully are analogous with the nursing process as defined in critical thinking ability (Pardue, 1987:355).

For the purpose of this study the cognitive domain according to Bloom's taxonomy is the focus of the assessment of the students. The focus will be on application, analysis, synthesis and evaluation of GNS in the first level of training. The lecturers' facilitation strategies and the integration of theory and practice will also be investigated. It is essential that assessment strategies be included in this study because teaching and learning can never be separated from the assessment of the outcome of teaching and learning. Assessment forms the integral part of the teaching and learning situation and should not be regarded as a separate didactic activity (Meyer, Lombard, Warnich & Wolhuter, 2010: v).

### **1.3. PROBLEM STATEMENT**

Nursing Colleges are accountable to the public, students and regulatory organizations such as the SANC for educating health professionals who are highly skilled and capable of critical thinking (SANC, Regulation R.425 Guide 1985:1). The requirement by SAQA, that all teaching programmes include critical analytical thinking as an outcome requires lecturers to ensure that the teaching strategies they use do in fact develop students' critical thinking skills. Although the lecturers at nursing colleges in Gauteng are aware of SAQA expectations, the implementation of strategies that will lead to the attainment of these critical thinking skills is not always evident. Edwards (2003:1142) states that the students in general, and nurse students in particular, need critical thinking skills because they work in unpredictable and diverse environments where they are expected to come up with solutions, make rational decisions or to solve unique and complex problems. The developing of critical thinking skills should start in the first level of training and particularly in the facilitation of learning in GNS.

#### 1.4. RESEARCH QUESTION

The study will address the following question:

Which teaching and assessment strategies are used by the lecturers in the facilitation of learning in GNS I in the first level of training of the four year comprehensive course?

#### 1.5. PURPOSE OF THE STUDY

The purpose of the study is to investigate the teaching and assessment strategies utilized in the facilitation of learning for first level students in the subject GNS.

#### 1.6. OBJECTIVES

Considering the purpose of this study the following objectives are formulated:

- Determine whether the teaching and assessment strategies utilized by the lecturers in the first level of training of the four year comprehensive course in GNS I are appropriate and conducive for the stimulation of critical thinking skills.
- Determine possible shortcomings in the facilitation of teaching and assessment strategies in GNS I.

#### 1.7. DEFINITION OF KEY CONCEPTS

The researcher supports the definitions of the following key concepts:

- **Strategy** A strategy refers to a broad plan of action with a view to achieving a particular aim. A strategy is really a plan of attack: it outlines the approach you intend to take in order to achieve the desired outcome or result (Van der Horst & McDonald, 2003:121). A strategy is the blending and integration of a variety of teaching-learning elements in such a way that students achieve the desired outcomes. It includes the learning content, teaching methods, learning activities and media (Jacobs, Vakalisa & Gawe, 2004:70).

- **Teaching strategies**

The approaches and strategies which may be used to teach and learn the practice of nursing (Mellish, Brink & Paton, 2001:97). A teaching strategy refers to a series of teaching-learning actions that are designed by teachers to assist students to achieve a prescribed learning outcome (Jacobs et.al. 2004:70). In this study teaching strategies refer to the different methods of facilitating learning and critical thinking.

Assessment can never be separated from the teaching and learning process. It forms the integral part of the teaching and learning situation and should not be regarded as a separate didactic activity (Meyer, Lombard, Warnich & Wolhuter, 2010: v).
- **Facilitation**

Facilitation is a process of drawing together all categories of learning approach, namely, teacher centred, student centred demonstrations and practical work with the aim of helping the student to achieve the required outcome or outcomes. The teacher becomes the mentor, coach, facilitator, coordinator, demonstrator, manager and guide in assisting students to learn (Olivier, 2000:107). In this study the first year lecturers at Gauteng Nursing Colleges are responsible for the facilitation of learning for level one students in GNS.
- **Analysis**

Analysis involves the ability to separate important aspects of information from the less important in order to clarify meaning (Bloom, 1978:573).

- **Assessment** Assessment is gathering information about the students in order to make decisions about their performance. It involves the setting of a task or a series of tasks in order to obtain information about the students' competence (Van der Horst & McDonald, 2003:246). In this study assessment will refer to the evaluation of individual students' performance in the tests and written examinations in GNS I. According to Maree & Fraser (2008:229) assessment can be described as the systematic determination of the degree to which outcomes have been reached by students. In other words attention must be paid to the fact that assessment must be a systematic, purposeful and planned action.
- **Critical thinking** A definition of critical thinking that had greater impact, perhaps because it was associated with an instrument to measure the concept was offered in 1964 by Watson and Glaser. These scholars described critical thinking as a composite of attitudes of inquiry, knowledge of the nature of valid inferences, abstractions and generalizations, and skill in employing and applying these attitudes and this knowledge (De Young, 2009:218).
- **Lecturer** In terms of this study, lecturer refers to the registered nurse with an additional qualification in Nursing Education responsible for educating GNS in level one of the four year comprehensive course. In outcomes-based education the educator is not merely the presenter of knowledge, but rather a facilitator of the learning process in the student (Van der Horst & McDonald, 2003:236).

The lecturer can supplement a textbook by enhancing a topic

and making it come to life. No matter how well written, words on page are dry and impersonal compared to words communicated by a lecturer with a wealth of personal experience and enthusiasm for the subject (De Young, 2009:112).

- **Student** A person who follows a four year comprehensive course leading to registration with the SANC as a nurse (General, Psychiatry, Community) and Midwife (SANC, Regulation R.425 Guide, 1985:1). For the purpose of this study the focus will be students in their first year of training.
- **Self- Directed learning** Self- directed learning enables students to take a more active role in their education and can be defined as the responsibility that students accept for their own learning. How students set learning goals, locate appropriate resources, decide on which learning methods to use as well as evaluate progress are all aspects of self-directed learning (Russell, Comello & Wright, 2007:31).
- **Problem-based learning** Problem-based learning (PBL) is an approach to learning that involves confronting students with real-life problems that provide a stimulus for critical thinking and self taught content. PBL is based on the premise that students, working together in small groups facilitated by an educator, will analyse a case, identify their own needs for information, and then solve authentic problems like those that occur in everyday life. This type of exercise should prepare them to be good problem solvers in their future work and condition them to be life-long students (DeYoung, 2009:151). In this study problem-based

learning refers to the real life situation and problems which are formulated by the lecturers with the aim of probing the students' critical thinking skills when they solve these problems.

## **1.8. RESEARCH METHODOLOGY**

In this chapter a brief overview of the research methodology is outlined. An in-depth discussion of the research methodology will be done in chapter 3. For the purpose of this study a quantitative, descriptive and contextual research design was used to investigate the teaching and assessment strategies utilized in the facilitation of learning for first level students in the subject GNS.

The researcher opted for a quantitative research design because empirical evidence was preferred to personal beliefs. Only first year students and lecturers facilitating GNS at the first year of training in the three Gauteng Nursing Colleges could participate in this research study. The large population size also warranted the utilization of a quantitative research design.

In this study the teaching strategies that include assessment strategies utilized in the facilitation of GNS for first year students were determined. The study was contextual because it was conducted in the Gauteng Nursing Colleges using first year students and lecturers facilitating GNS in the first year of training. The population for this study consisted of lecturers who facilitating the learning of GNS in the first year of training and all first year students in the four year comprehensive course at the three nursing colleges in Gauteng. The number of students varied in each nursing college, the students were 263, 274 and 281 respectively. The population thus consisted of 818 students.

All the first year lecturers who facilitate GNS I were included in the sample, except for the one who took part in the pre-test to refine the instrument that was used for the lecturers in the study. Twenty three lecturers took part in the study.

The instrument that was used for the students was pretested on nine students. The systematic sampling process was used, this process is used when an ordered list of all members of the population is available. The process involves selecting every  $k$ th individual on the list (Burns & Grove, 2011:303). The students for the pre-test of the instrument were selected as follows:

The first student on the attendance list was selected, then the 81<sup>st</sup> student followed by the 91<sup>st</sup> and the 94<sup>th</sup> student. Then they were invited to participate.

The study was conducted on students that were in their last block of their first year, to ensure that they had been exposed to the facilitation of GNS 1 throughout the first year of the course. The researcher distributed the questionnaire to all students who were willing to participate.

Compilation of the questionnaire was done in consultation with a statistician and the researcher's supervisors, based on the literature review regarding facilitation and assessment of critical thinking skills. Questions were sequenced in a meaningful manner to ensure cooperation. The instrument made provision for open-ended and close-ended questions. Open-ended questions made provision for motivation for using various teaching strategies to facilitate learning. There were two questionnaires, (appendix E) questionnaire for lecturers and (appendix F) a questionnaire for students.

Permission to conduct this study was sought from the Ethics Committee of the Faculty of Health Sciences at the University of Pretoria, the Ethics Committee of the Gauteng Department of Health, the three nursing colleges where the study was conducted as well as from the respondents. Participation in the study was voluntary and the respondents were offered the opportunity to withdraw from the study at any time. Measures to ensure confidentiality and anonymity were ensured during data collection.

## **1.9. SIGNIFICANCE OF THE STUDY**

The significance of this study for nursing education relates to the question of whether the teaching strategies implemented in the facilitation of learning for first level students



in GNS enhance critical thinking skills. This will ensure that the education of student nurses is in line with the demands of the clinical setting, where highly qualified and critical-analytical skilled nursing practitioners are needed. If it is established that the teaching strategies utilized are inappropriate, recommendations will be made to improve the facilitation of learning for first level students in GNS.

## **1.10. ORGANISATION OF CHAPTERS**

The study is organized as follows:

- CHAPTER 1: Background to the study
- CHAPTER 2: Literature review
- CHAPTER 3: Research Methodology
- CHAPTER 4: Discussion of findings
- CHAPTER 5: Summary of the findings, recommendations, limitations and conclusions

## **1.11. SUMMARY**

In chapter one the background to the research study was described, which comprises a rationale for the study, the problem statement, research question, aim and objectives of the study, definition of key concepts as well as the organization of chapters.

Chapter two will focus on an in depth literature review concerning teaching strategies to facilitate the learning of nursing students.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1. INTRODUCTION**

In this chapter an overview will be given of the literature that the researcher has reviewed. This will provide the evidence on which the study will be based. The literature review will focus on critical thinking skills, teaching strategies, OBE, PBL and assessment, as used in nursing education programmes. The SAQA Act no. 58 of 1995 mandated OBE as the new way of providing education and training in South Africa (Olivier, 2000:28). SAQA requires lecturers to plan all educational and training in such a way as to fully participate in learning activities in order to contribute to the full personal development of each student, (SAQA, [S.a.]:8). In line with SAQA, the SANC emphasizes the development of nurses on a personal level, stating that the principles of learning should be observed. This implies that learning should lead to behavioural changes in the cognitive, affective and psychomotor domains, through the active involvement of students (SANC, Regulation R.425 Guide, 1985:3).

### **2.2. CRITICAL THINKING**

The starting point for the development of thinking skills is the conviction that it is important to be able to think well and in a sophisticated manner. It is only when one is convinced of this that one will be prepared to take the trouble to learn the thinking skills that are necessary for critical and creative thinking (Rossouw, 2003:10).

Fesler-Birch (2005:63) states that, since nurses' roles change in response to the dynamics of managed care and an increase in use of biotechnology in health care, more is expected of them both in terms of psychomotor and cognitive skills. The American Association for Colleges of Nursing requires that critical thinking be reflected within academic nursing programs as a core competency for program accreditation.

Brunt (2005:259) supports this notion when stating that health care professionals must use critical-thinking skills to solve increasingly complex problems. Lecturers need to

help nurses develop their critical thinking skills in order to maintain and enhance their competencies. Additional research studies are needed to determine how the process of nursing practice can nurture and develop critical thinking skills, and which strategies are most effective in developing and evaluating critical thinking.

Paul & Elder (2007: 3) also state that lecturers who understand critical thinking and the logic of their discipline realize that students are thinking critically when, and only when, they are consciously and deliberately thinking through some dimension of the logic of the discipline they are studying. And this requires that students approach each and every discipline as a system of thought, not as a random set of bits and pieces of information to be rote memorized and repeated on an exam or quiz. It requires that at any given moment in class students recognize that:

- There is a question on the floor
- Information being processed
- Concepts being used
- Assumptions being made
- Interpretations at work
- Implications embedded in the reasoning
- Points of view being engendered

According to Beekman (2000:28) critical thinking involves the evaluation and judging of the applicability, relevancy, logic, usefulness, reliability and authenticity of facts or information. No sound decision making can take place without critical thinking.

For nursing or health care, critical thinking is essential when comparing facts or making value judgments. It is reflective, which means that the person takes time to collect information and does not jump to conclusions or make hurried decisions (Beekman, 2000:28).

A definition of critical thinking that had greater impact, perhaps because it was associated with an instrument to measure the concept was offered in 1964 by Watson and Glaser. These scholars described critical thinking as a composite of attitudes of

inquiry, knowledge of the nature of valid inferences, abstractions and generalizations, and skill in employing and applying these attitudes and this knowledge. In addition to addressing some of the skills needed for critical thinking, Watson & Glaser introduced the idea that critical thinking also involves one's frame of mind and attitude. This is an important concept because it acknowledges that critical thinking is more than merely a collection of skills one uses in certain situations, instead it is a perspective through which one views all situations (De Young, 2009:218).

Critical thinkers use the intellectual tools that critical thinking suggests, that is, concepts and principles that enable them to analyse, assess and enhance thinking. Critical thinkers also work meticulously to develop the intellectual virtues, integrity, humility, civility, empathy, logic of honesty and conviction in their reasoning capabilities. Critical thinkers furthermore realize that they can always improve their reasoning abilities as they strive to develop and enrich the world. They therefore recognize the complexities in developing as critical thinkers that are committed to life-long learning and self-improvement Bruce, Klopper & Mellish (2011:155).

Schank (1990:86) supports this notion when stating that the diffusion of nursing knowledge by continuing education in nursing makes it the perfect milieu for the enhancement and continuous development of critical thinking skills. Wilkinson (1992:21) is also of the opinion that critical thinking is not exercised in a vacuum. It is used to apply a basic core of knowledge to each client situation. Nursing is an applied discipline, and the application of knowledge is a critical thinking skill. Nurses need to think critically in order to apply knowledge of general principles to specific areas.

Quinn & Hughes (2007:65) describe critical thinking as a core concept consisting of a number of abilities such as the ability to:

- Define a problem.
- Select relevant information for problem solving.
- Draw inferences from observed or supposed facts.
- Recognise assumptions.
- Formulate relevant hypotheses.

- Make deductions, i.e. draw conclusions from premises.
- Make interpretations.
- Evaluate arguments.

Tracking the development of critical thinking in students presents challenges for nursing programs. Faculty at one school analyzed current beliefs and practices with a focus on the type of thinking that is reinforced in both classroom and clinical settings and the effects of classroom technology on critical thinking (Walsh & Seldomridge, 2006:215).

Banning (2006:460), states that critical thinking is an important component of professional practice. It is the hallmark of the competent nursing practitioner and yet there is no consensus regarding its definition, teaching methodology or learning strategies for facilitating critical thinking skills in nursing students. Although critical thinking appears to be desirable at all levels of nursing practice, evidence to support its educational development in nurses appears to be limited. If lecturers are to prepare nurses to become leaders in their profession, the educational development of these essential skills needs to be addressed.

According to educationalists both nationally and internationally, critical thinking is the core cross-field learning outcome of all educational programmes that will enable students to solve problems in their specific learning areas (Van der Horst & McDonald, 1997:217).

Alfaro-Lefevre (cited in Bradshaw & Lowenstein, 2011:51) describes critical thinking in nursing as comprising the following aspects:

- Entails purposeful, outcomes-directed (result oriented) thinking.
- Driven by patient, family and community needs situations.
- Is based on the principles of the nursing process and the scientific method.
- Requires knowledge, skills and experience.
- Is guided by professional standards and ethical codes.
- Is constantly re-evaluating, self correcting and striving to improve situations.

### 2.2.1. Characteristics of critical thinking

Alfaro- Lefevre (2004:4) further describes the characteristics of critical thinking as follows:

- Active thinkers maintain a questioning attitude – doubling the reliability of the information and their own interpretation.
- Fair minded – keenly aware of the powerful influence of their own perceptions, values and beliefs but seeking to treat all viewpoints alike.
- Persistent and willing to exert a conscious effort to work in a planned manner, gathering information, checking for accuracy and persevering even if solutions aren't obvious or require several steps.
- Good communicators – realizing that mutual exchange of ideas is essential to understanding the facts and to finding the best solutions.
- Open- minded – willing to consider other perspectives and suspending judgment until all the evidence is weighed.
- Empathetic – putting their own feelings aside and consciously imagining themselves in the place of others in order to genuinely understand them.
- Independent thinkers- striving to make their own judgment and decisions, rather than depending on others to do it for them.
- Curious and insightful – questioning deeply and interested in understanding underlying thoughts and feelings.
- Humble – being concerned about maintaining an awareness of their own biases and limitations and being aware that no one, including themselves knows everything.
- Proactive instead of reactive, anticipating problems and acting before they occur.
- Organised and systematic in their approach for examining information, solving problems and decision making.
- Flexible – able to explore and imagine alternatives and change approaches and priorities as needed.

- Cognisant of the rules of logic – recognizing the role of intuition but seeking evidence and weighing risks and benefits before acting.
- Realistic, acknowledging that we don't live in a perfect world and that the best answers aren't always the perfect answers.
- Team players – willing to collaborate to work towards common goals.
- Creative and committed to excellence – continually evaluating, seeking clarity and accuracy and looking for ways to improve how things are done.

In a study conducted by Jenkins (2011:268) on cross – cultural perspectives on critical thinking some of the aspects that nurse lecturers were questioned about were characteristics of critical thinkers and their description of critical thinking in nursing. Findings revealed that most respondents expected to see depth of understanding of all elements of nursing practice, exhibit emotional maturity and a mature disciplined approach to learning. Others discussed nursing expertise in which students could interpret subtle cues, prioritise data, distinguish relevant from irrelevant facts, and act efficiently or even intuitively to help their patients. Only a few mentioned motivation and questioning of the teacher's statement as a characteristic for critical thinking, one described a student that seeks information in preparation for the next class. Other findings revealed that there was no consensus in the definition of critical thinking.

### **2.2.2. Critical thinking skills**

Beekman (2000:29) refers to critical thinking as rational and reasonable. Reason and rationality refer to the fact that this type of thinking is based on reasons rather than prejudice, preferences, self-interest or fears. According to Beekman the specific thinking skills involved are the following:

- Distinguishing between verifiable facts and value claims.
- Distinguishing relevant from irrelevant information, claims or reasons.
- Determining the factual accuracy of the statement.
- Determining the credibility of the source.
- Identifying ambiguous claims or arguments.

- Identifying unstated assumptions.
- Detecting bias.
- Identifying logical fallacies.

Recognizing logical inconsistencies in the line of reasoning, Fraser and West (cited in Bruce, et al. 2011:152) identified three aspects exhibited by critical thinkers:

- Alertness to the need to evaluate information, assertions and sources.
- A willingness to test options.
- A desire to consider all viewpoints.

The aforementioned aspects imply that the critical thinker approaches information, assertions and experience with a healthy skepticism about what is really true or accurate or real, as well as with the desire to search through all kinds of evidence and engage in considerable analysis to determine that truth.

Students still do not comprehend the most important principles and concepts that form the basis of acquired factual knowledge. This implies that students utilize the thinking skills of memorizing and not the higher cognitive thinking skills of comprehension, analysis, synthesis and evaluation which are essential in order to function as independent practitioners. It is argued that knowledge (memorizing) without understanding serves no purpose when the nurse is expected to apply a scientific method in nursing. Critical thinking is a learnable skill therefore problems, questions and issues serve as a source of motivation for students (Barrows, Lyte & Butterworth, 2002:158; Bloom 1978:567).

### **2.2.3. Revised Bloom's taxonomy and thinking skills**

In the 1950's Benjamin Bloom developed a taxonomy of cognitive objectives as a means of expressing different kinds of qualitative thinking. It was adapted for classroom use as a planning tool and continues to be one of the most universally applied models. It provides a way to organize thinking skills into six levels, from the most basic to the higher order levels of thinking (Pohl, 2000:7).



In the 1990's Lorin Anderson, a former student of Bloom, together with Krathwohl, co-developer of the original taxonomy improved on Bloom's work. This resulted in the Revised Bloom's Taxonomy (RBT). The RBT is different from the original taxonomy in two ways:

- It rearranges the hierarchical sequence of cognitive behaviour and changes nouns to verbs, reflecting more 'activity' in cognitive processes.
- More significantly, it shows how cognitive processes interface with the different types of knowledge – factual, conceptual, procedural and metacognitive (Bruce, et al. 2011:173).

The names of the six major categories were changed from noun to verb forms, as the taxonomy reflects different forms of thinking and thinking is an active process and as a result verbs were found to be more accurate. Some subcategories were reorganized, the knowledge category was renamed. Knowledge is the product of thinking and was replaced with the word remembering, comprehension became understanding and synthesis was renamed creating (Pohl, 2000:8).

#### **2.2.4. Developing students' thinking**

Before problem solving can be utilized as an effective teaching strategy, students must be assisted to become effective thinkers. There is considerable literature available on how to teach students how to think. As an example De Bono (1985:201) suggests the six thinking hats technique where students can be taught about deliberate choices about the type of thinking that they use. He suggests that to solve real world problems, people have to think objectively, emotionally, negatively, positively, creatively and systematically.

He also provides a list of thinking skills that might help lecturers to enhance students' thinking, namely:

- Focusing skills.
- Information gathering skills.
- Organizing skills.

- Analyzing and integrating skills.
- Evaluating skills.

## **2.3. FACILITATION OF LEARNING/OUTCOMES-BASED EDUCATION**

The OBE curriculum was instituted in South Africa with the aim of developing a thinking, problem solving citizen who would be empowered to participate in the development of the country in an active and productive way (Van der Horst & McDonald, 2003:4). This paradigm shift implies that lecturers and trainers should not teach or train, but rather facilitate learning by stimulating creativity, self-learning and critical thinking (Olivier, 2000:70).

### **2.3.1. Strategies to overcome obstacles in the facilitation of critical thinking in nursing education.**

The following obstacles were identified and recontextualised within the existing literature in order to be able to describe the strategies to overcome identified obstacles to the facilitation of critical thinking in students:

- Lecturers' lack of knowledge.
- Use of teaching and assessment strategies that do not facilitate critical thinking in students.
- Negative attitudes of lecturers and their resistance to change.
- Inappropriate selection processes and poor educational background that did not facilitate critical thinking.
- Inadequate socialization.
- Cultural and instructional language incompetence.

These findings indicated that there is a need for nurse lecturers to model critical thinking in all aspects of nursing education. It is recommended that there be a complete paradigm shift in nursing education from the traditional teacher-centred methods to a

more student-centred approach that will facilitate critical thinking in student nurses (Mangena & Chabeli, 2005:295).

## **2.4. OUTCOMES-BASED EDUCATION**

The OBE approach increases motivation since relevance is immediately obvious because the learning outcomes are clear, and evaluation is potentially more valid. The curriculum usually allows for different pathways to the outcomes, and this allows for more individualization and contextualization (Uys & Gwele, 2005:17).

OBE can be described as an approach that requires lecturers and students to focus on the desired end results or outcomes of the learning process. Students have to demonstrate their attainment of these outcomes. To obtain proof of attainment, students must be assessed on a continuous basis. Lecturers are required to use the learning outcomes as the focus for their planning of teaching strategies.

All education and training in South Africa must be conducted in an outcomes-based manner. The purpose of this is to enhance lifelong learning and furnish students with the ability to cope with the outside world. The core drivers for the application of OBE in nursing curricula are SAQA and the National Standards Bodies (NSB) for health and welfare. Nurse lecturers need to understand, and apply this understanding of the concepts and principles of OBE by using different scenarios. Students should receive the necessary guidance and facilitation from nurse lecturers (Meyer & van Niekerk, 2008:25).

Lekalakala-Mokgele and du Rand (2005:22) maintain that facilitation requires that students should assume control and direct their own learning. They further state that facilitation is based on the principles of adult learning and requires the involvement of both students and their lecturers. In order to understand how to educate and train using the OBE approach, the nurse educator needs to be familiar with the SAQA regulations because SAQA is one of the drivers of OBE.

OBE moves away from 'transmission' models to constructivist, student-centered models that place the emphasis on learning as an active process. Facilitators are responsible

for creating an environment that is conducive for students to construct their own knowledge, skills and values through interaction. The first critical cross-field outcome accepted by the SAQA is that students should be able to identify and solve problems by using critical and creative thinking skills (Chabeli, 2006:85). The goal of facilitated learning in nursing education is to produce a competent, theoretical and practical nurse, because nursing is a practice-based profession. Therefore facilitation occurs in both the classroom and the clinical setting (Lekalakala-Mokgele & du Rand, 2005:26).

## **2.5. TEACHING STRATEGIES**

When planning lessons, teachers have to be aware of appropriate teaching strategies and materials that can be used to create meaningful learning opportunities for students. Without the necessary knowledge of teaching strategies that are applicable in their learning areas, teachers will most probably plan and implement their lessons in the traditional expository way that they were subjected to as students. Such a situation clearly nullifies the intentions of OBE (Jacobs, Vakalisa & Gawe, 2004:319).

According to Dickerson (2005:70) the continuing education environment offers unique opportunities to assist nurse students in developing critical thinking skills. Adjustments in typical teaching strategies and student-centred approaches to learning are required in order to facilitate this process.

For students to develop personally they need to be actively involved in their learning. Active learning strategies mentioned by Youngblood and Beitz (2001:3) include portfolio development, clinical case studies, active examination preparation and deconstruction, as well as cooperative learning. Reflection is an in-depth consideration of events and situations outside of oneself: alone or with critical support. The reflector attempts to work out what happened, what they thought or felt about it, why, who was involved and when and what these others may have experienced and thought and felt about it. Reflection means looking at whole scenarios from as many angles as possible. This involves reviewing or reliving the experience in order to bring it into focus (Bolton, 2005:9).

Reflective practice is about learning from our experiences, and developing our practice as a result. Reflective learning is the process of learning from our experiences, considering and rethinking our previous knowledge and adding this new learning to our knowledge base to inform our practice (Jasper, 2006:40).

Ellerman, Kataoka-Yahino & Wong, (2006:221) assert that, over time, various methods have been used to stimulate critical thinking in undergraduate nursing students, and although many have been successful in helping students integrate the essential knowledge, experiences, and clinical reasoning that support practice, it is also useful to explore new methods. The specific instructional methods used include concept mapping, concept papers, conceptual linking, and subtraction.

### **2.5.1. Assignments**

Chen & Lin (2003:139) acknowledge that critical thinking is essential for professional nursing practice and that promoting critical thinking by means of teaching strategies has been a focus of nursing education and nursing research. Reading and writing assignments are teaching strategies used for fostering critical thinking ability. In their study changes in thinking patterns and learning attitudes, as well as a feeling of growth and achievement, were found in the content analysis of students' self-evaluation of their learning experiences and perceptions.

Critical thinking skills were applied while learning during the course. The results not only provide evidence to support the positive effect of reading and writing assignments on critical thinking ability but also confirm the teaching and learning activity design for the course. Formal or informal writing assignments, brief case studies, questions that involve reasoning skills, an ability to organize and articulate knowledge and getting into dialogue around complex problems are said to be strategies to encourage critical thinking (Simpson & Courtney, 2002:9).

### **2.5.2. Role-playing**

Role-playing is a form of drama in which students spontaneously act out roles in an interaction involving problems or challenges in human relations (De Young, 2009:147).

Role-play is a student-centred teaching strategy since it involves students acting out a theme (Nieman & Monyai, 2006:122).

### **2.5.3. Concept mapping**

Novice graduate nurses are often deficient in the critical thinking skills needed to assess and handle patient problems and life-threatening situations. Concept mapping is an effective teaching strategy for developing critical thinking and clinical decision-making skills. Concept mapping is a valuable teaching and evaluation strategy that can be used by nursing lecturers to improve critical thinking as well as to identify and correct areas of theoretical and clinical deficiency (Wilgis & McConell, 2008:123).

A concept map can be thought of as a scheme representing visual knowledge in the form of a hierarchical graphic network composed of nodes and links. In the complex health environment, it is very important for nursing lecturers to cultivate thinking and judgment skills in nursing students. Concept mapping is an instructional strategy that requires students to identify, graphically display, and link key concepts by organizing and analyzing information. Concept maps can be successfully used to teach conceptual thinking, thus increasing students' competence in critical thinking in the modern paradigm (Taylor & Wros, 2007:214).

Concept mapping has many applications and has been used as an effective teaching strategy in nursing and other disciplines to evaluate both content knowledge and student thinking patterns. Previous applications related to the planning of nursing care usually organize client information around a medical diagnosis. Instead the approach described is focused around the reason for nursing care and a holistic nursing view of the client, rather than a disease model (Taylor & Wros, 2007:214).

### **2.5.4. Portfolio**

A portfolio, when used in the professional context, is simply a collection of documents that present a picture of the professional. It is similar to a photo album but uses words, not visual pictures (Jasper, 2006:155). A student's portfolio can be used to assess

critical thinking. Such a portfolio may include papers, journals, teaching plans and other items that documents growth in thinking (De Young, 2009:232).

#### **2.5.4.1. Students' use of portfolios**

The majority of students doing pre registration courses will be introduced to portfolio construction within their programme of study. These portfolios are specifically designed to demonstrate the acquisition and development of competence and are essentially learning portfolios whose purpose is to demonstrate the achievements of specified learning outcomes (Jasper, 2006:156).

Similarly McMillan, Endacott & Gray (2003:286) identified the cognitive processes involved in using a portfolio as a learning tool by referring to the analysis that takes place within a dynamic and living process of construction. This moves the concept of a portfolio from being a recording device to one of activity and interaction, used on a continuous basis through a practitioner's life.

#### **2.5.4.2. Portfolios and critical thinking**

Critical thinking is facilitated through reflective writing. The process of writing reflectively as practiced in portfolios enabled the nurses involved to find the space to explore issues in an analytical and critical way. In itself this provides evidence of the development of critical thinking. But, in addition, it illustrates the practitioner's decision making processes, demonstrating how conclusions are arrived at, having considered and rejected a range of alternatives to action (Jasper, 2006:172).

#### **2.5.5. Case study**

Case-based teaching is regarded as a superior instructional method compared with lectures in promoting a student's critical thinking skills. While much is known about the role a discussion facilitator plays in case-based teaching, the debate around the influence of the format and structure of cases on learning is controversial (Kim, Phillip, Pinsky, Brock, Phillips & Keary, 2006:870).

### **2.5.6. Debate**

Bell, in Simpson and Courtney (2002:4), states that debate is a strategy essential to the development of critical thinking. Nurse lecturers can enhance this development by involving students in debates, for example, sessions for debate could be created around the subject of Ethics and Professional Practice by the use of scenarios or case studies. Oermann & Gaberson (2009:161) further explain that debate provides an effective mechanism for assessing the students' ability to analyse problems and issues in depth, consider alternative points of view, and formulate a position. This process including preparing arguments for the position taken provide an opportunity for an assessment of students' critical thinking skills.

Debate has the added advantage of not only raising the students' awareness of issues and values but also giving them the opportunity to formulate an argument and present it in a public arena (Quinn & Hughes, 2007:259).

### **2.5.7. Lecture**

Russell, Comello & Wright, (2007:21) state that even with so many teaching strategies, the oldest and most frequently used method in classroom teaching today remains the lecture. The lecture has many advantages, including the ability to provide information to a large number of students, to cover a large amount of material quickly and to provide cost effectiveness as well as the efficient use of class time. The lecture is a way to introduce new material, continue discussion of a topic and sum up course content, as well as present large blocks of complex and confusing content.

They further attest that, on the other hand, lectures provide fewer opportunities for students to process information and develop problem solving skills. Lectures lose students' interest quickly, give no opportunity to provide feedback, do not allow students to skip the content that they know or work at their own self-directed pace as well as promoting a teacher-centered environment instead of a student-centered environment. Unfortunately, lectures allow students to be passive students, depending solely on the faculty to teach them information instead of actively involving themselves in the learning process.



## **2.6. PROBLEM-BASED LEARNING (PBL)**

### **2.6.1. Origins of PBL**

PBL began over 35 years ago at McMaster University School of Medicine in Canada and has spread to medical schools in the United States and all over the world (De Young 2009:152). Although initially used with medical students, PBL has increasingly been used in nursing education (Oldenburg & Hung, 2010:219). Organizations such as the World Health Organization (WHO) and the World Bank recommend the use of PBL approaches in programmes that prepare health professionals because PBL allows a program to reflect the health care problems prevalent in the areas where students will be working (Wilkie & Burns, 2003:3).

### **2.6.2. Objectives of PBL**

According to Engel in Probalac (2001:11) some objectives of PBL require the student to be able to:

- Develop high professional competency.
- Deal with problems.
- Reason critically and creatively.
- Make reasoned decisions in unfamiliar situations.
- Adapt to, and participate in change.
- Appreciate another person's point of view.
- Make self evaluations, identify own strengths and weaknesses and undertake appropriate remedies.
- Work productively as a team member.

### **2.6.3. Problem-based Learning as a teaching strategy**

Strategies to facilitate the development of problem solving and critical thinking skills must be identified to help students meet the demand of the health care setting. PBL has

been promoted as a means for the development of those skills (Oldenburg & Hung, 2010:219). PBL is also regarded as an attempt to move from the traditional content centred learning approach to a discovery type approach. Furthermore, it is seen as an effort to develop the students' critical and clinical reasoning skills together with self directed learning (Barrows et.al. 2002:104).

According to De Young (2009:151) PBL is an approach to learning that involves confronting students with real-life problems that provide stimulus for critical thinking and self taught content. PBL is based on the premise that students, working together in small groups facilitated by the educator, will analyse the case, identify their own needs for information, and then solve authentic problems like those that occur in everyday life.

It is likewise stated by Morales-Mann & Kartell (2001:14) that nursing is based mainly on outcomes, as its underlying activities comprise clinical judgments, problem-solving and decision-making. As a student-centred mode teaching, problem solving helps with higher order thinking. It engages the students as a result students attach more meaning to information they have acquired and discovered by themselves (Nieman & Monyai 2006:112).

Solomon in Bradshaw & Lowenstein (2011:137) states that although many variants of PBL have been described, the following essential elements remain:

- Students are presented with a written problem or patient scenario in small groups.
- There is a change in faculty role from imparter of information to facilitator of learning.
- There is an emphasis on student responsibility and self-directed learning.
- A written problem is a stimulus for learning with students engaging in a problem-solving process as they learn and discuss content related to the problem.

An important reason for having students solve problems is to help them gain insights that will enable them to understand the subject matter and to look at it from different perspectives. According to Chaves, Baker, Chaves & Fisher (2006:30) professional competencies are derived from formal, informal, and hidden curricula. PBL is one

pedagogy that addresses all three curriculum types and facilitates the development of key professional competencies such as critical thinking, communication skills, interpersonal relations, and self-assessment.

#### **2.6.4. Benefits of PBL**

PBL approaches are claimed to be more effective than traditional education in preparing student nurses towards registration because they develop critical thinking skills (Nelson & Sadler, 2005:104). PBL orientates the students towards meaning-making over fact collection. This is achieved by developing students into critical thinkers and it encourages reflection. Students are presented with real life contextual situations that trigger thinking. Higher levels of comprehension are achieved as they work through the problems independently or in groups.

#### **2.6.5. Challenges to lecturers and students**

According to Barrows et.al. (2002:55) interest in PBL within nursing education has increased internationally. He also states that internationally several nursing colleges have adopted PBL in their training. Although PBL is a suitable approach for developing critical thinking in students, it has also brought challenges for both lecturers and students. Some of these challenges faced by lecturers are a lack of skills to facilitate learning effectively and formulate real-life scenarios that will trigger students to seek knowledge. On the other hand, Barrows et al. (2002:55) maintains that the student is faced with the responsibility of participating actively within a group, and also as an individual, in order to obtain knowledge.

### **2.7. NURSING PROCESS**

The nursing process is a deliberate problem-solving approach in order to meet an individual's health care and nursing needs. Although the steps of the nursing process have been stated in various ways by different authors, the common components cited are assessment, diagnosis, planning, implementation and evaluation (Smeltzer & Bare, 2004:34).

It is a systematic and scientific approach that nurses apply when investigating patients' problems. A scientific approach begins with a problem to be solved. To solve the problem nurses have to gather information, and through creative and critical thinking draw up an action plan. After the implementation of the plan, results are analyzed and a conclusion is drawn (Beekman, 2000:5).

The main teaching strategy for facilitating the nursing process is PBL. This requires the ability to apply critical thinking skills from students. The SANC (1992:3) explicitly indicates in its philosophy, that the development of critical analytical thinking by the nursing student is essential because nursing practice needs an independent practitioner who is a critical thinker and a good problem solver. Furthermore, the SAQA regulations (1998:8) prescribe that students should be able to identify and solve problems by using critical and creative thinking skills. Many teaching strategies can be used to enhance critical thinking.

Nursing requires an approach that is objective, systematic and goal directed and the nursing process guides nurses when exercising independent judgment (Nursing Act No.33 of 2005) as amended. The rapidly evolving health care system mandates that nurses should be capable of collecting pertinent and appropriate data, distinguishing among several points of view and evaluating multiple lines of reasoning. This requires well-developed critical thinking skills to provide a basis for such decisions and activities (Beeken, Dale, Enos & Yarbrough, 1997:37).

Decision-making is an important aspect of problem solving and critical thinking. Nurses make decisions during each step of the nursing process and all problem solving requires rational decisions. Nurses make decisions about most urgent interventions. Because nursing decisions involve many variables, nurses require critical thinking skills in order to implement the nursing process creatively (Wilkinson, 1992:28).

In decision making related to the nursing process nurses use intellectual skills in critical thinking. These skills include systematic and comprehensive assessment, recognition of assumptions and inconsistencies, verification of reliability and accuracy, identification of

missing information, distinguishing relevant from irrelevant information, support of evidences with facts and conclusions, priority setting with timely decision making, determination of patient specific outcomes, and reassessment of responses and outcomes (Smeltzer, et al. 2008:26).

The nursing process is dynamic and cyclic because it consists of steps that are constantly re-examined for accuracy and appropriateness. The dynamic nature of the nursing process facilitates critical thinking as it involves working backwards and forward within the steps of the nursing process (Alfaro-Lefevre, 1999:71).

The nursing process and the research process have important similarities. The two processes are similar because they both involve abstract, critical thinking and complex reasoning. Using these processes new information can be identified, relationships can be highlighted and predictions can be made about phenomena. In both processes, information is gathered, observations are made, problems are identified, plans are developed and actions are taken. Both processes are reviewed for effectiveness and efficiency, and implementing these processes expands and refines the users' knowledge (Burns & Grove, 2005:35).

## **2.8. ASSESSMENT**

Assessment is an integral part of learning that should focus on deep, active learning and involve high order cognitive skills. Research on academic learning shows that students tend to approach learning in one of two ways and that the different approaches lead to differences in the quality of learning outcomes (Gravett & Geysler, 2004:92).

Assessment should provide feedback to support the learning process. The purpose of assessment also determines the assessor's response to the student. Different types of response are appropriate for different purposes. While summative assessment of the student's progress has to be made, feedback needs to be given to enhance learning. The purpose of formative assessment is to provide constructive and developmental feedback to direct the student to improve (Gravett & Geysler, 2004:98).

Meaningful learning depends on the quality of teaching, as well as on students' involvement in the learning- teaching situation. Assessment is important for the educator and the students alike, because feedback on students' performance enables them to change their knowledge or actions, if necessary in order to attain the objectives (Meyer & van Niekerk, 2008:100).

### **2.8.1. Assessment strategies**

According to Leung, Mok & Wong (2008:718) assessment strategies can influence the learning approaches of nursing students. Assessments designed to assess understanding rather than rote learning can contribute to a deep learning approach. Multiple-choice questions can be formulated at high cognitive levels for nursing assessments.

The findings of their study from four focus group interviews revealed that students believed that assessments constructed using scenario-based questions, simulated role-play situations and case studies could direct desired learning in order to facilitate their understanding of knowledge, their use of critical thinking, and their application of knowledge ( Leung, Mok & Wong, 2008:718).

### **2.8.2. Assessment of students**

Assessment is an ever present reality in the lives of lecturers and is viewed by many as basically referring to the process of determining the student's achievement. It could also serve to support teaching and learning. Assessment is also viewed as an all embracing term which covers any of the situations in which some aspects of the student's education is measured (Maree & Fraser, 2004:33).

The assessment process must be conducted in such a way as to contribute to the learning experience of the student and to provide the student with a greater chance to succeed. Assessment should discover what the student has learnt, rather than what has been taught and should therefore reflect as closely as possible the actual tasks performed (Bligh, 2001:312). For instance portfolios contain an assortment of the

students' work, this gives more of an idea of what the student can do, not what he cannot do (Kruger & Nel, 2011:59).

Furthermore Thompson and Bartels (1999:171) states that learning entails more than merely what the students know. Learning involves not only knowledge and abilities but also values, attitudes and habits of mind that affect both academic success and performance beyond the classroom level. This implies that nurse lecturers should expose students to multiple instructional and assessment strategies.

### **2.8.3. Assessing critical thinking**

A number of tests pertaining to critical thinking are generally applied in nursing education (Quinn & Hughes, 2007:67). Although these tests contain different types of items, there is considerable overlap within them. Quinn discusses the Watson-Glaser test as a classical example. This tests the subjects' ability on five aspects of critical thinking, namely:

- Inference: This is a conclusion based on facts or observations.
- Assumptions: It refers to something's that is taken for granted.
- Deduction: This refers to drawing conclusions from stated premises.
- Interpretation: This involves judgment based on the facts given.
- Evaluation of arguments: Refers to the ability to distinguish between strong and weak arguments.

## **2.9. INCORPORATING COMPUTERS INTO LEARNING AND TEACHING**

Quinn & Hughes (2007: 215) state that computer- assisted learning (CAL) is particularly useful for independent, self managed learning. Students using a computer can take the material at their own pace, referring to previous sections as and when they deem necessary. They can answer the questions posed by the program in total privacy, without the embarrassment of having their lack of knowledge exposed to their peers.

CAL can help to foster the intuitive kind of thinking that is important for discovery learning, by presenting problem-based information from which the student has to make hypotheses, subsequently checking his or her own answers against the computer (Quinn & Hughes, 2007: 215).

The explosive growth of the internet as an information, business and entertainment tool during the last decade has rapidly extended to the education section. The internet continues to have a profound effect on education and also higher education. According to van der Westhuizen as cited in (Gravett & Geyser, 2004:157) higher education institutions worldwide have adopted some form of technological support to supplement or even replace existing instructional practices.

The internet can also provide important information and search engines that help the researcher to find information. The complete text is usually available on line, thus on the computer screen and can be downloaded and printed (Rossouw, 2003:105).

Problem solving is a teaching strategy that readily enables lecturers to use computers as a teaching tool. The World Wide Web is a particularly valuable resource because of its ability to actively engage students in the process of seeking information and solving problems. Students can use computers as a means of obtaining information relevant to the problem they are investigating or as a tool for processing and reporting the information they find and generate. When it comes to educational technology, nurse lecturers need to have access to computer programs which facilitate learning and reduce preparation time, an example is PowerPoint and part of Windows Office Suite (Armstrong, Geyer, Mngomezulu, Potgieter & Subedar, 2008:156).

### **2.9.1. Multimedia**

Due to the advances in computer speeds and storage space, multimedia is commonplace today. As the name implies, multimedia comprises the integration of multiple forms of media. This includes text, graphics, audio, video, etc. For example a presentation that involves audio and video clips would be considered a “multimedia presentation”. Educational software that includes animations, sound and text is called “multimedia software”. CDs and DVDs are often considered to be “multimedia formats”



since they can store a lot of data and most forms of multimedia require a lot of disk space (Tech Terms Computer Dictionary:<http://www>. Accessed on 2009/08/17)

## **2.10. SUMMARY**

Critical and creative thinking is one of the seven critical outcomes that have been accepted by SAQA, and should be used by students in order to be able to identify and solve problems (Van der Horst & McDonald, 2003:47). In the nursing profession the development of analytical and critical thinking is essential in order to ensure that the nursing student becomes an independent practitioner who is a critical thinker and a problem solver. In this chapter a literature review was discussed with the focus on critical thinking, facilitation of learning, OBE, teaching strategies, PBL, the nursing process and assessment.

The next chapter will focus on the description of the research methodology, its components and application in this study.

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1. INTRODUCTION**

The purpose of this chapter is to describe and justify the research methodology used in this research study. The research design selected should enhance the validity and reliability of the study. The purpose of this study was to investigate the teaching and assessment strategies utilized in the facilitation of learning for first year level students in the subject GNS I.

### **3.2. RESEARCH METHODOLOGY**

#### **3.2.1. Research Design**

Mouton (2001:55) defines the research design as the “plan or blue print as to how one intends to conduct the research”. In addition (Burns & Grove, 2009:218) describe the research design as a plan of action to obtain information.

For the purpose of this study a quantitative, descriptive and contextual research design was used to determine whether the teaching and assessment strategies utilized by the lecturers in the first level of training of the four year comprehensive course in GNS I are appropriate and conducive for the stimulation of critical thinking skills.

##### **3.2.1.1. Quantitative Design**

Quantitative researchers typically move in a systematic fashion from a definition of a problem and the selection of concepts on which to focus, to the solution of the problem. By systematic we mean that the investigator progresses logically through a series of steps, according to a pre-specified plan of action. The researcher uses mechanisms designed to manage the study to the maximum extent possible, which entails the placing of conditions on the research situation so that biases are minimized and precision and validity are maximized.

Quantitative researchers gather empirical evidence i.e. evidence that is rooted in

objective reality and gathered directly or indirectly through the senses rather than through personal beliefs or hunches (Polit & Beck, 2006:15).

The researcher opted for a quantitative research design because empirical evidence was preferred to personal beliefs. Only first year students and lecturers facilitating GNS in the first year of training in the three Gauteng Nursing Colleges could participate in this research study. The large population size also warranted the utilization of a quantitative research design.

#### **3.2.1.2. Descriptive Design**

Descriptive study designs are crafted to gain more information about characteristics within a particular field of study. Their purpose is to provide a picture of situations as they naturally happen (Burns & Grove, 2009:237). No manipulation of variables is involved in a descriptive design. Protection against bias is achieved through conceptual and operational definitions of variables, sample selection and size, valid and reliable instruments (Burns & Grove, 2011:265). Concepts such as teaching strategies, critical analytical thinking and assessment were investigated in this study. Convenience sample was used and the sample size was determined by the number of lecturers and students that were available. A questionnaire was utilized to collect data.

#### **3.2.1.3. Contextual Design**

Burns and Grove (2005:14) define a contextual design as a study that is carried out within a specific area and that the results of the study would only be valid for the situation in which the study was conducted. The study was contextual because it was conducted at the Gauteng Nursing Colleges on first year students and lecturers that facilitate GNS in the first year of training.

### **3.2.2. Population**

Polit and Beck (2006:259) describe a population as being the totality of all the subjects that conform to a set of specifications. This study was conducted on two populations consisting of lecturers who facilitate the learning of GNS in the first year of training and

all the first year students in the four-year comprehensive course at three nursing colleges in Gauteng. Considering that the study consists of two populations, the researcher referred to the subjects as lecturers and students respectively to avoid confusion. All the lecturers who facilitate learning in GNS I at the three Nursing Colleges in Gauteng formed the population for this study. Twenty-four lecturers were involved. The population size of the students were 818 and consisted of all the students in the first year of training and thus students in GNS I.

### **3.2.3. Sampling**

Sampling is a process of selecting subjects, events, behaviors, or elements for participation in a study (Burns & Grove, 2009:35). A convenience sample was utilized for the selection of students in this study because it was students that would be available at the college when the data was collected. According to Burns & Grove (2009:342) the respondents are included in the study because they happen to be at the right place at the right time. Convenience sampling entails using the most conveniently available people as study respondents, a faculty member who distributes questionnaires to nursing students in a class is using a convenience sample (Polit & Beck, 2008:341) The sample size was determined by the number of lecturers and students who were available.

#### **Lecturers**

All the first year lecturers that facilitate GNS I were included in the sample, as their numbers were not large. However the lecturer that was pre-tested the instrument was excluded in the study. Twenty three questionnaires were distributed to all the first year lecturers by the researcher after the weekly personnel meetings. All the questionnaires were returned, which was a 100% (N=23) response rate.

#### **Students**

The study was conducted on the students during their last block of their first year, to ensure that they had been exposed to the facilitation of GNS in the first year of the course. In a block system the programme time is divided into “blocks” which are

dedicated to either classroom teaching or clinical placement. This system allows for the classroom teaching to be centralised and clinical learning to be decentralized (Uys & Gwele, 2005:62). The researcher had to visit the institutions more than once because two of the colleges were implementing a staggered block programme, meaning that the students came for the block in different groups at different times of the year. Students that pre-tested the instrument were excluded in the study.

The researcher distributed questionnaires to all students that were present. The sample thus comprised of 818 students. Eight hundred questionnaires were distributed, as not all the students were present on the date that the data was collected.

#### **3.2.4. Research instrument**

Compilation of the questionnaire was done in consultation with the statistician and the researcher's supervisors, based on the literature review regarding facilitation and assessment of critical thinking skills. The questionnaire utilized by Prinsloo (2003:35) in her study was used as a guideline in the compilation of the questionnaires. Questions were sequenced in a meaningful manner so as to ensure cooperation.

The instrument made provision for open- ended and closed- ended questions. Open- ended questions made provision for motivating the use of teaching strategies to facilitate learning. There were two questionnaires: (Appendix E) questionnaire for lecturers and (Appendix F) questionnaire for students.

**Table 1: The lecturers' questionnaire**

<b>THE LECTURERS' QUESTIONNAIRE WAS DIVIDED AS FOLLOWS:</b>	
<b>ITEM</b>	<b>RATIONALE</b>
<b>3.2.4.1 Demographic data.</b>	
This section included questions pertaining to:	To detect:
I. The lecturers' qualifications	The lecturers' highest level of qualification.
II. (ii) Years of experience as a lecturer	The lecturers' years of experience in Nursing Education.
<b>3.2.4.2 Teaching and assessment strategies.</b>	
This section included questions pertaining to:	To detect:
I. Characteristics of critical thinking	Whether lecturers were aware of the important critical thinking skills' characteristics in a student.
II. Teaching strategies utilized by lecturers in the facilitation of learning	Whether the teaching strategies utilized by the lecturers enhance the students' critical thinking.
III. Assessment strategies utilized by lecturers in the facilitation of learning	Whether the assessment strategies utilized by the lecturers develop the students' critical thinking.
IV. Response of lecturers to wrong answers	Whether the lecturers encourage the students to solve problems.



V.	In-service Training	Whether the lecturers are updated on relevant courses for facilitating critical thinking skills.
VI.	Utilization of computer programmes	Whether lecturers utilize information technology for teaching in order to download exercises that would develop critical thinking.
VII.	Training in computer courses	Whether lecturers are computer literate
VIII.	Accessible to educational facilities	Whether lecturers have access to educational facilities that will stimulate critical thinking.
IX.	Teaching aids utilized in the classroom to facilitate learning	Whether the teaching aids utilized by the lecturers develop the students' critical thinking.
X.	Utilization of multimedia in assignments to facilitate learning	Whether the lecturers encourage students to use multiple forms of media for the assignments.

**Table 2: The students' questionnaire**

<b>THE STUDENTS' QUESTIONNAIRE CONSISTED OF 12 QUESTIONS DIVIDED AS FOLLOWS:</b>	
<b>ITEM</b>	<b>RATIONALE</b>
<b>3.2.4.3. Demographic data</b>	
This section included questions pertaining to:	To detect:
I. Age	Whether students were exposed to traditional basic education or OBE. Younger students were exposed to OBE at high school level.
II. Experience in nursing	Whether students were have had the chance do some practical nursing.
<b>3.2.4.4 Teaching and assessment strategies.</b>	
This section included questions pertaining to:	To detect:
I. Characteristics of critical thinking	Detect which characteristics of critical thinking were considered important.
II. Teaching strategies utilized by lecturers in the facilitation of learning	Indicate the teaching strategies utilized by lecturers.
III. Assessment strategies utilized by lecturers in the facilitation of learning	Indicate the assessment strategies utilized by lecturers.



IV.	Response of lecturers to wrong answers	Indicate the lecturers' response to wrong answers.
V.	Availability of media to students to facilitate learning	Indicate the available media in their institutions.
VI.	Teaching aids utilized in the classroom to facilitate learning	Indicate the teaching aids utilized by the lecturers.
VII.	Encouraged to use multimedia	Indicate whether lecturers encourage using multimedia when given assignments.
VIII.	Availability of multimedia to facilitate learning	Indicate whether lecturers give multimedia when given assignments

A covering letter was attached to the questionnaire which explained the purpose of the research. It also contained the researcher's contact information. (See appendix C).

### 3.2.5. Data collection

The lecturers from each of the three colleges were addressed during a personnel meeting regarding the study and a suitable date and time was set for the distribution of the questionnaires to the lecturers and to first year students during the last block of the academic year. The questionnaires were distributed to the lecturers and the students on the agreed date and time and the researcher was present to clarify any misunderstanding regarding the tool. The questionnaire consisted of appendix E, which was distributed to lecturers and appendix F, which was distributed to the students. Respondents were requested not to give any identifiable information on the questionnaires and to place completed questionnaires in the box provided in each of the venues to ensure confidentiality and anonymity.

### **3.2.6. Self-administered questionnaires**

The researcher personally distributed and collected the questionnaires from the lecturers and students. She explained and clarified concepts and/or procedures when required to do so. DeVos, Strydom, Fouche and Delport (2011:188) state that the researcher can self-administer the questionnaires to the respondents, who complete them on their own but the researcher is available in case problems are encountered. The researcher limited her own contribution towards the completion of the questionnaire to the absolute minimum, and the researcher remained largely in the background. The questionnaires were completed at the respective colleges and it took approximately thirty minutes to complete them.

### **3.2.7. Data analysis**

A quantitative data analysis was done with the assistance of a statistician who used a statistical software package, namely SPSS version 14, to obtain both a descriptive and a statistical summarization of data. The findings will be depicted in tables and graphs.

## **3.3 VALIDITY AND RELIABILITY OF THE INSTRUMENT**

### **3.3.1 Pre-testing of the instrument**

Pre-test is the collection of data prior to the experimental intervention or the trial administration of a newly developed instrument to identify flaws or assess time requirements (Polit & Beck, 2008:761). The pre-testing of a measuring instrument was tried out on a small number of persons having characteristics similar to those of the target group of respondents. Although findings cannot be generalized, all the heterogeneous factors must be taken into consideration (De Vos, et.al. 2011:206).

The researcher tested the feasibility of the questionnaire by distributing the lecturers' questionnaire to one educator who facilitates learning of GNS level one, the lecturer was randomly selected at one of the three colleges where the study was conducted.

The systematic sampling process was used to select students, this process is used when an ordered list of all members of the population is available. The process involves selecting every  $k$ th individual on the list (Burns & Grove, 2011:303). The researcher randomly selected the students from the attendance registers of the three nursing colleges in Gauteng. The students for the pre-test of the instrument were selected as follows:

The first student on the attendance list was selected, then the 81<sup>st</sup> student followed by the 91<sup>st</sup> and the 94<sup>th</sup> student. Then they were invited to participate.

These lecturers and students were not part of the major study sample. The researcher was available to clarify concepts and/or procedures when required to do so. The questions were not ambiguous on both questionnaires; there was no indication to alter any questions. The time spent by the respondents on filling of the questionnaire was thirty minutes.

### **3.3.2. Validity**

Validity is the degree to which an instrument measures what it is supposed to measure. Validity in this study will be determined through cross validation, namely face validity and content validity. Face validity means that the instrument looks as though it will measure the appropriate construct and content validity looks at the degree to which an instrument has an appropriate sample of items for the construct being measured (Polit & Beck, 2006:422). Content validity examines the extent to which the method of measurement includes all the major elements relevant to the construct being measured. Literature, representatives of the relevant populations and content experts are the three sources that should be evident in the study (Burns & Grove, 2009:381).

In this study the questions asked in the questionnaire were specific with regard to teaching strategies and assessment strategies that are associated with the development of critical thinking in the facilitation of learning for first level students in GNS I. The validity of the content was judged by three academics who are specialists in lecturing and in research. The pre-test of the instrument was conducted to determine

whether the instrument is clearly worded, free from bias, and that it elicited the type of information envisioned and determined how much time it would take to complete (Polit & Beck, 2006:328).

### **3.3.3. Reliability**

According to Polit and Beck (2006:416) the instruments' reliability is the consistency with which it measures the target attribute. The questionnaire's reliability was determined by the consistency of the responses from the different nursing colleges. Equivalence of the results will indicate the reliability of the questionnaire. The reliability of the questionnaire was tested during the pre-test.

## **3.4. ETHICAL CONSIDERATIONS**

Permission to conduct this study was sought from the Ethics Committee of the Faculty of Health Sciences of the University of Pretoria, the ethics committee of the Gauteng Department of Health, the principals of the three nursing colleges where the study was conducted as well as from the respondents. The researcher is the Head of the Community Nursing Science Department at a campus of one of the colleges and that campus was not any of the research sites.

Participation in the study was voluntary and the respondents were given the opportunity to withdraw from the study at any time. All respondents were informed of the purpose of the study and that the research results will be made available to all respondents on request. The respondents were protected from discomfort and harm. There was no known anticipated harm in the study except for the time taken to complete the questionnaire. Brink (2006:31) states that there are three fundamental ethical principles that guide researchers: respect for persons, beneficence and justice. These principles are based on human rights that need to be protected in research, namely the right to self determination, privacy, anonymity and confidentiality, fair treatment and protection from discomfort and harm.

### **3.4.1. Confidentiality and anonymity**

Measures to ensure confidentiality and anonymity were taken during data collection. The respondents' names were not revealed. The respondents were informed that they should not indicate their names on the questionnaires. The researcher ensured that there was no link between the specific data and a specific person or institution. The research results would be made available to the respondents on request. According to Brink (2006:34) anonymity literally means namelessness. Therefore the process of ensuring anonymity refers to the researcher's act of keeping the subjects' identities a secret with regard to their participation in the research study, whereas confidentiality refers to the researcher's responsibility to prevent any data gathered during the study from being divulged or made available to any other person (Brink, 2006:35).

### **3.4.2. Informed consent**

Permission to conduct the study was obtained from the University of Pretoria Ethics Committee, Gauteng Ethics Committee and the three Gauteng Nursing Colleges. The benefits of the research were stated to both the respondents and the institutions. Informed consent was obtained from respondents in the form of an agreement to participate in the research. The respondents were not coerced to take part and they could terminate their participation in the study at any time. Polit & Beck (2006:93) assert that one particularly important procedure for safeguarding human subjects and protecting their right to self determination involves obtaining their informed consent. Informed consent means that the respondents have adequate information regarding the research, have comprehended the information and also have the power of free choice.

## **3.5. SUMMARY**

The components of the research methodology namely research design, target population, sampling, research instrument, data collection, data analysis were described.

Chapter four will focus on the interpretation of the collected data.

## **CHAPTER 4: DISCUSSION OF FINDINGS**

### **4.1. INTRODUCTION**

The SANC (1992) states that “the purpose of Nursing Education is to develop the student at a personal and professional level to become an independent, knowledgeable, safe practitioner with analytical and critical thinking skills” (SANC, 1992:3). This implies that lecturers should make use of OBE and PBL teaching methods in their facilitation of learning, as well as during assessment because PBL strategies enhance critical thinking skills and assist in developing students’ decision-making skills. Accordingly, the outcome of nursing education should result in an independent, knowledgeable, competent and safe professional nurse.

In this chapter the researcher discusses the finding. Data was collected from two different sources (i.e. students and lecturers). Data analysis was carried out by using the SPSS version 14 statistics program. Two different questionnaires were compiled and, therefore the discussion of the findings will be done separately for each questionnaire in stages one and two respectively, with regard to teaching strategies utilized by the lecturers in the facilitation of learning for first level students in GNS.

### **4.2. DATA ANALYSIS**

In a quantitative paradigm data analysis does not in itself provide the answers to research questions, answers are found by way of interpretation of the data and results. Interpretation and analysis are closely intertwined, one automatically interprets as one analyses (De Vos, et al. 218:2011). The data that was received from the respondents was analyzed with the assistance of the statistician from the University of Pretoria who used a statistical software package, namely SPSS version 14, to obtain both descriptive and statistical summarization of the data.

The data will be described as indicated in the histograms and tables, followed by a discussion of the findings by using relevant research and theoretical literature. The findings will be re-contextualized within the existing literature (Mouton, 2001:109).

Histograms are constructed like bar graphs, but the data reflect frequencies in class intervals for continuous variables. As in the bar graphs, the frequency for the independent variables is grouped and the graph displays the frequency of the categorical scores. However, in the histogram the graphs are drawn with their sides touching. This reflects the natural and hierarchical order of the data (De Vos, et al. 2011:229). The data obtained from the lecturers and the students was analyzed according to questionnaire sections as follows: Section 1: Demographic factors, Section 2: Characteristics of critical thinking and Section 3: Teaching strategies as well as assessment strategies that enhance critical thinking. In each section analysis of data was done question by question.

#### 4.2.1. Lecturers questionnaire

##### 4.2.1.1 Demographic data

The question was asked to determine the lecturers' qualifications and their years of experience as lecturers as outlined in Tables 3 and 4.

#### Highest qualifications obtained by the lecturers

**Table 3: Highest qualifications obtained by the lecturers (N=23)**

<b>HIGHEST QUALIFICATIONS OBTAINED BY THE LECTURERS</b>		
<b>Qualification</b>	<b>Number of lecturers</b>	<b>Percentage</b>
Degree in Nursing Education	(n=17)	74%
Diploma in Nursing	(n=4)	17%
Masters Degree	(n=2)	9%
PhD	(n=0)	0%

The lecturers were asked to indicate their highest qualifications. According to table 3 it is evident that 74% (n=17) of the lecturers have a degree in Nursing Education, however it is of concern that only 9% (n=2) of the lecturers have a Masters' degree.

Although a typing error in the questionnaire could have caused some misunderstanding, as it does not specify Diploma in Nursing Education it seems as if the respondents interpreted the question as it was intended. No one marked both Diploma in Nursing and Degree in Nursing Education.

### Lecturers' years of experience in Nursing Education

**Table 4: Years of experience in nursing education (N=23)**

YEARS OF EXPERIENCE IN NURSING EDUCATION		
Years	Number of lecturers	Percentage
0-3	(n=10)	44%
3-6	(n=6)	26%
6-9	(n=3)	13%
9-12	(n=4)	17%

The lecturers were asked to indicate their years of experience in Nursing Education. It is evident from table 4 that most of the lecturers are not experienced in Nursing Education as can be seen by a response of 44% (n=10) only having 0-3 years of exposure in Nursing Education. Lack of experience in Nursing Education can be a challenge in the facilitation of GNS I. Although the experienced lecturers with 9-12 years of experience are a few as seen by a response of 17% (n=4), they at least could impart their knowledge to lecturers who have only 0-3 years of experience in Nursing Education.



## Important characteristics in a student with critical thinking skills

Table 5: Important characteristics in a student with critical thinking skills (N=23)

<b>IMPORTANT CHARACTERISTICS IN A STUDENT WITH CRITICAL THINKING SKILLS</b>					
<b>Characteristic</b>	<b>Not important</b>	<b>Slightly important</b>	<b>Important</b>	<b>Utmost important</b>	<b>Missing frequencies</b>
<b>Analytical Thinking</b>	--	--	26%(n=6)	70%(n=16)	4%(n=1)
<b>Self confidence</b>	--	--	53%(n=12)	39%(n=9)	8%(n=2)
<b>Prioritise</b>	--	--	53%(n=12)	43%(n=10)	4%(n=1)
<b>Scientific reasoning</b>	--	--	61%(n=14)	35%(n=8)	4%(n=1)
<b>Systematic approach</b>	--	--	35%(n=8)	57%(n=13)	8%(n=2)
<b>Theory/Practical correlation</b>	--	4%(n=1)	39%(n=9)	53%(n=12)	4%(n=1)
<b>Answer questioning</b>	--	27%(n=6)	43%(n=10)	26%(n=6)	4%(n=1)
<b>Search evidence</b>	--	--	53%(n=12)	39%(n=9)	8%(n=2)
<b>Ignore irrelevant information</b>	8%(n=2)	24%(n=5)	43%(n=10)	17%(n=4)	8%(n=2)
<b>Open-mindedness</b>	4%(n=1)	4%(n=1)	31%(n=7)	57%(n=13)	4%(n=1)

## **Important characteristics in a student with critical thinking skills**

Lecturers were asked about important critical thinking skills' characteristics in a student. Table 5 illustrates that 96% (n=22) of the 23 lecturers responded positively to the question regarding analytical thinking, scientific reasoning and prioritising. Seventy percent (n=16) considered analytical thinking as a characteristic of utmost importance, with 61% (n=14) considering scientific reasoning as an important characteristic and 53% (n=12) considering prioritising as an important characteristic in a student with critical thinking skills.

Ninety one percent (n=21) of the 23 lecturers responded positively to the question on self confidence and systematic approach, 53% (n=12) of the lecturers indicated that self confidence is important characteristics and 57%(n=13) indicated that systematic approach is a characteristic of utmost importance in a student with critical thinking skills. This is a positive response because these characteristics are crucial in a student with critical thinking skills. It was disappointing that one (4%) of the lecturers consider the correlation of theory practica as a "slightly important" characteristic, 24% (n=5) consider the ignoring of irrelevant information as "slightly important" and 8% (n=2) do not consider this characteristic to be important at all in a student with critical thinking skills.

## Teaching strategies utilized to develop critical thinking in students

**Table 6: Teaching strategies utilized to develop critical thinking in students (N=23)**

<b>TEACHING STRATEGIES UTILIZED TO DEVELOP CRITICAL THINKING IN STUDENTS</b>					
<b>Teaching strategy</b>	<b>Never</b>	<b>Seldom</b>	<b>Often</b>	<b>Always</b>	<b>Missing frequencies</b>
<b>Formal lectures</b>	4%(n=1)	17%(n=4)	43%(n=10)	36%(n=8)	0
<b>Debate</b>	14%(n=3)	17%(n=4)	53%(n=12)	8%(n=2)	8%(n=2)
<b>Small group activities</b>	0	13%(n=3)	48%(n=11)	31%(n=7)	8%(n=2)
<b>Self directed learning</b>	0	13%(n=3)	70%(n=16)	17%(n=4)	0
<b>Simulation</b>	0	13%(n=3)	61%(n=14)	26%(n=6)	0
<b>Videos</b>	22%(n=5)	30%(n=7)	40%(n=9)	4%(n=1)	4%(n=1)
<b>Role-play</b>	8%(n=2)	40%(n=9)	40%(n=9)	8%(n=2)	4%(n=1)
<b>Workbooks</b>	13%(n=3)	8%(n=2)	53%(n=12)	17%(n=4)	8%(n=2)
<b>Projects</b>	13%(n=3)	13%(n=3)	53%(n=12)	17%(n=4)	4%(n=1)
<b>Assignments</b>	5%(n=1)	17%(n=4)	44%(n=10)	17%(n=4)	17%(n=4)
<b>Case studies</b>	13%(n=3)	17%(n=4)	40%(n=9)	30%(n=7)	0
<b>Portfolios</b>	22%(n=5)	8%(n=2)	44%(n=10)	18%(n=4)	8%(n=2)
<b>Research articles</b>	21%(n=5)	48%(n=11)	19%(n=4)	9%(n=2)	4%(n=1)

The lecturers were further asked about the teaching strategies that they utilize in order to develop critical thinking skills in students. A variety of teaching strategies are used by lecturers with some strategies being utilized more than others. According to table 6 all the lecturers responded to the question on self directed learning and simulation. Seventy percent (n=16) indicated that they utilize self directed learning often, followed by simulation with a response of 61% (n=14) .

On the other hand the responses indicate that some lecturers never utilize teaching strategies such as projects, research articles, debate and case studies. Ninety six percent of the 23 lecturers answered the question on utilization of projects and research articles. Thirteen percent (n=3) indicated that they never utilize projects and research articles never utilized by 21% (n=5). Ninety one lecturers answered the question on debate and 14% (n=3) indicated that they never utilize this teaching strategy. All the lecturers responded to the question on case studies and 13% (n=3) indicated that they never utilize this teaching strategy. One would expect that these teaching strategies are utilized more often because they could promote critical thinking but is evident from the findings that they are not utilized as they should be.

Bell, in Simpson & Courtney (2002:4) states that debate is a strategy essential for the development of critical thinking. Nurse lecturers can enhance this by involving students in debates, for example, sessions for debate could be created regarding the subject of GNS I through the use of scenarios or case studies.

Critical thinking is facilitated through reflective writing. The process of writing reflectively as done in portfolios enables the nurses exposed to this strategy to find the space to explore issues in an analytical and critical way. This provides evidence in itself of the development of critical thinking. However, in addition, it illustrates the practitioner's decision making process, demonstrating how conclusions are arrived at, having considered and rejected a range of alternatives to action (Jasper, 2006:172).

Findings as displayed in table 6 indicate 91% of the 23 lecturers answered the question on utilization of portfolio and only 18% (n=4) of the lecturers always utilize the portfolio and 22% (n=5) never utilize the portfolio. It is clear from these findings that most

lecturers do not appreciate the value of portfolios in the development of critical thinking in students.

Miller & Malcolm in Simpson & Courtney, (2002:8) strongly encourage the integration of instructional strategies so as to enhance critical thinking at all levels of the nursing curriculum. While Paul in Simpson & Courtney (2002:8) argues that it is essential for nurse lecturers to abandon strategies that turn students into passive recipients of information, yet the findings displayed on table 3 indicate that the formal lecture is preferred by most lecturers. All lecturers answered the question on formal lecturers, 43% (n=10) of lecturers utilize the lecture method often and 36% (n=8) of the lecturers always utilize this method.

When planning lessons, teachers have to be aware of appropriate teaching strategies and materials that can be used to create meaningful learning opportunities. Without the necessary knowledge of teaching strategies that are applicable to their learning areas, teachers will most probably plan and implement their lessons in the traditional expository way that they were subjected to as students. Such a situation clearly nullifies the intentions of OBE (Jacobs, Vakalisa & Gawe, 2004:319).

The other teaching strategy often utilized by the lecturers when facilitating GNS I are the small group activities. Ninety one percent (n=21) of the 23 lecturers answered the question on small group activities as displayed in table 4. Forty eight percent (n=11) often utilize this strategy. These are positive findings because this teaching strategy could develop critical thinking in students.

## Assessment strategies utilized by lecturers to ensure critical thinking of students

Table 7: Assessment strategies utilized by lecturers to ensure critical thinking of student (N=23)

<b>ASSESSMENT STRATEGIES UTILIZED BY LECTURERS TO ENSURE CRITICAL THINKING OF STUDENT</b>					
<b>Assessment method</b>	<b>Never</b>	<b>Seldom</b>	<b>Often</b>	<b>Always</b>	<b>Missing frequencies</b>
<b>Written tests /examinations</b>	--	--	17%(n=4)	83%(n=19)	--
<b>Problem-based scenarios</b>	--	5%(n=1)	52%(n=12)	43%(n=10)	--
<b>Assignments</b>	9%(n=2)	9%(n=2)	43%(n=10)	30%(n=7)	9%(n=2)
<b>Case studies</b>	9%(n=2)	30%(n=7)	39%(n=9)	13%(n=3)	9%(n=2)
<b>Project work</b>	9%(n=2)	30%(n=7)	43%(n=10)	9%(n=2)	9%(n=2)
<b>Portfolio</b>	22%(n=5)	5%(n=1)	34%(n=8)	22%(n=5)	17%(n=4)

## **Assessment strategies utilized by lecturers to ensure critical thinking of students**

It was relevant to ask the lecturers about assessment strategies they utilize because assessment is an integral part of teaching and learning situation and therefore cannot be separated from the teaching and learning process as cited in Meyer et al. 2010:v.

The lecturers were further asked about the assessment strategies that they utilize in order to develop the analytical and critical thinking of students. Findings displayed in table 7 indicate that written tests and examinations are always utilized by lecturers to assess students as shown by the response of 83% (n=19) of the 23 lecturers. The PBL scenarios are less frequently used by the lecturers for assessing students as indicated by the response of only 43% (n=10) of the 23 lecturers that always use PBL scenarios. It is of concern that there are lecturers that never use case studies as an assessment method, as indicated by a response of 9% (n=2) of the 23 lecturers and 22% (n=5) of the 23 lecturers that never use the portfolio as an assessment method. One would have expected that PBL scenarios and case studies would be rated almost at the same level as tests, because they are proven assessment methods that measure the students' ability to think critically.

According to Leung, Mok & Wong (2008:718) assessment strategies can influence the learning approaches of nursing students. Assessments designed to assess understanding rather than rote learning can contribute to a deep learning approach. The findings of their study revealed that students believed that assessments constructed using scenario-based questions, simulated role-play situations and case studies could direct desired learning in order to facilitate their understanding of knowledge, their use of critical thinking, and their application of knowledge (Leung, Mok & Wong, 2008:718).

Ellerman, Kataoka-Yahino & Wong, (2006:221) assert that, over time, various methods have been used to stimulate critical thinking in undergraduate nursing students, and although many have been successful in helping students integrate the essential knowledge, experiences and clinical reasoning that support practice, it is also useful to explore new methods. The specific instructional methods used include concept mapping, concept papers, conceptual linking, and subtraction.

In this study it was evident that some lecturers never utilize assignments as indicated by a response of 9% (n=2) of the 23 lecturers and others seldom use assignments as assessment strategies as shown by a response of 9% (n=2) of the 23 lecturers in table 7, yet assignments could also develop critical thinking skills. Chen & Lin (2003:139) acknowledge that reading and writing assignments are teaching strategies for fostering critical thinking ability. In their study changes in thinking pattern and learning attitude, as well as a feeling of growth and achievement, were found in the content analysis of students' self-evaluation of their learning experience and perception.

Simpson & Courtney (2002:9) also assert that formal or informal writing of assignments or brief case studies on complex problems are strategies that encourage critical thinking, because reasoning skills and the ability to organize and articulate knowledge are involved.



**Responses of the lecturers to a student that provides the wrong answer during presentations in class.**

**Table 8: Responses of the lecturers to a student that provides the wrong answer during the presentations in class (N= 23)**

<b>RESPONSES OF THE LECTURERS TO A STUDENT THAT PROVIDES THE WRONG ANSWER DURING CLASS PRESENTATIONS</b>			
	<b>Responses</b>	<b>Percentage</b>	<b>Missing frequencies</b>
Find out the answer on your own and come back to the student.	(n=11)	47%	(n=12) 53%
Give the problem as an assignment to the student and leave the student to complete it.	(n=0)	0%	(n=23) 100%
Go through the available data and leave it up to the student to identify the problem and seek the solution under your guidance.	(n=2)	9%	(n=21) 91%
Let the students brainstorm as a class exercise in order to attain the solution.	(n=16)	70%	(n=7) 30%

The lecturers were asked about their response to a student who gives an incorrect answer during their class facilitation. It was disappointing to find that most lecturers did

not respond to some questions. None of the lecturers responded to the question regarding giving the problem as an assignment to the student and leave the student to complete it. Table 8 indicates that 47% (n=11) of the 23 lecturers will find out the answer on their own and give an answer to the students. This is disturbing because critical analytical thinking skills cannot be developed in this manner.

Seventy percent (n=16) of the 23 lecturers let the students brainstorm as a class exercise in order to attain the solution to the posed question and this is a good method of encouraging student participation.

## The number of lecturers that have been trained regarding courses

**Table 9: The number of lecturers that have been trained or had an in-service training regarding courses (N=23)**

THE NUMBER OF LECTURERS THAT HAVE BEEN TRAINED OR HAD AN IN-SERVICE TRAINING REGARDING COURSES					
Training	Yes	Percentage	No	Percentage	Missing frequencies
Outcomes-Based Education	(n=15)	65%	(n=3)	14%	(n=5) 21%
Problem-Based Learning	(n=5)	21%	(n=10)	43%	(n=8) 36%
Assessor Course	(n=19)	83%	(n=3)	13%	(n=1) 4%
Curriculum Development	(n=12)	53%	(n=6)	26%	(n=5) 21%

The lecturers were asked about training that they have undergone in specific skills. Table 9 illustrates that 83% (n=19) of lecturers are trained in the assessor course, with 65% (n=15) trained in Outcomes-based Education (OBE). From these findings one would expect that all the lecturers would have improved their skills of implementing the OBE strategies in the facilitation of learning, as these strategies would ensure the development of critical analytical thinking. It has to be noted that some of the lecturers could have completed their training in Nursing Education before OBE and PBL became part of the Nursing Education curriculum, training to improve their skills in this regard is therefore crucial.

## The utilization of computer programs

Table 10: The utilization of computer programs (N=23)

HOW OFTEN DO LECTURERS UTILIZE THE FOLLOWING COMPUTER PROGRAMS?						
Program	Not at all	Rarely	50% of the time	Most of the time	All the time	Missing frequencies
Microsoft Word	--	--	14% (n=3)	43%(n=10)	39% (n=9)	4%(n=1)
Microsoft Power Point	--	--	4% (n=1)	57%(n=13)	39% (n=9)	--
Microsoft Excel	8% (n=2)	26% (n=6)	30% (n=7)	--	18% (n=4)	18%(n=4)

The lecturers were asked about the computer programs they utilize. Finding displayed in Table 10 show that 96% (n= 22) of the 23 lecturers that responded to the question utilization of Microsoft Word, 39% (n=9) indicated that they use this program all the time. All the lecturers responded to the question on utilization of Microsoft Power Point with 39% (n=9) indicating that they utilize this programs all the time. This is a concern, given the large numbers of first year students which are taught GNS I. The lecturers would present exercises that would enhance critical analytical thinking and present these to students using Microsoft Power Point. Eighty two percent (n=19) of the 23 lecturers responded to the question on Microsoft Excel, 8% (n=2) of the lecturers indicated that they do not utilize this program at all, with 26% (n=6) rarely utilize this program. It should be borne in mind that Microsoft Excel would be ideal, especially for teaching the students how to calculate dosages of medication.

## Training received by lecturers regarding computer skills

**Table 11: Training received by lecturers regarding computer skills (N=23)**

TRAINING RECEIVED BY LECTURERS REGARDING COMPUTER SKILLS					
Training	Yes	Percentage	No	Percentage	Missing frequency
Microsoft Word	(n=17)	74%	--	--	(n=6) 26%
Microsoft Power Point	--	--	(n=13)	57%	(n=10) 43%
Microsoft Power Point	--	--	(n=7)	30%	(n=16) 70%

Lecturers were asked about the computer training that they have received. Table 11 indicates that only 74% (n=17) of the 23 lecturers have been trained in Microsoft Word and 57% (n=13) of the 23 lecturers are not trained in Microsoft Power Point. Thirty percent (n=7) are not trained in Microsoft Excel which justifies the 8% (n=2) of lecturers who do not utilize this program as indicated in Table 10. As discussed below table 8 the utilization of computer programs can enhance the critical thinking skills of students.

It is essential that lecturers must be trained through consistent computer update in order to be confident in utilizing technology. Computer programs which are focused on the stimulation of critical thinking activities of students could be used if the lecturers are computer literate and familiar with the programs. However it is difficult to conclude that the lecturers are not trained in Microsoft Power Point and Microsoft Power Point because many of them did not respond to this question.

## Accessible educational facilities at the college

Table 12: Accessible educational facilities at the college (N= 23)

ACCESSIBLE EDUCATIONAL FACILITIES AT THE COLLEGE			
Media	Frequency	Percentage	Missing frequency
Videos	(n=10)	43%	57%(n=13)
Computer Laboratory	(n=10)	43%	57%(n=13)
Internet	(n=4)	17%	83%(n=19)
Teaching CDs	(n=10)	43%	57%(n=13)
Library Facilities	(n=21)	91%	9%(n=2)
Skills/Simulation Laboratory	(n=18)	78%	22%(n=5)
Facilities for small group discussions	(n=13)	57%	43%(n=10)
Video Conferencing	(n=1)	4%	96%(n=22)

The lecturers were asked to indicate the educational facilities that are accessible to them. The number of missing frequencies can be interpreted as an indication of the facilities that are not accessible to the lecturers. Findings on table 12 indicate that 43% (n=10) of the 23 lecturers have access to a computer laboratory, teaching CDs and videos. It is of concern that only 17% (n=4) of the 23 lecturers have access to the internet, because the internet continues to have a profound effect on education and also on higher education.

According to van der Westhuizen as cited in Gravett & Geysler, 2004:157 higher education institutions worldwide have adopted some form of technological support to supplement or even replace existing instructional practices. The internet can also provide important information and search engines that help the researcher to find information. The complete text is usually available on line, thus on the computer screen and can be downloaded and printed (Rossouw, 2003:105).

Only 57% (n=13) of the 23 lecturers have access to small group facilities. It would be ideal if all lecturers had access to these facilities, because they are necessary for the facilitation of PBL. PBL is one of the strategies that promote critical thinking as it ensures that students are actively involved. PBL is also regarded as an attempt to move from a content- centred learning approach to a discovery type approach. Furthermore, it is regarded as an effort to develop students' critical and clinical reasoning skills together with self directed learning (Barrows et al. 2002:104).

All the lecturers are supposed to have access to the library facilities it is a concern that only 91% (n=21) of the 23 lecturers can access these facilities. As can be seen, video conferencing is not accessible indicated by a response rate of 4% (n=1) of the 23 lecturers. The reason may be the lack of technological support.

## The utilization of teaching aids to enhance critical thinking

Table 13: The utilization of teaching aids to enhance critical thinking (N=23)

THE UTILIZATION OF TEACHING AIDS TO ENHANCE CRITICAL THINKING						
Teaching Aid	Not at all	Rarely	50% of the time	Most of the time	All the time	Missing frequencies
Posters	(n=2) 9%	(n=3)13%	(n=12)52%	(n=5) 22%	--	(n=1) 4%
Whiteboard	(n=2) 9%	(n=9) 39%	(n=3) 13%	(n=3) 13%	(n=3)13%	(n=3) 13%
Overhead projector	(n=5) 22%	(n=2) 9%	(n=1) 4%	(n=9) 39%	(n=3)13%	(n=3) 13%
Training CD discs	(n=6) 26%	(n=2) 9%	(n=2) 9%	(n=8) 34%	--	(n=5) 22%
Videos /DVDs	(n=5) 22%	(n=4) 17%	--	(n=8) 35%	(n=1) 4%	(n=5) 22%
Power point presentations	(n=1) 4%	--	(n=1) 4%	(n=6) 26%	(n=13) 57%	(n=2) 9%
Models	(n=2) 9%	(n=4) 17%	(n=1) 4%	(n=11)48%	(n=2) 9%	(n=3) 13%
Research articles	(n=4) 17%	(n=8) 35%	(n=6) 26%	--	--	(n=5) 22%



### The utilization of teaching aids to enhance critical thinking

The lecturers were asked about the teaching aids that they utilize in order to develop critical thinking. The findings in table 13 indicate that there is minimal use of the whiteboard as illustrated by 9% (n=2) of lecturers not utilizing the whiteboard at all and 39% (n=9) rarely utilizing it. More lecturers utilize Power Point presentations as indicated by a response of 57% (n=13), suggesting an improvement in the utilization of technology. It is disturbing that research articles are rarely utilized, or not utilized at all as indicated by a response of 35% (n=8 ) and 17% (n=4) respectively. This is problematic because this strategy could have been used to develop the students' critical thinking skills.

### Do lecturers encourage students to utilize multimedia when giving assignments?

**Table 14: Number of lecturers that encourage the students to utilize multimedia when giving assignments (N=23)**

NUMBER OF LECTURERS THAT ENCOURAGE THE STUDENTS TO UTILIZE MULTIMEDIA WHEN GIVING ASSIGNMENTS	
Yes	No
70% (n=16)	21% (n=5)

Two lecturers did not answer this question. Seventy percent (n=16) of the 23 lecturers encourage students to utilize multimedia as displayed in Table 14. This is not impressive as one would expect of all the lecturers to integrate multiple forms of media, which includes text, graphics and audio visual materials. For an example a presentation that involves audio visual clips or CDs and DVDs could stimulate critical thinking.

**Do lecturers provide students with multimedia when giving assignments?**

**Table 15: Number of lecturers that provide students with multimedia when giving assignments (N=23)**

<b>NUMBER OF LECTURERS THAT PROVIDE STUDENTS WITH MULTIMEDIA WHEN GIVING ASSIGNMENTS</b>	
<b>Yes</b>	<b>No</b>
30% (n=7)	52% (n=12)

Four lecturers did not answer this question. Table 15 indicates that only 30% (n=7) of the 23 lecturers provide students with multimedia when giving assignments. Students could be given CDs or DVDs based on GNS for viewing and critical analysis of the content.

**Do lecturers use scenarios to develop students' problem solving skills in class?**

**Table 16: Number of lecturers that use scenarios to develop students' problem solving skills in class (N=23)**

<b>NUMBER OF LECTURERS THAT USE SCENARIOS TO DEVELOP STUDENTS' PROBLEM SOLVING SKILLS IN CLASS</b>	
<b>Yes</b>	<b>No</b>
87% (n=20)	4% (n=1)

Two lecturers did not answer this question. The findings as displayed on table16 indicate that 4% (n=1) of the 23 lecturers do not use scenarios to develop their students' problem solving skills. One would have expected that all lecturers would be using scenarios in their facilitation of GNS I. According to Morales-Mann & Kartell (2001:1) problem-based learning is a strategy which stimulates students to grasp problems and

develop problem-solving skills because it uses scenarios which are based on true-to-life problems as triggers. This strategy empowers the student to be an active participant in his/her learning. It encourages students to analyze situations critically, taking responsibility, organizing as well as working with others.

**Do lecturers utilize OBE educational strategies in the classroom?**

**Table 17: Number of lecturers that utilize OBE educational strategies in the classroom (N=23)**

<b>NUMBER OF LECTURERS THAT UTILIZE OBE EDUCATIONAL STRATEGIES IN THE CLASSROOM</b>				
<b>Not at all</b>	<b>Rarely</b>	<b>50% of the time</b>	<b>Most of the time</b>	<b>All the time</b>
0% (n=0)	9% (n=2)	17% (n=4)	48%(n=11)	17% (n=4)

Two lecturers did not answer this question. According to the findings as displayed on table17 it is problematic that 9% (n=2) of the 23 lecturers rarely utilize OBE educational strategies, because according to Meyer & van Niekerk, (2008:25) all education and training in South Africa must be conducted in an outcomes-based manner. The purpose is to enhance lifelong learning and furnish students with the ability to cope with the outside world, however it is reassuring that 48% (n=11) of the 23 lecturers utilize OBE strategies most of the time and 17% (n=4) utilize them always.

## 4.2.2. Students questionnaire

### 4.2.2.1 Demographic data

This question was asked to determine the students' age and their experience in nursing.

The findings are as indicated in Table 16 and Table 17 respectively.

**Table 18: Age category frequencies for students (N=681)**

<b>AGE CATEGORY FREQUENCIES FOR STUDENTS</b>		
<b>Years</b>	<b>Frequency</b>	<b>Percentage</b>
< 20	(n=97)	14%
20 - 30	(n=411)	60%
31 – 40	(n=120)	18%
41 – 50	(n=26)	4 %
>50	(n=1)	0.1%

The students were asked to indicate their ages as this would assist the researcher to determine whether students were exposed to the traditional basic education or OBE.

Twenty six students did not respond to this question. Table 18 indicates that 14% (n=97) of the students are below the age of 20 and these are students that have been exposed to OBE because they have recently completed their school education. Sixty percent (n=411) of the students are between the ages of 20 and 30 years and 4% (n=26) are above the age of 40 years. The older the students the more difficult it becomes to facilitate learning using the OBE approach, because these students were exposed to traditional approaches in their basic education.

The OBE curriculum was instituted in South Africa with the aim of developing critical thinking, problem solving citizens who will be empowered to participate in the development of the country in an active and productive way (Van der Horst & McDonald, 2003:4). This paradigm shift implies that lecturers and trainers should not teach or train, but rather facilitate learning by stimulating creativity, self-learning and critical thinking (Oliver, 2000:70).

### Experience in the nursing field

**Table 19: Experience in the nursing field (N=681)**

EXPERIENCE IN THE NURSING FIELD		
Years of experience	Frequency	Percentage
0	(n=503)	74%
1-10	(n=128)	19%
11-20	(n=20)	3%
21≥	(n=3)	0.4%

The students were asked about their experience in the nursing field. Twenty seven students did not respond to this question. According to table 19, 74% (n=503) of the students did not have any experience in the nursing field over and above what they acquired during their first year of study to become professional nurses. This indicates

that most students were being exposed to nursing concepts for the first time, only 23% (n=151) of the students had been in the nursing field before commencing their diploma course. Nursing colleges in the Gauteng Province accept students who have completed some training in nursing at hospitals and old age homes.

## Important characteristics in a student with critical thinking skills

**Table 20: Important characteristics in a student with critical thinking skills  
(N=681)**

<b>IMPORTANT CHARACTERISTICS IN A STUDENT WITH CRITICAL THINKING SKILLS</b>					
<b>Characteristic</b>	<b>Not important</b>	<b>Slightly important</b>	<b>Important</b>	<b>Utmost important</b>	<b>Missing frequencies</b>
<b>Analytical Thinking</b>	1%(n=9)	7%(n=49)	48%(n=330)	38%(n=250)	6%(n=43)
<b>Self confidence</b>	1%(n=9)	7%(n=49)	41%(n=284)	46%(309)	4%(n=30)
<b>Prioritise</b>	1% (n=6)	7%(n=48)	37%(n=252)	51%(n=345)	4%(n=30)
<b>Scientific reasoning</b>	2%(n=11)	13%(n=86)	47%(n=321)	33%(n=230)	5%(n=33)
<b>Systematic approach</b>	1%(n=7)	12%(n=74)	44%(n=306)	37%(n=252)	6%(n=42)
<b>Theory/Practica correlation</b>	1%(n=5)	12%(n=75)	37%(n=252)	45%(n=314)	5%(n=35)
<b>Answer questioning</b>	1%(n=9)	9%(n=61)	44%(n=306)	41%(n=270)	5%(n=35)
<b>Search evidence</b>	3%(n=18)	10%(n=71)	35%(n=241)	45%(n=306)	7%(n=45)
<b>Ignore irrelevant information</b>	24%(n=162)	34%(n=233)	17%(n=116)	17%(n=116)	8%(n=54)
<b>Open mindedness</b>	2%(n=13)	5%(n=34)	36%(n=243)	52%(n=356)	5%(n=35)

## **Important characteristics in a student with critical thinking skills**

The students were further asked about the characteristics that they consider to be important in a student with critical thinking skills. In contrast to the students' poor performance as highlighted in the background of the study one would have expected a negative response to this question. It was however reassuring to discover that the majority of the students considered most of the characteristics that enhance critical thinking as being important, as indicated on table 20. Ninety four percent (n=638) of 681 students answered the question on analytical thinking, 48% (n=330) considered this characteristic as important and 38% (n=250) regarded it as an utmost important characteristic of critical thinking skills.

Ninety six percent (n=651) of 681 students answered the question on self confidence and prioritising. Forty one percent (n=284) considered self confidence as an important characteristic and 46% (n=309) regarded it as of utmost importance. Thirty seven percent (n=252) considered the ability to prioritise information as important and 51% (n=345) regarded it as of utmost importance. Ninety six percent (n=651) of 681 students answered the question on demonstrating scientific reasoning, 47% (n=321) considered this characteristic as important and 33% (n=230) regarded it as of utmost importance.

Ninety four (n=648) of 681 students answered the question on the ability to demonstrate systematic approach, 44% (n= 306) considered this as an important characteristic with 37% (n=252) regarding it as of utmost importance. Ninety five percent (n=646) of 681 students answered the question correlation of theory and practice and questioning an answer. Thirty seven percent (n=252) considered correlation of theory and practice as an important character and 45% (n=314) regarded it as of utmost importance. Forty four percent (n=306) considered demonstrating questioning to answers as important and 41% (n=270) regarded it as of utmost importance.

Ninety three percent (n=636) answered the question on searching for evidence and open-mindedness. Thirty five percent (n=241) considered searching for evidence as an important characteristics and 45% (n=306) regarded it as of utmost importance. Thirty



six percent (n=243) considered open mindedness as an important characteristic and 52% (n=356) regarded it as of utmost importance.

Though it is disturbing that there are students who do not consider the ignoring of irrelevant information as being an important characteristic. Ninety two percent (n=627) of 681 lecturers answered this question. Twenty four percent (n=162) did not consider ignoring of irrelevant information as an important characteristic and 34% (n=233) considered it as a slightly important characteristic important. Failure to ignore irrelevant information can have a negative impact on their ability to think critically and on their decision making.

**Teaching strategies utilized by the lecturers to develop critical thinking in students (N= 681)**

**Table 21: Teaching strategies utilized to develop critical thinking in students**

<b>TEACHING STRATEGIES UTILIZED TO DEVELOP CRITICAL THINKING IN STUDENTS</b>					
<b>Teaching strategy</b>	<b>Never</b>	<b>Seldom</b>	<b>Often</b>	<b>Always</b>	<b>Missing frequencies</b>
<b>Lectures</b>	2%(n=17)	7%(n=46)	32%(n=218)	56%(n=380)	3%(n=20)
<b>Debate</b>	27%(n=181)	38%(n=261)	25%(n=170)	8%(n=55)	2%(n=14)
<b>Group discussion</b>	0.3%(n=3)	7%(n=48)	47%(n=320)	45%(n=305)	0.7%(n=5)
<b>Group work</b>	1%(n=8)	13%(n=91)	46%(n=316)	37%(n=248)	3%(n=18)
<b>Self directed learning</b>	4%(n=27)	26%(n=175)	38%(n=262)	29%(n=201)	3%(n=18)
<b>Simulation</b>	13%(n=89)	41%(n=282)	29%(n=198)	10%(n=66)	7%(n=46)
<b>Videos</b>	52%(n=358)	28%(n=189)	13%(n=89)	4%(n=27)	3%(n=18)
<b>Role-play</b>	24%(n=176)	48%(n=319)	18%(n=121)	7%(n=47)	3%(n=18)
<b>Workbooks</b>	19%(n=129)	26%(184)	28%(n=190)	21%(n=140)	6%(n=38)
<b>Projects</b>	18%(n=117)	40%(n=277)	29%(n=197)	10%(n=70)	3%(n=20)
<b>Assignments</b>	5%(n=36)	35%(n=235)	37%(n=254)	20%(n=136)	3%(n=20)
<b>Case studies</b>	24%(n=163)	30%(n=207)	29%(196)	14%(n=92)	3%(n=23)
<b>Portfolios</b>	30%(n=198)	26%(n=179)	25%(n=173)	16%(n=109)	3%(n=22)
<b>Research articles</b>	40%(n=275)	34%(n=236)	18%(n=117)	5%(n=35)	3%(n=18)

The students were asked to indicate the teaching strategies utilized by the lecturers. A variety of teaching strategies are utilized by lecturers, some more than others. The frequencies vary because there were differences in the responses, some students did not respond with regard to the teaching strategies utilized by the lecturers. It is clear from the findings illustrated in table 21 that group discussion is the most utilized teaching strategy by the lecturers. Ninety nine percent (n=676) of 681 students answered this question. Forty seven percent (n=320) of the students indicated that lecturers often utilize this strategy and 45% (n=305) indicated that the lecturers utilize this strategy always. Findings also indicate that the lecture method is still used a lot. Ninety seven percent (n=661) of 681 students answered the question on utilization of the lecture method. Thirty two percent (n=218) indicated that lecturers use the method often, 56% (n= 380) of the students indicated that the lecturers utilize the lecture method always. This is disturbing because as much as the lecture has many advantages, including the ability to provide information to a large number of students and covering a large amount of material quickly, the lecture allows students to be passive students, depending solely on the lecturers to teach them information instead of actively involving themselves in the learning process.

As highlighted by Russell, Comello & Wright, (2007:21) lectures provide lesser opportunities for students to process information and develop problem solving skills. They lose students' interest quickly and provide no opportunity to give feedback. They do not allow students to skip the content that they know or work at a self-directed pace and lectures promote a teacher centered environment instead of a student centered environment. On the other hand research articles are never utilized by some lecturers. . Ninety seven percent (n=663) of the 681 students answered the question on research articles. Forty percent (n=275) indicated that lecturers never utilize this strategy. This is a concern because the research articles can be utilized to enhance critical thinking if given to students as assignments to critically analyze.

Regarding debate 98% (n=667) of 681 students answered this question. Twenty seven percent (n=181) students indicated that lecturers never utilize debates, yet the literature emphasizes the importance of debate. Bell, in Simpson & Courtney (2002:4) states that

debate is a strategy essential to the development of critical thinking. Nurse lecturers can enhance this by involving students in debates, for example, sessions for debate could be created regarding the subject of GNS through the use of scenarios or case studies. Miller & Malcolm in Simpson & Courtney, (2002:8) strongly encourage the integration of instructional strategies so as to enhance critical thinking at all levels of the nursing curriculum, while Paul in Simpson & Courtney (2002:8) argues that it is essential for nurse lecturers to abandon strategies that make students passive recipients of information.

Eighty three percent (n=563) of the 681 students answered the question on videos, with 52% (n=358) of the students indicating that lecturers never utilize videos. It is problematic that more than fifty percent of lecturers do not utilize videos as a teaching strategy whereas the viewing of videos can be beneficial to students. Students can be shown the conditions of several different patients including some of the GNS procedures. Ninety seven percent (n=663) of the 681 students responded to the question on role-play, 48% (n=319) indicated that the lecturers seldom utilize the role-play and yet this is a teaching strategy that would ensure that the students are actively involved in the application of knowledge and solving of problems by role acting (Jenkins & Turick-Gibson, 1999:1).

Ninety four percent (n=643) Of the 681 students answered the question on workbooks. Twenty eight percent (n=190) indicated lecturers often utilize workbooks. Ninety seven percent (n=661) of the 681 students responded to the question on utilization of projects by the lecturers, 29% (n=197) indicated that lecturers often utilize this teaching strategy. Both of these strategies are designed to demonstrate the acquisition and development of competence on the part of the student. Critical thinking is facilitated through reflective writing. The process of writing reflectively enables students to find the space to explore issues in an analytical and critical way. In itself, this provides evidence of the development of critical thinking.

Ninety seven percent (n=663) of 681 students responded to the question on group work, 46% (n=316) indicated that lecturers often utilize group work as a teaching strategy.

Through group work interaction between students takes place, thus encouraging critical-analytical thinking.

## Assessment strategies utilized by lecturers to ensure critical thinking of students

Table 22: Assessment strategies utilized by lecturers to ensure critical thinking of student (N=681)

<b>ASSESSMENT STRATEGIES UTILIZED BY LECTURERS TO ENSURE CRITICAL THINKING OF STUDENT</b>					
<b>Assessment method</b>	<b>Never</b>	<b>Seldom</b>	<b>Often</b>	<b>Always</b>	<b>Missing frequencies</b>
<b>Written tests /examinations</b>	(n=7) 1%	(n=27) 4%	(n=161) 24%	(n=477) 70%	(n=9) 1%
<b>Problem-based scenarios</b>	(n=49) 7%	(n=108) 16%	(n=268) 39%	(n=236) 35%	(n=20) 3%
<b>Assignments</b>	(n=47) 7%	(n=232) 34%	(n=253) 37%	(n=138) 20%	(n=11) 2%
<b>Case studies</b>	(n=178) 26%	(n=216) 32%	(n=188) 28%	(n=76) 11%	(n=23) 3%
<b>Project work</b>	(n=143) 21%	(n=290) 43%	(n=182) 27%	(n=44) 6%	(n=22) 3%
<b>Portfolio</b>	(n=217) 32%	(n=189) 28%	(n=148) 22%	(n=101) 14%	(n=26) 4%

## Assessment strategies utilized by lecturers

The students were asked about the assessment strategies that are utilized by lecturers. According to table 22 it is evident that written tests and examinations are mostly used as indicated by a response of 70% (n=477) of the 681 students. Thirty five percent (n=236) of the 681 students indicated that lecturers always utilize PBL scenarios and a further 39% (n=268) of the 681 students indicated that there are lecturers who frequently utilize PBL scenarios.

There are still lecturers that never or seldom use PBL scenarios as illustrated by responses of 7% (n=49) and 16% (n=108) of the 681 students respectively. This is troubling because it was cited in the background to this study that critical thinking skills can be developed within students throughout their four-year training, if exposed to OBE and PBL teaching strategies, especially starting in the first level of their training course.

Some lecturers never utilize portfolios for assessing students as indicated by the response of 32% (n=217) of the 681 students. The researcher had expected that all lecturers would utilize portfolios as part of assessment because the process of writing reflectively as carried out in portfolios enables nurses to find the space to explore issues in an analytical and critical way. This provides evidence of the development of critical thinking. In addition, it illustrates the practitioner's decision-making process, demonstrating how conclusions are arrived at, having considered and rejected a range of alternative actions (Jasper, 2006:172).

However, case-based teaching is regarded as a superior instructional method compared with lectures in promoting a student's critical thinking skills as sighted by Kim, Phillip, Pinsky, Brock, Phillips & Keary (2006:870). The findings of the study indicate that some lecturers do not use case studies as illustrated by a response of 26% (n=178) of the 681 students. It is clear from the findings that some lecturers do not utilize different assessment strategies, yet assessment is an integral part of learning and should focus on deep, active learning as well as engaging higher order cognitive skills as stated by Gravett & Geysler (2004:92).

Although assignments are often utilized as an assessment method as indicated by a response of 37% (n=253) of the 681 students. Findings show that assignments and project work are seldom utilized by some lecturers as indicated by responses of 34% (n=232) and 43% (n=290) of the 681 students respectively. Research on academic learning shows that students tend to approach learning in more than one way and that the different approaches lead to differences in the quality of learning outcomes, therefore it is essential that lecturers should utilize a variety of assessment strategies (Gravett & Geysers, 2004:92).

**The lecturer’s response to the wrong answer during the presentations in class.**

**Table 23: The lecturer’s response to the wrong answer during the presentations in class (N=681)**

<b>THE LECTURER’S RESPONSE TO THE WRONG ANSWERS</b>			
	<b>Frequency</b>	<b>Percentage</b>	<b>Missing frequencies</b>
Find out on your own.	(n=36)	5%	(n=645) 95%
Give the problem as an assignment to the student and leave the student to complete it.	(n=74)	11%	(n=607) 89%
Go through the available data and leave it up to the student to identify the problem and seek the solution under your guidance.	(n=152)	22%	(n=529) 78%
Let the students brainstorm as a class exercise in order to attain the solution.	(n=341)	50%	(n=340) 50%



The students were asked about the response of the lecturers when they give a wrong answer in class. The findings illustrated in table 23 displays that students are mostly expected to brainstorm as a class exercise in order to attain the solution as indicated by 50% (n=341) of the 681 students that answered this question. Followed by the response of 22% (n=152) of 681 students where they are expected to go through the available data and identify the problem and seek the solution under guidance. This is a positive response because students are encouraged to be actively involved and independent. According to Lekalakala-Mokgele & du Rand (2005:22) facilitation requires that students should assume control and direct their own learning. And that facilitation based on the principles of adult learning requires the involvement of the students and their lecturers.

The response to some of the questions was very poor even though the questions consisted of simple terminology. It seems as though the students could not interpret them as shown by the response of 5% (n=36) and 11% (n=74) respectively to questions regarding finding out on their own and being given the problem as an assignment to complete it.

The availability of media to the students at the college

Table 24: Available media to the students at the college (N= 681)

AVAILABLE MEDIA FOR THE STUDENTS AT THE COLLEGE							
Available media at the College			Available at Other Institution		Not available		Missing frequencies
Media	Frequency	%	Frequency	%	Frequency	%	
Videos	271	38%	20	3%	365	55%	25 (4%)
Computer Laboratory	408	60%	33	5%	224	33%	16 (2%)
Internet	318	47%	34	5%	310	45%	19 (3%)
Teaching CDs	258	38%	30	4%	352	52%	41(6%)
Library Facilities	582	85%	39	6%	46	7%	14 (2%)
Skills/Simulation Laboratory	514	76%	27	4%	124	18%	16 (2%)
Facilities for small group discussions	423	63%	27	4%	208	30%	23 (3%)
Video Conferencing	121	17%	35	5%	485	72%	40 (6%)

The students were asked about the educational facilities in their institutions or any other institution. The findings displayed in Table 24 show that 98% (n=667) of 681 students that responded to the question on library facilities only 85% (n=582) students indicated that these facilities are available at their college, this is a concern because rightfully all the students should be able to access the library facilities. Willemse (2002:4) emphasizes the importance of a well-stocked library for both lecturers and students. He believes that training a professional cannot be done without a library with the latest information and publications. He also stresses that a library is not just a place with many books but a multifaceted institution with well trained staff, information technology and an adequate building with enough seating for staff and students.

Ninety eight percent (n=665) of 681 students responded to the question on computer laboratory facilities but only 60% (n=408) of students indicated that these facilities are available at their colleges. Ninety seven percent (n=662) of 681 students answered the question on internet availability and only 47% (n=318) indicated that it is available at their college. These facilities are inadequate, and as a result the students are limited when they are expected to obtain information electronically and this could impact negatively on students' skills to critically analyse literature regarding GNS I. According to van der Westhuizen as cited in Gravett & Geysler, (2004:157), higher education institutions worldwide have adopted some form of technological support to supplement or even replace existing instructional practices.

The internet can also provide important information and search engines that help the researcher to find information. The complete text is usually available on line, thus on the computer screen and can be downloaded and printed (Rossouw, 2003:105).

Availability of simulation laboratories at the colleges is limited. Ninety eight percent (n=665) of 681 students answered the question and 76% (n=514) indicated that simulation laboratories are available at their college. Simulation laboratories are essential for mastering psychomotor skills in GNS demonstrations. The researcher expected a higher percentage in this regard.

**The utilization of teaching aids to enhance critical thinking (N=681)**

**Table 25: The utilization of teaching aids to enhance critical thinking (N=681)**

<b>THE UTILIZATION OF TEACHING AIDS TO ENHANCE CRITICAL THINKING</b>						
<b>Teaching Aid</b>	<b>Not at all</b>	<b>Rarely</b>	<b>50% of the time</b>	<b>Most of the time</b>	<b>All the time</b>	<b>Missing frequencies</b>
<b>Poster</b>	62% (n=428)	20% (n=134)	6% (n=38)	4% (n=27)	2% (n=13)	6%(n=41)
<b>Whiteboard</b>	36% (n=238)	29% (n=200)	10% (n=70)	8% (n=57)	11% (n=72)	6%(n=44)
<b>Overhead projector</b>	10% (n=69)	8% (n=56)	8% (n=57)	18% (n=123)	48% (n= 327)	8%(n=49)
<b>Training CDs</b>	62% (n=420)	15% (n=100)	6% (n=47)	6% (n=39)	4% (n=27)	7%(n=48)
<b>Videos/ DVD</b>	52% (n=358)	19% (n=128)	8% (n=57)	7% (n= 46)	7% (n=46)	7%(n=46)
<b>Power point</b>	13% (n=89)	5% (n=37)	12% (n=81)	17% (n=117)	45% (n=309)	8%(n=48)
<b>Models</b>	17% (n=117)	21% (n=143)	24% (n=162)	16% (n=112)	15% (n=100)	7%(n=47)
<b>Research articles</b>	46% (n=313)	24% (n=164)	12% (n=83)	8% (n=48)	5% (n=37)	5%(n=36)

The students were also asked about the teaching aids that are utilized by the lecturer. According to what is displayed in table 25, ninety four percent (640) of the 681 students responded to the question about lecturers that utilize the posters. Sixty two % (n=428) indicated that posters are not utilized at all by some lecturers. Ninety five percent (n=645) of the 681 students responded to the question on utilization of research articles by the lecturers and 46% (n=313) indicated that some lecturers do not utilize research articles at all.

Ninety three percent (n=632) of the 681 students responded to the question on the utilization of the overhead projector. Forty eight percent (n=327) of the 681 students indicated that lecturers utilize overhead projectors all the time and 18% (n=123) indicated that some lecturers use this most of the time. Ninety three percent (n=633) of the 681 students answered the question on the utilization of Power Point, 45% (n=309) indicated that some lecturers always utilize Power Point presentations, whilst other lecturers utilize this teaching aid most of the time as indicated by the response of 17% (n=117). Models are also utilized most of the time, 93% (n=634) of the 681 students answered the question and 16% (n=112) indicated that lecturers utilize this teaching aid most of the time.

However some lecturers do not utilize certain teaching aids at all, like the training CDs and videos/DVDs. Ninety three percent (n=633) of the 681 students answered this question and 52% (n=358) indicated that lecturers do not utilize videos and DVDs at all.

This is disappointing because the integration of multiple forms of media can be effectively utilized for the facilitation of GNS. Posters could be used for graphics, CDs and DVDs are also considered to be “multimedia formats” since they can store a lot of data and display GNS content in a visual, stimulating and interesting way. This in itself could lead to interesting debates amongst students, thus enhancing critical analytical thinking and conversation.

**Are students encouraged to use any multimedia when given assignments?**

**Table 26: Encouragement of students to use any multimedia when given assignments (N=681)**

<b>STUDENTS THAT ARE ENCOURAGED TO USE ANY MULTIMEDIA WHEN GIVEN ASSIGNMENTS</b>		
<b>Yes</b>	<b>No</b>	<b>Missing frequencies</b>
76% (n=520)	19% (n=129)	5% (n=31)

The findings displayed in table 26 indicate that 76% (n=520) of 681 students are encouraged to use multimedia when given assignments. This a positive response because multimedia presentations involve audio and video clips or CDs and DVDs that would stimulate critical analytical thinking especially in GNS because students would be able to visualize certain conditions and solve problems even before they have had exposure to the clinical area.

**Are the students provided with multimedia when given assignments?**

**Table 27: The provision of multimedia to students when given assignments (N=681)**

<b>STUDENTS THAT ARE PROVIDED WITH MULTIMEDIA WHEN GIVEN ASSIGNMENTS</b>		
<b>Yes</b>	<b>No</b>	<b>Missing frequencies</b>
25% (n=160)	72% (n=492)	4%(n=29)

Findings in Table 27 indicate that only 25% (n=160) of 681 students are provided with multimedia when given assignments. Students could be given CDs or DVDs based on GNS for viewing and critically analyzing the contents as an assignment.

Students were further requested to indicate which media was provided if their response was 'yes' to questions 9 or 10 in the questionnaire.

The type of media provided to students

Table 28: The type of media provided to students (N=681)

THE TYPE OF MEDIA PROVIDED TO STUDENTS		
Medium	Availability	Missing frequencies
Training CD's	6% (n=39)	94%(n=642)
Videos/DVDs	8% (n=54)	92%(n=627)
Power Point Presentations	16% (n=108)	84%(n=573)
Models	18% (n=124)	82%(n=557)
Research Articles	21% (n=144)	79%(n=537)
Library	58% (n=397)	42%(n=284)
Internet	45% (n=307)	55%(n=374)

Although 97% (n=652) responded to the previous question as displayed on table 27, the general response to this question was disappointing. Most students did not respond this question... Especially regarding the provision of training CDs and videos/ DVDs as shown by a response rate of 6% (n=39) and 8% (n=54) of 681 students respectively in table 28. The researcher expected a higher response related to Power Point presentations and models but the findings indicate that only 16% (n=108) students are provided with power point presentations and 18% (n=124) of 681 are provided with models. It is a concern that only 21% (n=144) of 681 of students are provided with research articles, yet the library is available to 58% (n=397). These are not impressive

findings as compared to the findings reflected on table 19 with the exception of internet which is provided to 45% (n=307) of the respondents.

**Are the students provided with scenarios in class in order to develop problem-solving skills?**

**Table 29: The provision of scenarios to students in order to develop problem solving skills in class (N=681)**

<b>THE PROVISION OF SCENARIOS TO STUDENTS IN ORDER TO DEVELOP PROBLEM SOLVING SKILLS IN CLASS</b>		
<b>Yes</b>	<b>No</b>	<b>Missing frequencies</b>
82%(n=561)	12%(n=78)	6%(n=42)

According to the findings displayed in table 29, 82% (n=561) of the 681 students are provided with scenarios in class in order to develop problem solving skills. These are positive findings because problem-based learning is a strategy that stimulates students to grasp problem solving; it uses scenarios that are based on true-to-life problems as triggers. This strategy empowers the student to be an active participant in his/her learning. It encourages students to analyze situations critically, taking responsibility, organizing as well as working with others (Morales-Mann & Kartell, 2001:1).

**4.3 SUMMARY**

The data was described as indicated in the histograms and tables, followed by a discussion of the findings using relevant research and theoretical literature.

Chapter five will focus on the summary of the findings, recommendations, limitations and conclusions.



## **CHAPTER 5: SUMMARY OF THE FINDINGS, RECOMMENDATIONS, LIMITATIONS AND CONCLUSIONS**

### **5.1 INTRODUCTION**

In this chapter, the researcher will summarize the results, draw conclusions and make recommendations regarding the teaching strategies utilized in the facilitation of learning for first level students in general nursing science.

### **5.2 PURPOSE OF THE STUDY**

The purpose of this study was to investigate the teaching and assessment strategies utilized in the facilitation of learning for first year level students in the subject GNSI.

### **5.3 SUMMARY OF THE RESULTS**

The summary of the results will be discussed according to the arrangement of the questions in the lecturers' and students' questionnaires respectively.

#### **LECTURERS' QUESTIONNAIRE**

##### **Highest qualifications obtained by the lecturers**

The majority of the lecturers have a degree in Nursing Education, however it is of concern that only nine percent (n=2) of the lecturers have obtained a Masters degree as indicated in Table 3 on page 49. The facilitation of teaching strategies to enhance critical thinking skills could be managed more effectively had the lecturers themselves specialized in nursing education at a master's level.

##### **Lecturer's years of experience in Nursing Education**

Forty four percent (n=10) of the lecturers have less than three years of experience in Nursing Education as can be seen in Table 4 on page 50. Lack of experience in Nursing

Education can be a challenge in the facilitation of GNS I because the stimulation of critical thinking requires the use of a variety of teaching strategies.

### **Important characteristics in a student with critical thinking skills**

Table 5 on page 51 shows that lecturers had a positive response to the characteristics that enhance critical thinking. However, it was disturbing that 4% (n=1) of the lecturers consider the correlation of theory and practice as a “slightly important” characteristic because GNS is an applied subject, which requires a relevant knowledge base.

Therefore lecturers are expected to emphasise the application of theory in the clinical setting, in order to enhance critical thinking skills.

### **Teaching strategies utilized to develop critical thinking in students**

Findings in Table 6 on page 53 respectively indicate that teaching strategies such as projects 13% (n=3), research articles 21% (n=5), case studies 14% (n=3) and debates 14% (n=3) are never utilized by some lecturers. These findings are a cause for concern because it is evident that the above mentioned strategies that are known to promote critical thinking in students are not utilized. For instance sessions for debate could be created around the subject of GNS by the use of scenarios or case studies. Whereas the use of research articles can enhance critical thinking if given to students as assignments to critically analyze information.

A variety of teaching strategies are utilized by lecturers, some to a greater extent than others. Forty eight percent (n=11) of the lecturers often utilize small group activities, 70% (n=16) and 61% (n=14) often utilize self directed learning and simulation teaching strategies respectively when facilitating GNS I. These are positive findings because these teaching strategies can develop critical thinking in students.

It is also clear that the lecture method is the most utilized teaching strategy by the lecturers with the response of 36% (n=8) and 43 % (n=10) utilized always and often respectively. This is a concern because the lecture allows students to be passive students, depending solely on the lecturers to teach them information, instead of actively involving themselves in the learning process.

Fifty three percent (n=12) of the lecturers often utilize workbooks and project work respectively. Both of these strategies are designed to demonstrate the acquisition and development of competence on the part of the student. Critical thinking is facilitated by means of reflective writing. The process of writing reflectively enables the students involved to find the space to explore issues in a critical way. This provides evidence of the development of critical thinking.

### **Assessment strategies utilized by the lecturers to ensure critical thinking of students**

It is clear from the findings in Table 7 on page 56 that some lecturers do not utilize a variety of assessment strategies, yet assessment is an integral part of learning and should focus on deep, active learning and involve high order cognitive skills as stated by Gravett & Geysers (2004:92). Findings indicate that both written tests and examinations are always utilized by 83% (n=19) of the lecturers. PBL scenarios are used by 43% (n=10) of the lecturers when assessing students. It is a concern that there are lecturers that never use case studies and portfolios as an assessment method as indicated by 9% (n=2) and 22% (n=5) respectively. One would have expected that PBL scenarios and case studies would be rated almost at the same level as tests, because they are assessment methods that measure the students' capacity for critical thinking. Assignments also develop critical thinking skills. The researcher had expected that all lecturers would utilize portfolios as part of the assessment program because the process of reflective writing as done in portfolios enables the nurses to find the space to explore issues in a critical way.

### **Responses of the lecturers to a student who provides a wrong answer during a class presentation**

Findings in Table 8 on page 59 indicate that students are mostly involved in classroom brainstorming exercises and only rarely encouraged to seek information on their own. Seventy percent (n=16) of the lecturers let the students brainstorm as a class exercise in order to attain the solution to the posed question. Although this is a good method of encouraging student participation, active involvement and independence of students is

limited. The findings also indicated that 47% (n=11) lecturers will find out answers on their own and then give an answer to the students; this is a concern because critical thinking skills cannot be developed in this manner.

### **The number of lecturers that have received training**

According to Table 9 on page 61 eighty three percent (n=15) of lecturers are trained in OBE. From these findings one would expect that all the lecturers would have improved on utilizing of OBE strategies in the facilitation of learning as these strategies would ensure the development of critical thinking, but some lecturers rarely utilize the OBE educational strategies.

The current programme at Gauteng Nursing Colleges is an outcomes and problem – based curriculum but only 34% (n=5) lecturers are trained in Problem-based Education.

### **Utilization of computer programs**

The lecturers were asked about the computer programs they utilize. Findings as displayed in Table 10 on page 62 indicate that not all of the lecturers utilize Microsoft Word and Microsoft Power Point, only 39% (n=9) utilize these programs all the time. This is a concern, given the large numbers of first year students which are taught GNS I, the lecturers would download exercises that would enhance critical thinking and present to students using Microsoft Power Point.

### **Training received by lecturers regarding computer skills**

Only 74% (n=17) of the lecturers have been trained in Microsoft Word, 57% (n=13) in Microsoft Power Point and 30% (n=7) Microsoft Excel as reflected in Table 11 on page 63. It is essential for lecturers to have confidence in utilizing technology, by receiving consistent training in order to update their technological skills.

### **Accessible educational facilities**

Findings in Table 12 on page 64 indicate that 43% (n=10) of lecturers have access to the computer laboratory, teaching CDs and videos respectively. It is disturbing that only 17% (n=4) lecturers have access to the internet, because the internet continues to have

a profound effect on education and also higher education. The colleges should align with higher education institutions worldwide, by adopting some form of technological support to supplement or even replace existing instructional practices.

Only 57% (n=13) have access to small group facilities. It would be ideal if all lecturers had access to these facilities, because they are necessary for the facilitation of PBL. PBL is one of the strategies that promote critical thinking as it ensures that students are actively involved. PBL is also regarded as an attempt to move from a content-centred learning approach to a discovery type approach. It is also seen as an effort to develop the students' critical and clinical reasoning skills.

It is a good indication that the majority of the lecturers have access to the library facilities as displayed by 91% (n=21).

### **The utilization of teaching aids to enhance critical thinking**

The findings in Table 13 on page 66 indicate that 57% (n=13) of the lecturers utilize Power Point presentations suggesting an improvement in the utilization of technology. It is of concern that research articles are rarely utilized, or not utilized at all as indicated by the response of 35% (n=8 ) and 17% (n=4) respectively. This is an omission because this would develop the students' critical thinking skills and ensure life-long learning.

### **Number of lecturers that encourage the students to utilize multimedia when giving assignments**

Seventy percent (n=16) lecturers encourage students to utilize multimedia as displayed in Table 14 on page 67. One would expect all the lecturers to integrate multiple forms of media because presentations that include audio visual clips or CDs and DVDs would stimulate critical thinking especially in GNS because students would be able to visualize certain conditions and solve problems even before they have had exposure to the clinical area.

### **Number of lecturers that provide students with multimedia when giving assignments**

Table 15 on page 68 indicates that only 70% (n=16) of lecturers provide the students with multimedia when giving assignments. Yet CDs or DVDs based on GNS could be given to students for viewing and analyzing the content critically.

### **Number of lecturers that use scenarios to develop students' problem solving skills in class**

Findings as displayed in Table 16 on page 68 indicate that 4% (n=1) of the lecturers do not use scenarios to develop the students' problem solving skills, one would have expected that all lecturers would be using scenarios in their facilitation of GNS I. This strategy empowers the student to be an active participant in his/her learning and encourages the students to analyse situations critically, taking responsibility for their decisions.

### **Number of lecturers that utilize OBE educational strategies in the classroom**

According to the findings as displayed in Table 17 on page 69 it is of concern that 9% (n=2) of the lecturers rarely utilize the OBE educational strategies, because all education and training in South Africa should be conducted in an outcomes-based manner.

## **STUDENTS' QUESTIONNAIRE**

### **Age category frequencies for students**

Sixty three percent (n=411) of the students are between the ages of 20 and 30 years whilst 4% (n=26) are above the age of 40 years as appearing in Table 18 on page 70. This makes facilitation of learning using the OBE approach to these students more difficult, because they were exposed to traditional approaches that limited critical thinking in their basic education.

### **Experience in the nursing field**

Before commencing with their diploma course, seventy seven percent (n=503) of the students as indicated in Table 19 on page 71 did not have any experience in the nursing field, and thus have not been exposed to the concept of critical thinking. This indicates that most students were being exposed to nursing concepts for the first time, only 23% (n=151) of the students were in the nursing field.

### **Important characteristics in a student with critical thinking skills**

It was reassuring to discover that 48% (n=330) of the students considered analytical thinking as being important and 46% (n=309) regarded self confidence as of utmost importance in a student with critical thinking skills, as displayed in Table 20 on page 73. Critical thinking skills are essential in the subject GNS I because students are expected to make decisions and draw conclusions in relation to the case studies.

### **Teaching strategies utilized to develop critical thinking in students**

Fifty six percent (n=380) of the students indicated that lectures are always utilized by the lecturers. Of concern here is that this teaching strategy provides fewer opportunities for students to process information and develop problem solving skills. Research articles are never utilized by some lecturers as indicated by the response of 40% (n=275), yet they can enhance critical thinking if given to students as assignments to critically analyze information. The response of 27% (n=181) indicated that debates are

never utilized; lecturers can enhance analytical critical thinking by involving students in debates regarding the subject of GNS by the use of scenarios or case studies.

Fifty two percent (n=358) of the students indicated that lecturers never utilize videos. It is worrying that more than fifty percent of lecturers as displayed in Table 21 on page 76 do not utilize videos as a teaching strategy and yet viewing of videos can be beneficial to students. Students can be shown several different patients' conditions including of some the GNS procedures. Forty eight percent (n=319) seldom utilize role-play and this is a strategy that would ensure that the students are actively involved in the application of knowledge and solving of problems

### **Assessment strategies utilized by the lecturers**

According to Table 22 on page 80 it is evident that written tests and examinations are mostly used as indicated by the response of 70% (n=477). There are still lecturers that never or seldom use PBL scenarios as illustrated by 7% (n=49) and 16% (n=108) respectively. This is of concern because it was cited in the background to this study that critical thinking skills can be developed within students throughout their four-year training, if exposed to OBE and PBL teaching strategies, especially starting on the first level of their training course.

It is clear from the findings that some lecturers do not utilize different assessment strategies. This limitation disadvantages some students, and it is therefore crucial that lecturers utilize a variety of assessment strategies. Research on academic learning shows that students tend to approach learning in one of two ways and that the different approaches lead to differences in the quality of learning outcomes, therefore it is essential that lecturers should utilize a variety of assessment strategies (Gravett & Geysler, 2004:92).

### **The lecturer's response to the wrong answer during the presentations in class.**

Findings illustrated in Table 23 on page 82 indicate that students are mostly involved in classroom brainstorming exercises as shown by a response of 50% (n=341) and are



rarely encouraged to seek information on their own as indicated by a response of 5% (n=36). This limits active involvement and independence on the part of students. Facilitation requires that students should assume control and direct their own learning. Facilitation is based on the principles of adult learning and requires the involvement of both students and their lecturers.

### **The availability of media for students at the college**

The library facilities are available to the 85% (n=582) of students within their institution as shown in Table 24 on page 84. A well equipped library is vital for both lecturers and students. The training of professionals cannot be done without a library with the latest information and publications.

Computer laboratory facilities are also available to 60% (n=408) of the students, with the internet available to only 47% (n=318) in these institutions. These facilities are inadequate, and as a result students will be limited when expected to obtain information electronically and this could impact negatively on students' ability to critically analyse literature regarding GNS I.

### **The utilization of teaching aids to enhance critical thinking**

According to Table 25 on page 86, the lecturers utilize a variety of teaching aids. However, some lecturers do not utilize certain teaching aids at all, such as posters as indicated by the response rate of 62% (n=428), training CDs as indicated by the response rate of 62% (n=420), videos and DVDs as indicated by the response rate of 52% (n=358) and research articles with a response rate of 46% (n=313) are all teaching aids that are seldom used.

This is of concern because the integration of multiple forms of media can be effectively utilized for the facilitation of GNS I. Posters could be used for graphics. CDs and DVDs are also considered to be "multimedia formats" since they can store a lot of data and display GNS I content in a visual, stimulating manner that would enhance critical thinking.

### **The encouragement of student to use multimedia when given assignments**

Findings as displayed in Table 26 on page 88 indicate that 76% (n=520) of the students are encouraged to use multimedia when given assignments. This a positive response because multimedia presentations involve audio and video clips or CDs and DVDs that are capable of stimulating critical analytical thinking especially in GNS because students would be able to visualize certain conditions and solve problems even before they have had exposure to the clinical area.

### **The provision of multimedia to students when given assignments**

Much as the majority of the students are encouraged to use multimedia when given assignments, it is disappointing that only 25% (n=160) as shown in Table 27 on page 88 are provided with multimedia when given assignments. CDs or DVDs based on GNS I could be given to students for viewing and critically analyse the content.

### **The types of media provided to students**

The general response to this question was disappointing, especially to the provision of the training CDs and videos/ DVDs as shown by the response rate of 6% (n=39) and 8% (n=54) in Table 28 on page 89. The researcher expected a higher response related to the Power Point presentations and the models but the findings indicate that only 16% (n=108) and 18% (n=124) are provided with these media. It is of concern that only 21% (n=144) of students are provided with research articles, yet the library is available to 58% (n=397). These are not impressive findings as compared to findings reflected in Table 24 on page 84 with the exception of internet which is provided to 47% (n=318) of the respondents.

### **The provision of scenarios to students in order to develop problem solving skills in class**

According to the findings displayed in Table 29 on page 90, 82% (n=561) of the students are provided with scenarios in order to develop problem solving skills in class. These are positive findings because problem-based learning is a strategy which

stimulates students to grasp problem-solving, it uses scenarios which are based on true-to-life problems as triggers.

## **5.4 COMPARISON OF THE RESULTS OBTAINED FROM THE LECTURERS AND THE RESULTS OBTAINED FROM THE STUDENTS**

### **Important characteristics in a student with critical thinking skills**

There were some similarities in the findings in that lecturers and students had a positive response regarding some of the characteristics that enhance critical thinking, an example was analytical thinking and self confidence. However, it was disappointing that 4% (n=1) of the lecturers considered the correlation of theory and practice as a “slightly important” characteristic yet 45%(n=314) of the students considered this characteristic as of utmost importance.

### **Teaching strategies utilized to develop critical thinking in students**

Lecturers and students indicated that the lecture method is the most utilized teaching strategy. This is a concern because the lecture allows students to be passive students, depending solely on the lecturers to teach them information, instead of actively involving themselves in the learning process. Findings from both the lecturers and the students also displayed that research articles are never utilized by some lecturers.

### **Assessment strategies utilized by the lecturers**

It is clear from the findings that some lecturers do not utilize different assessment strategies. This limitation disadvantages some students, and it is therefore crucial that lecturers utilize a variety of assessment strategies. Lecturers and students indicated that both written tests and examinations are always utilized. Whilst the case studies and portfolios are never utilized by some lecturers as an assessment method.

### **The lecturer’s response to the wrong answer during the presentations in class.**

Findings from both lecturers and students indicate that students are mostly involved in classroom brainstorming exercises and only rarely encouraged to seek information on their own, in order to attain the solution to the posed question. Some lecturers find out

answers on their own and then give an answer to the students; this is a concern because critical thinking skills cannot be developed in this manner.

### **The utilization of teaching aids to enhance critical thinking**

It is of concern that research articles are rarely utilized, or not utilized at all as indicated by the response from both lecturers and students. This is an omission because this would develop the students' critical thinking skills and ensure life-long learning. Certain teaching aids such as posters, training CDs, videos and DVDs are not utilized at all by some lecturers as indicated by the findings from both lecturers and the students.

### **The encouragement of student to use multimedia when given assignments**

Similar findings were detected, with 70% (n=16) lecturers encouraging students to use multimedia and 76% (n=520) students that are encouraged to use multimedia when given assignments. This positive response because multimedia presentations involve audio and video clips or CDs and DVDs that are capable of stimulating critical analytical thinking.

### **The provision of multimedia to students when given assignments**

In contrast to 25% (n=160) students that are provided with multimedia when given assignments, 70% (n=16) of lecturers indicated that they provide the students with multimedia when giving assignments. One would have expected that more students are provided with multimedia.

### **The provision of scenarios to students in order to develop problem solving skills in class**

Only 4% (n=1) of the lecturers do not use scenarios to develop the students' problem solving skills, one would have expected that all lecturers would be using scenarios in their facilitation of GNS I. Probably more students would have been exposed to scenarios if all the lecturers were using the scenarios but only 82% (n=561) of the students are provided with scenarios in order to develop problem solving skills in class.

## 5.5 RESEARCH OBJECTIVES

The objectives of the study were achieved as reflected in the following discussion.

### Research Objective 1

Determine whether the teaching and assessment strategies utilized by the lecturers in the first level of training of the four year comprehensive course in GNS I are appropriate and conducive for the stimulation of critical thinking skills.

### Conclusion

Not all of the teaching strategies that are utilized by the lecturers are appropriate and conducive for the stimulation of critical thinking skills. The majority of the lecturers facilitate using the lecture method.

### Research Objective 2

Determine possible shortcomings in the facilitation of teaching and assessment strategies employed in GNS I.

### Conclusion

There are lecturers that never use case studies, portfolio and assignments as assessment strategies yet these methods also facilitate critical thinking and would be beneficial in the facilitation of the subject GNS I.

## 5.6 CONCLUSIONS / RECOMMENDATIONS

- More lecturers should be encouraged to obtain a Masters degree qualification because they could more effectively utilize teaching strategies that enhance critical analytical thinking skills if they had specialized in nursing education at a master's level.
- All lecturers should utilize the OBE educational strategies because it is mandatory that all education and training in South Africa be conducted in an outcomes-based manner. To ensure effective implementation of OBE educational strategies all

lecturers should be trained in an OBE approach and small group facilities should be available in all the nursing colleges to enhance critical analytical thinking skills.

- In their facilitation of GNS I lecturers should accommodate older students, because they were never exposed to an OBE approach in their basic education. These students were taught using traditional approaches which limited critical analytical thinking; therefore more support systems may be needed in order to ensure the development of critical thinking.
- Lecturers should utilize a variety of teaching strategies that will ensure development of critical analytical thinking in their students such as projects, research articles, case studies and debate, instead of the lecture method which is mostly utilized.
- Lecturers should utilize a variety of assessment strategies like the PBL scenarios, case studies, portfolio and assignments, instead of only written tests and examinations that are always utilized by lecturers to assess students because these methods limit the development of critical analytical thinking.
- Students should be encouraged to seek information on their own, specifically regarding case studies because this actively involves them as they are solving problems, making decisions and draw conclusions in relation to GNS I. This process facilitates the development of higher order cognitive skills. Lecturers should be empowered in computer skills through training in Microsoft Word, Microsoft Power Point and Microsoft Excel and the internet should be accessible to all lecturers. The computer laboratory facilities and internet should be available to both lecturers and students. Higher education institutions worldwide have adopted some form of technological support to supplement or even replace existing instructional practices. The internet can also provide important information and search engines that help the researcher to find information.
- Further research on the implementation of teaching and assessment strategies that enhance analytical critical thinking should be done.

## **5.7 LIMITATIONS OF THE STUDY**

- Respondents did not respond to all the questions, even though the researcher was available to clarify the questions

- Some of the lecturers did not respond to whether they had received training in OBE, curriculum development and the assessor courses.

## **5.8 VALUE OF THIS STUDY**

The findings of this study will assist the lecturers in bridging the gaps in their facilitation approach by utilizing teaching strategies and assessment strategies that will ensure the development of critical thinking in students. The nursing colleges will be able to identify areas which need attention, such as empowering lecturers through computer skills training, in-service training on different teaching strategies and assessment strategies as well as ensuring the availability of adequate venues for small group activities. The importance of developing critical analytical skills in GNS I through various teaching and assessment strategies, were identified in this study.

## **5.9 CONCLUDING STATEMENT**

This chapter has served to review the achievement of the objectives of the study. The limitations of the research study have been highlighted and recommendations for the implementation of the teaching and assessment strategies that enhance analytical critical thinking have been outlined. The findings in the study will assist the lecturers to bridge the gaps in their approach to teaching, learning and facilitation by utilizing those teaching strategies and assessment strategies that will best ensure the development of critical thinking in students in GNS I.

## LIST OF REFERENCES

- Alfaro- Lefevre, R. 2004.** *Critical thinking in nursing and clinical judgment. A practical approach*, 3<sup>rd</sup> edition, Philadelphia: WB Saunders.
- Armstrong, S.J., Geyer, N., Mngomezulu, T.J., Potgieter, E., Subedar, H. 2008.** *Nurse lecturers' guide to management*. South Africa: Van Schaik.
- Banning, M. 2006.** Nursing research, perspectives on critical thinking. *British journal of Nursing*, 15(8):458-461.
- Barrows, J.E., Lyte, G. & Butterworth. T. 2002.** An evaluation of problem-based learning in a nursing theory and practice module. *Nurse Education in Practice*, 53(2): 155-162.
- Beeken, E.J., Dale, M.L., Enos, M.F. & Yarbrough, S. 1997:** Teaching clinical thinking skills to undergraduate nursing students. *Nurse Educator*, 22(3):37-39.
- Beekman, L. 2000.** Problem-solving and decision-making strategies and skills: A co-curriculum-teaching thinking skills for nursing students. South Africa: Van Schaik.
- Beyer, B.K. 1987.** *Developing a thinking skills program*. United States of America: Allyn & Bacon.
- Billings, D.M. & Halstead J. A. 2005.** *Teaching in nursing. A guide for faculty*, 2<sup>nd</sup> edition, United States of America: Elsevier Saunders.
- Bligh, J. 2001.** Assessment: The gap between theory and practice. *Medical Education*, 35 (3):312-313.



**Bloom, B.S. 1978.** New views of the student: Implications for instruction and curriculum. *Educational Leadership*, 38(7):563-576.

**Bolton, G. 2005.** Reflective Practice – *Writing and professional development*, 2<sup>nd</sup> edition, London: Sage.

**Bradshaw, M.J. & Lowenstein, A.J. 2011.** *Innovative Teaching Strategies in Nursing and Related Health Professions*, 5<sup>th</sup> edition, Canada: Jones & Bartlett.

**Brink, H. 2006.** *Fundamentals of research methodology for health care professionals*, 2<sup>nd</sup> edition, South Africa: Juta. (Revised by: van der Walt, C. & van Rensburg G)

**Bruce, J.C., Klopper, H.C. & Mellish, J.M. 2011.** *Teaching and learning the practice of nursing*, 5<sup>th</sup> edition, South Africa: Heinemann.

**Brunt, B.A. 2005.** Models, measurement and strategies in developing critical thinking skills. *Journal of continuing Education Nursing*, 15(8):255-262.

**Burns, N. & Grove, S. 2005.** *The practice of nursing research conduct, critique and utilization*, 5<sup>th</sup> edition, Texas: W. B. Saunders Company.

**Burns, N. & Grove, S. 2009.** *The practice of nursing research appraisal, synthesis and generation of evidence*, 6<sup>th</sup> edition, Texas: W. B. Saunders Company.

**Burns, N. & Grove, S. 2011.** *Understanding nursing research – Building an evidence – based practice*, 5<sup>th</sup> edition, Texas: W. B. Saunders Company.

**Chabeli, M.M. 2006.** Higher order thinking skills competencies required by outcomes – based education from students. *Curationis*, 29(3):78-86.

**Chaves J.F., Baker, C.M., Chaves, J.A., & Fisher, M.L. 2006.** Self, peer and tutor assessment of competencies using the PBL evaluator. *Journal of Nursing Education*, 45(1):25-31.

**Chen, F.C. & Lin, M.C. 2003.** Effects of nursing literature reading course on promoting critical thinking; two year nursing program students. *Journal of nursing research*, 11(2): 137-147.

**De Bono, E. 1985.** *Six thinking hats*. London: Penguin Books.

**De Vos, A.S., Strydom H., Fouche' C.B. & Delport C.S.L. 2011.** *Research at grass roots for the social sciences and human service professions*, 4<sup>th</sup> edition, South Africa: Van Schaik.

**De Young, S. 2009.** *Teaching Strategies for Nurse Lecturers*, 2<sup>nd</sup> edition, New Jersey: Prentice Hall.

**Dickerson, P.S. 2005.** Nurturing thinkers. *Journal of continuing Education in Nursing*, 36(2):68-72.

**Edwards, S. 2003.** Critical thinking at bedside: a practical perspective. *British journal of nursing*, 12(19):1142-1149.

**Ellerman, C.R., Kataoka-Yahino, M.R., & Wong, H.C. 2006.** Logic models used to enhance critical thinking. *Journal of Nursing Education*, 45(6):220-227.

**Fesler-Birch, D.M. 2005.** Critical thinking and practical outcomes. *A review. Nursing Outlook*, 53(2):59-65.

**Gauteng Nursing Colleges : Revised Curriculum for the Diploma in Nursing (General, Psychiatric and Community) and Midwifery, 2002.**

**Gravett, S. & Geyser, H. 2004.** *Teaching and learning in higher education*. South Africa: Van Schaik.

- Jacobs, M., Vakalisa, N. & Gawe, N. 2004.** *Teaching-Learning Dynamics: A participative approach for OBE*, 3<sup>rd</sup> edition, South Africa : Heinemann.
- Jasper, M. 2006.** *Professional development, Reflection and Decision-making*. Australia: Blackwell Publishers.
- Jenkins, P. & Turick-Gibson, T. 1999.** An Exercise in Critical Thinking using Role Playing. *Nurse Education* Volume, 24(6):1.
- Jenkins, S.D. 2011.** Cross - Cultural Perspectives on Critical Thinking. *Journal of Nursing Education*, 50(5):268-273.
- Kim, S., Phillip, W.R., Pinsky, L., Brock, D., Phillips, K., & Keary, J. 2006.** A conceptual framework for developing teaching cases. A review and synthesis of the literature across disciplines. *Medical Education*, 40(9):867-876.
- Kruger, D. & Nel, N. 2011.** *Addressing Barriers to Learning : A South African Perspective*, 9<sup>th</sup> impression, South Africa : Van Schaik.
- Lekalakala – Mokgele, E. & Du Rand, P.P. 2005.** Model for facilitation in nursing education. *Curationis*, 28(2):22–29.
- Leung, S.F., Mok, E. & Wong, D. 2008.** The impact of assessment strategies of the learning of nursing students. *Nurse Education Today*, 28(6):711-719.
- Maree, J.G. & Fraser, W.J. 2004.** *Outcomes-Based Assessment*. South Africa: Heinemann.
- Maree, J.G. & Fraser, W.J. 2008.** *Outcomes-Based Assessment. Facilitating best practice in classrooms*, 2<sup>nd</sup> edition, South Africa: Heinemann.
- 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.
- Mc Millan, M., Endacott, K. & Gray, M.A. 2003.** Portfolios and assessment of competence: a review of literature. *Journal of Advanced Nursing*, 41(3):283-294.

- Mellish, J.M., Brink, H. & Paton, F. 2001.** *Teaching and learning the practice of nursing*, 6<sup>th</sup> edition, South Africa : Heinemann.
- Meyer, L., Lombard, K., Warnich, P. & Wolhuter, C. 2010.** *Outcomes-Based Assessment for South African teachers*. South Africa : Van Schaik.
- Meyer, S. & van Niekerk, S. 2008.** *Nurse Educator in practice*. South Africa : Juta.
- Morales-Mann, E. T. & Kartell, C. A. 2001.** Problem- based learning in a new Canadian Curriculum. Issues and Innovations in Nursing Education. *Journal of advanced nursing*, 33(1):1 and 14.
- Mouton, J. 2001.** *How to succeed in your Master`s and Doctoral studies*. South Africa : Van Schaik.
- Nelson, L. & Sadler, P. 2005.** Bringing problem-based learning to life using virtual reality, *Nursing Education in Practice*, 56(5):103-108.
- Nieman, M.M., & Monyai, R.B. 2006.** *The educator as mediator of learning*. South Africa: Van Schaik.
- Oermann, M.H. & Gaberson, K.B. 2009.** *Evaluation and Testing in Nursing Education*, 3<sup>rd</sup> edition. New York : Springer.
- Oldenburg, N.L., & Hung, W. 2010.** Problem Solving Strategies Used by RN – BSN in an Online Problem-based Learning Course. *Journal of Nursing Education*, 49(4):219-222.
- Olivier, C. 2000.** *Let`s educate, train and learn outcomes-based*. South Africa: Van Schaik.
- Pardue, S.F. 1987.** Decision-making skills and critical thinking ability amongst associate degree, diploma, baccalaureate and master`s – prepared nurses. *Journal of Nursing Education*, 26(9):354-361.
- Paul, R. & Elder, L. 2007.** The elements of critical thinking. *Foundation for critical thinking*: Retrieved September 20,2011, from <http://www.critical thinking.org/html>.

- Pohl, M. 2000.** *Learning to think, thinking to learn: Models and strategies to develop a classroom culture of learning.* Chettenham: Hawker Brownlans.
- Polit, D.F. & Beck, C.T. 2006.** *Essentials of nursing research: Methods, appraisal, and Utilization*, 6<sup>th</sup> edition, Philadelphia: Lippincott.
- Polit, D.F. & Beck, C.T. 2008.** *Generating and Assessing Evidence for Nursing Practice*, 8<sup>th</sup> edition, Philadelphia: Lippincott.
- Prinsloo, Y. 2003.** *The utilization of teaching strategies that will enhance problem - based learning according to the requirements of outcomes - based education.* Mini – dissertation. University of Pretoria : Pretoria.
- Problac.2001.** Workshop. University of Witwatersrand.
- Quinn, F.M. & Hughes, S.J. 2007.** *Principles and practice of nurse education.* United Kingdom: Nelson Thornes Ltd.
- Revised Curriculum for the Diploma in Nursing, 2002. Gauteng Nursing Colleges, p22.**
- Rossouw, D. 2003.** *Intellectual tools : Skills for the human sciences*, 2<sup>nd</sup> edition, South Africa: Van Schaik.
- Russell, A.T., Comello, R.J. & Wright, D. L. 2007.** Teaching strategies Promoting Active Learning in Healthcare Education: *Journal of Education and Human Development*, 1(1):4-60.
- Schank, M.J. 1990:** Wanted: Nurses with critical thinking skills. *Journal of continuing education in nursing*, 21(2):86-89.
- Simpson, E. & Courtney, M. 2002.** Critical Thinking in Nursing Education: Literature review. *Nurse Practice*, 8(2):4, 8 and 9.

**Smeltzer, S.C. & Bare, B.G. 2004.** *Medical and Surgical Nursing*, 10<sup>th</sup> edition, Philadelphia: Lippincott.

**Smeltzer, S.C., Bare, B.G., Hinkle, J.L. & Cheever, K.H. 2008.** *Medical and Surgical Nursing*, 11<sup>th</sup> edition, Philadelphia: Lippincott.

**South African Nursing Council. 1985.** Guidelines for the Course Leading to Registration as a Nurse (General, Psychiatric and Community) and Midwife. (Based on Regulation R.425, 1985). Pretoria: SANC, p1-4.

**South African Nursing Council. 1992:** The philosophy and policy of the South African Nursing Council with regard to professional education and training. SANC: Pretoria

**South African Nursing Council. 2005:** Nursing Act (Act 33 of 2005) as amended SANC: Pretoria.

**South Africa (Republic) 1998:** South African Authority Qualifications Act (Act 58 of 1998). Pretoria: Government Printers.

**South African Qualifications Authority [S.a.].** The National Qualification Framework: an Overview. p8.

**Taylor, J. & Wros, P. 2007.** Concept mapping. A nursing model for core planning. *Journal of Nursing Education*, 46(5):211-216.

**Tech Terms Dictionary available** :<http://www.techterms.com/definition/multimedia>. (Accessed on 2009/08/17)

**Thompson, C. & Bartels, J.E. 1999.** Outcomes Assessment: Implications for Nursing Education. *Journal of Professional Nursing*, 15(3):170 –178.

**Uys, L.R. & Gwele, N.S. 2005.** *Curriculum Development in Nursing – Process and Innovation*. Canada: Routledge.

**Van der Horst, H. & Mc Donald, R. 1997.** *Outcomes-based Education: Theory and Practice*. South Africa: Kagiso Publishers.

**Van der Horst, H. & Mc Donald, R. 2003.** *Outcomes-based Education: Theory and Practice*, 2<sup>nd</sup> edition South Africa: Kagiso Publishers.

**Walsh, C.M. & Seldomridge, L.A. 2006.** Critical Thinking back to square two. A review. *Journal of Nursing Education*, 45(6):212-219.

**Waterson, E., Harms, E., Qupe, L., Maritz, J., Makobe, K. & Chabeli, M. 2006.** Strategies to improve the performance of students in a nursing college. *Curationis*, 29(2):56-64.

**Wilgis, M. & McConell, J. 2008.** Concept Mapping. *Journal of Continuing Education in Nursing*, 39(3):119-126.

**Wilkie, K. & Burns, I. 2003.** *Problem-Based Learning: A handbook for nurses*. New York: Palgrave Macmillan.

**Wilkinson, J. 1992.** *Nursing process in action. A critical thinking approach*. California: Addison Wesley.

**Willemse, J. 2002.** *Library funding. Adequate financial support for African university libraries*. Oxford: INASP.

**Youngblood, N. & Beitz, J. M. 2001.** Developing Critical Thinking with Active Learning Strategies. *Nurse education*, (26):3.



APPENDIX A

APPROVAL FROM THE DEPARTMENT OF HEALTH



DEPARTMENT OF HEALTH  
Lefapha la Maphele  
Departement van Gesondheid  
Umyango wezeleleli

Enquiries: Sue le Roux  
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TO: Mrs P.C Sithole: M Cur Advanced Education Degree student and Principal Researcher  
University of Pretoria

CC: Mrs C.E van Velden: Supervisor, University of Pretoria

FROM: Sue le Roux: Director: Policy, Planning and Research (PPR)

DATE: 20 November 2008

RE: OFFICIAL APPROVAL TO CONDUCT A RESEARCH STUDY WITHIN THE GAUTENG DEPARTMENT OF HEALTH, STUDY TITLE "AN EXPLORATION OF TEACHING STRATEGIES UTILIZED IN THE FACILITATION OF LEARNING FOR FIRST LEVEL STUDENTS IN GENERAL NURSING SCIENCE"

Dear Madam

The Gauteng Department of Health (GDoH) received a request to review a research proposal to conduct the study mentioned above within the Gauteng Department of Health's domain. We are delighted to inform you that the Director of Policy, Planning and Research has granted permission on behalf of HOD for this research study to be conducted within the GDoH domain.

Adherence to the conditions listed below which form part of the agreement which was signed by the principal researcher as conditions for conduction of this research study is not negotiable. The conditions are:

1. All principles and South African regulations pertaining to ethics of research are observed and adhered to by all involved in the research project. Ethics approval is only acceptable if it has been provided by a South African research ethics committee which is accredited by the National Health Research Ethics Council (NHREC) of South Africa; this is regardless of whether ethics approval has been granted elsewhere.

Of key importance for all researchers is that they abide by all research ethics principles and practice relating to human subjects as contained in the Declaration of Helsinki (1964, amended in 1983) and the constitution of the Republic of South Africa in its entirety. Declaration of Helsinki upholds the following principles when conducting research, respect for:

- Human dignity;
- Autonomy;
- Informed consent;
- Vulnerable persons;
- Confidentiality;
- Lack of harm;
- Maximum benefit;
- and justice

2. The GDoH is indemnified from any form of liability arising from or as a consequence of the process or outcomes of any research approved by HOD or her nominee and conducted within the GDoH domain;
3. Researchers commit to providing the GDoH with periodic progress and a final report; short term projects are expected to submit progress reports on a more frequent basis and all reports must be submitted to the Director: Policy, Planning and Research of the GDoH;
4. The Principal Investigator shall promptly inform the above mentioned office of changes of contact details or physical address of the researching individual, organisation or team;
5. The Principal Investigator shall inform the above office and make arrangements to discuss their findings with GDoH prior to dissemination;





6. The Principal Investigator shall promptly inform the above mentioned office of any adverse situation which may be a health hazard to any of the participants;
7. The Principal Investigator shall request in writing authorization by the HOD via PPR for any intended changes of any form to the original and approved research proposal;
8. If for any reason the research is discontinued, the Principal Investigator must inform the above mentioned office of the reasons for such discontinuation;
9. A formal research report upon completion should be submitted to the Director: Policy, Planning and Research of the GDoH with recommendations and implications for GDoH, the Directorate will make this report available for the HOD

The Gauteng Department of Health would like to wish the researcher all the best for this important study and once more requests that findings be made available to the department when the study is completed

For any further queries please contact the office of the Director: Policy, Planning and Research of the Gauteng Department of Health; contacts are provided above.

Yours truly,

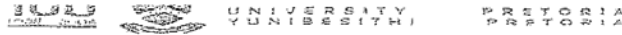
Sube Je Roux  
Director: Policy, Planning and Research  
Date: 5/12/2023



## APPENDIX B

# APPROVAL FROM THE FACULTY OF HEALTH SCIENCES RESEARCH ETHICS COMMITTEE

APPENDIX B



Faculty of Health Sciences Research Ethics Committee

22/09/2008

Number S110/2008  
Title An exploration of teaching strategies utilised in the facilitation of learning for first level students in General Nursing Science  
Investigator Phurnzile Sithole, Department of Nursing Science, University of Pretoria (SUPERVISOR MRS C E VAN VELDEN I PROF N C VAN WYK)  
Sponsor None  
Study Degree: Advanced Nursing Education (M.Cur.)

This Student Protocol has been considered by the Faculty of Health Sciences Research Ethics Committee, University of Pretoria on 22/09/2008 and provisional approval herewith given pending receipt of letter from the Statistician and permissions from the Head of the Gauteng Department of Health and the three(3) Nursing Colleges.

Dr AG Nienaber Prof (female) BA (Hons) (Wits); LLB (Pretoria); LLM (Pretoria); LLD (Pretoria); Diploma in Datametrics (UNISA) MBChB; V.O.L. Karusseit Prof J MFGP (SA); M,Med (Chir); FCS (SA)  
J. Ker Deputy Dean: MBChB (Pretoria); MMed (Int) (Pretoria); MD (Pretoria)  
Prof M Kruger CHAIRPERSON (female) MBChB(Pretoria) M, MedPaed,(Pretoria) M, Phil, (Applied Ethics) (Stell) PhD,(Leuven)  
Dr N K Likibi MBChB, Med Adviser (Gauteng Dept of Health) (female)  
Dr T S Marcus Mrs BSc (LSE) PhD (University of Lodz Poland) (female) BSc  
M C Nzeku Snr Sr (NUL) MSc Biochem (UCL,UK) (female) BCur (Et Al) B Tech  
J Phatofi Mr Y M Oncology  
Sikweyiya MPH (Umea University Umea, Sweden); Master Level Fellowship (Research Ethics) (Pretoria and UKZ -J); Post Grad, Diploma in Health Promotion (Unitra); BSc in Health Promotion (Unitra)  
Dr L Schoeman (female) BPharm (North West); BAHons (Psychology)(Pretoria); PhD (KwaZulu-Natal), International Diploma in Research Ethics (UCT)  
Dr R Sommers (female) MBChB; M,Med (Int): MPhar,Med  
Prof C W van Staden MBChB (Pretoria); MMed(Psych) (Pretoria); MD (Warwick,UK); FCPsych (SA); FTCL (London); UPLM (UNISA) BChD, MSc (Odont), MChD (Oral Path)  
Prof TJP Swart BChD DGA (Pretoria)  
Dr AP van der Walt

### Student Ethics Sub-Committee

Prof R S K Apatu -,;BChB (Legon,UG); PhD (Cantab); PGDip International Research Ethics (UCT)  
Dr A M Bergh (female) BA (RAU); BA (Hons) (Linguistics) (Stell); BA (Hons) (German) (UNISA); BEd (Pretoria); Pr,D (Pretoria); SED (Stell)  
Mrs N Briers (female) BSc (Stell); BSc Hons (Pretoria) MSc (Pretoria) DHETP (Pretoria) BA (Pretoria) BD (Pretoria) DO (Pretoria)  
Dr S I Cronje (female) MBChB (Pretoria) BSc (Computer Science)(Pretoria); BSc Hons (Pharm) (Potchefstroom); MpraxMed (Pretoria); MSc (Clinical Epidemiology) (Pretoria); FCEM (SA) Dip PEC (SA)  
Prof Daleen Millard (female) B,Jur (Pretoria) LLB (Pretoria); LLM (Pretoria); AIPSA Diploma in Insolvency Law (Pretoria); LLD (UJ) BSc (Hons) Stats (Ahmadu Bello University -Nigeria), MSc (Applied Statistics (UKC United Kingdom); PhD (Ahmadu Bello University - Nigeria)  
Dr L Schoeman CHAIRPERSON (female) BPharm (North West) BAHons (Psychology)(Pretoria); PhD (KwaZulu-Natal) International Diploma in Research Ethics (UCT)  
Dr R Sommers SECRETARIAT (female) MBChB; M,Med (Int); MPhar,Med

DR R SOMMERS; MBChB; M,Med (Int); MPhar Med,  
SECRETARIAT of the Faculty of Health Sciences  
Research Ethics Committee  
University of Pretoria

DR L SCHOEMAN; BPharm, BA Hans (Psy), PhD;  
Dip, International Research Ethics  
CHAIRPERSON of the Faculty of Health Sciences  
Student Research Ethics Committee, University of Pretoria

~ 012354 1677

0866516047

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31 Bophelo Road, HW Snyman South Building, Level 2, Room 2,33, Gezina, Pretoria

## APPENDIX C

### REQUEST FOR PERMISSION FROM NURSING COLLEGES

20 Silvela Road

Sandown

Sandton

2146

3 January 2009

Mrs. Peters

Chris Hani Baragwanath Nursing College

Private bag X05

Bertsham

2013

### APPLICATION TO CONDUCT RESEARCH STUDY ON FIRST YEAR LECTURERS AND STUDENTS

I hereby request to conduct research on first year lecturers and students in the four year comprehensive course during the months of February and March 2009 at the end of the block.

I am an M Cur student at the University of Pretoria under the guidance of Dr. S. Meyer and Mrs. Van Velden. The title of my study is "An exploration of the teaching strategies utilized by the lecturers in the facilitation of General Nursing Science (GNS) at the first level of the four year course".

The purpose of the study is to identify the causes of the high failure rate in the subject (GNS) in the second year of training.

With your permission data will be gathered by means of a questionnaire from first year lecturers involved in the facilitation of GNS and the first year students at two Nursing Colleges in

Gauteng. A convenient sample of lecturers will be utilized and the students will be randomly selected.

The focus of the study will be on the following:

- Teaching strategies utilized by the lecturers in their facilitation of GNS.
- Assess whether the lecturers integrate GNS theory and practice.

The researcher will adhere to the right of privacy and confidentiality. This means that the identity of the respondents will be protected, as their names will not be appearing on the questionnaire. The respondents will not be coerced into participation and should they wish to withdraw at any time during the study, their wish will be considered without penalty.

The researcher will ensure adherence to the highest standard of research planning, implementation and reporting. The researcher is committed to honest unbiased and neutral research.

The research results will be made available to you on request. Should you have any questions with regard to this project, I will be pleased to answer them. I would be grateful if you could respond by the 29<sup>th</sup> of January 2009.

Herein I have enclosed the following documents:

- Research proposal
- Letter of permission from the University of Pretoria Ethics Committee
- Questionnaires

**Contact number : 082 832 3859**

**: 011 983 3002**

**Yours sincerely**

**P.C. SITHOLE (MRS.)**

**C.E. Van VELDEN (MRS.)**

**Contact number: 012 354 2131**

20 Silvela Road

Sandown

Sandton

2146

3 January 2009

Mrs. Harms

Ann Latsky Nursing College

Plunkett Avenue

Auckland Park

2006

### **APPLICATION TO CONDUCT RESEARCH STUDY ON FIRST YEAR LECTURERS AND STUDENTS**

I hereby request to conduct research on first year lecturers and students in the four year comprehensive course during the months of February and March 2009 at the end of the block.

I am the Academic Head at Chris Hani Baragwanath Nursing College and an M Cur student at the University of Pretoria under the guidance of Dr. S. Meyer and Mrs. Van Velden. The title of my study is "An exploration of the teaching strategies utilized by the lecturers in the facilitation of General Nursing Science (GNS) at the first level of the four year course".

The purpose of the study is to identify the causes of the high failure rate in the subject (GNS) in the second year of training.

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Herein I have enclosed the following documents:

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**Contact number : 082 832 3859**

**: 011 983 3002**

**Yours sincerely**

**P.C. SITHOLE (MRS.)**

**C.E. Van VELDEN (MRS.)**

**Contact number: 012 354 2131**

20 Silvela Road

Sandown

Sandton

2146

3 January 2009

Mrs. Rambau

S.G. Lourens Nursing College

Private bag X755

Pretoria

0001

### **APPLICATION TO CONDUCT RESEARCH STUDY ON FIRST YEAR LECTURERS AND STUDENTS**

I hereby request to conduct research on first year lecturers and students in the four year comprehensive course during the months of February and March 2009 at the end of the block.

I am the Academic Head at Chris Hani Baragwanath Nursing College and an M Cur student at the University of Pretoria under the guidance of Dr. S. Meyer and Mrs. Van Velden. The title of my study is "An exploration of the teaching strategies utilized by the lecturers in the facilitation of General Nursing Science (GNS) at the first level of the four year course".

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- Assess whether the lecturers integrate GNS theory and practice.

The researcher will adhere to the right of privacy and confidentiality. This means that the identity of the respondents will be protected, as their names will not be appearing on the questionnaire. The respondents will not be coerced into participation and should they wish to withdraw at any time during the study, their wish will be considered without penalty.

The researcher will ensure adherence to the highest standard of research planning, implementation and reporting. The researcher is committed to honest unbiased and neutral research.

The research results will be made available to you on request. Should you have any questions with regard to this project, I will be pleased to answer them. I would be grateful if you could respond by the 29<sup>th</sup> of January 2009. Herein I have enclosed the following documents:

- Research proposal
- Letter of permission from the University of Pretoria Ethics Committee
- Questionnaires

**Contact number : 082 832 3859**

**: 011 983 3002**

**Yours sincerely**

**P.C. SITHOLE (MRS.)**

**C.E. Van VELDEN (MRS.)**

**Contact number: 012 354 2131**



## APPENDIX D

### REQUEST FOR CONSENT FROM THE RESPONDENTS

Cellular: 0828323859

Enquiries: Mrs. P.C. Sithole

E-mail: [cordelia.sithole@gauteng.gov.za](mailto:cordelia.sithole@gauteng.gov.za)

Contact information of supervisors:

Prof N. van Wyk            012 354 2125

Mrs. C.E. van Velden    012 354 2131

School of Health Care Sciences

Department of Nursing Science

P.O. Box 667

Pretoria

0001

Dear Participant

**Research Topic: An exploration of the teaching strategies utilized in the facilitation of learning in General Nursing Science at the first level of the course leading to registration as a nurse in (General, Psychiatry, Community ) and Midwifery.**

Thank you for your willingness to participate in this study regarding the above mentioned topic at your college. The total time scheduled is 20-30 minutes for completion of the questionnaire.

I am presently studying for the M Cur Advanced Education at the University of Pretoria.

The purpose of this research is to identify the cause of the high failure rate in the subject General Nursing Science (GNS) in the second level of training.

Data will be gathered:

- To assess the teaching strategies utilized by the lecturers in their facilitation of GNS in the first year of training.
- To assess whether the lectures integrate GNS theory and practice.
- To identify and describe possible shortcomings in the facilitation of teaching strategies.
- To identify other factors contributing to the high failure rate.
- To make recommendations with regard to the findings.

The researcher with your help aims to gather information that assist the students in their performance on the subject GNS in the second level of training.

Your participation in this study is voluntary and you can refuse to participate or stop at any time without stating a reason.

In order to protect your identity you are not expected to give your name on this questionnaire. No data will be linked to your name. All data will be treated with confidentiality. There will be no harm in partaking in the study; instead, the benefits of the study will improve the performance of the students. The results will be made available to you on request at the end of the study. Should you have questions regarding this study, feel free to contact me at the above mentioned address.

Yours Sincerely

**Mrs. P.C. Sithole**



**APPENDIX E**

**LECTURERS' QUESTIONNAIRE**

**APPENDIX E: LECTURERS' QUESTIONNAIRE**

Please indicated by using an x next to the appropriate answer

**OFFICE USE ONLY**

<b>RESPONDENT NUMBER _____</b>					V0	<input type="text"/>	
<b>1.</b>	<b>Highest qualification obtained.</b>				V1	<input type="text"/>	
	Diploma in nursing			1			
	Degree in nursing education			2			
	Masters degree			3			
	PhD			4			
<b>2.</b>	<b>How many years of experience do you have as a nurse educator?</b>				V2	<input type="text"/>	
	<b>Years</b>	<b>1. (0-3)</b>	<b>2. (3-6)</b>	<b>3. (6-9)</b>			<b>4. (9-12)</b>
<b>3.</b>	<p><b>Which of the following characteristics are important in a student with critical thinking skills?</b></p> <p><b>Use the scale provided to reflect the importance of each concept.</b></p> <p><b>Where 1 is not important to critical thinking and 4 is of utmost importance.</b></p>						



Characteristics		1. Not important	2. Slightly important	3. Important	4. Utmost important	
1	Demonstrate analytical thinking					V3.1
2	Demonstrate self confidence					V3.2
3	Demonstrate ability to prioritize					V3.3
4	Demonstrate scientific reasoning					V3.4
5	Demonstrate systematic approach					V3.5
6	Demonstrate theory practice correlation					V3.6
7	Demonstrate questioning of answers					V3.7
8	Search for evidence					V3.8
9	Ignoring of irrelevant information					V3.9
10	Demonstrate open mindedness					V3.10

**OFFICE USE ONLY**

Teaching strategies		1. Never	2. Seldom	3. Often	4. Always	
4.	<b>Identify the teaching strategies you use in order to develop critical thinking in students and indicate how often you use them</b>					
1	Formal Lectures					V4.1
2	Debate					V4.2
3	Small Group activities					V4.3
4	Self directed learning					V4.4
5	Simulations					V4.5
6	Videos					V4.6
7	Role-play					V4.7



8	Workbooks					V4.8	
9	Projects					V4.9	
10	Assignments					V4.10	
11	Case studies					V4.11	
12	Portfolios					V4.12	
13	Research articles					V4.13	
	Other: specify						
	_____						
	_____						
	_____					V4.14	
	_____					V4.15	
5.	<b>Identify the assessment strategies that you use to ensure that students are critical thinkers and indicate how often you use them.</b>						
<b>Assessment strategies</b>		<b>1. Never</b>	<b>2. Seldom</b>	<b>3. Often</b>	<b>4. Always</b>		
1	Written tests/examinations					V5.1	
2	Problem-based scenarios					V5.2	
3	Assignments					V5.3	
4	Case studies					V5.4	
5	Project work					V5.5	
6	Portfolio					V5.6	



	Other: specify  <hr/> <hr/> <hr/> <hr/>	V5.7	
		V5.8	
		<b>OFFICE USE ONLY</b>	
6.	<b>Whilst you are presenting content in class, a student asks a question that you have no immediate solution to. How do you respond? Mark the most appropriate choice.</b>		
1	Find out on your own and come back to the student.	1	V6 <input data-bbox="1450 1073 1528 1150" type="checkbox"/>
2	Give the problem as an assignment to the student and leave the student to complete it.	2	
3	Go through the available data and leave it up to the student to seek the solution under your guidance.	3	
4	Lets the students brainstorm as a class exercise in order to attain the solution.	4	
	Other: specify  <hr/>		



7. Have you been trained or had an in service training on the following courses? Indicate by ticking on the appropriate column.						
		1. Yes	2. No			
1	OBE			V7.1	<input type="checkbox"/>	
2	PBL			V7.2	<input type="checkbox"/>	
3	Assessor Course			V7.3	<input type="checkbox"/>	
4	Curriculum Development			V7.4	<input type="checkbox"/>	
8. How often do you utilize the following computer programs?						
		1. Not at all	2. Rarely	3. 50% of the time	4. Most of the time	5. All the time
	Microsoft Word					
	Microsoft Power point					
	Microsoft Excel					
				V8.1	<input type="checkbox"/>	
				V8.2	<input type="checkbox"/>	
				V8.3	<input type="checkbox"/>	



				OFFICE USE ONLY		
9.	Indicate the training you have received regarding the following computer courses.			1. Yes	2. No	
		Microsoft Word			V9.1	
		Microsoft Power point			V9.2	
	Microsoft Excel			V9.3		
10.	Indicate the educational facilities you have access to at the college.			1. Yes	2. No	
	1	Videos			V10.1	
	2	Computer Lab			V10.2	
	3	Internet			V10.3	
	4	Teaching CD disc's			V10.4	
	5	Library facilities			V10.5	
	6	Skills / simulation laboratory			V10.6	
	7	Facilities for small group discussions			V10.7	
	8	Video conferences			V10.8	
	Other: specify					
	_____					V10.9
	_____					
	_____					V10.10





11. How often do you utilize the following teaching aids?								
		1. Not at all	2. Rarely	3. 50% of the time	4. Most of the time	5. All the time		
1	Posters						V11.1	<input type="checkbox"/>
2	Whiteboard						V11.2	<input type="checkbox"/>
3	Overhead projector						V11.3	<input type="checkbox"/>
4	Training CD discs						V11.4	<input type="checkbox"/>
5	Videos / DVD's						V11.5	<input type="checkbox"/>
6	Power point presentations						V11.6	<input type="checkbox"/>
7	Models						V11.7	<input type="checkbox"/>
8	Research articles						V11.8	<input type="checkbox"/>

				OFFICE USE ONLY
12.	Do you encourage students to utilize any multimedia when giving assignments?			V12 <input type="checkbox"/>
	Yes		1	
	No		2	
	Do you provide students with any multimedia when giving assignments			



13.						V13	<input type="checkbox"/>	
	Yes				1	V13	<input type="checkbox"/>	
	No				2			
14.	<b>Do you use scenarios to develop student's problem solving skills in class?</b>					V14	<input type="checkbox"/>	
	Yes				1	V14	<input type="checkbox"/>	
	No				2			
15.	<b>Do you utilize OBE educational strategies in the classroom?</b>					V15	<input type="checkbox"/>	
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	V15	<input type="checkbox"/>
		Not at all	Rarely	50% of the time	Most of the time	All the time		
16.	<b>If not utilized most or all of the time please indicate why not.</b>					V16.1	<input type="checkbox"/>	
	_____					V16.2	<input type="checkbox"/>	
	_____							
	_____							
	_____							

**Thank you for your participation**



**APPENDIX F**

**STUDENTS' QUESTIONNAIRE**

**OFFICE USE  
ONLY**

Please indicate by using an x next to the appropriate answer

<b>RESPONDENT NUMBER</b> _____	V0 <input type="checkbox"/>
--------------------------------	-----------------------------

<b>1.</b>	How old are you? _____ years	V1 <input type="checkbox"/>
-----------	------------------------------	-----------------------------

<b>2.</b>	How many years of experience do you have in nursing? Include your years as an auxiliary nurse. _____ years	V2 <input type="checkbox"/>
-----------	--	-----------------------------

<b>3.</b>	<p><b>Which of the following characteristics enhance critical thinking skills? Use the scale provided to reflect the importance of each concept. Where 1 is not important to critical thinking and 4 is of utmost importance.</b></p>				
<b>Characteristics</b>	<b>5. Not important</b>	<b>6. Slightly important</b>	<b>7. Important</b>	<b>8. Utmost important</b>	



1	Demonstrate analytical thinking					V3.1	
2	Demonstrate self confidence					V3.2	
3	Demonstrate ability to prioritize					V3.3	
4	Demonstrate scientific reasoning					V3.4	
5	Demonstrate systematic approach					V3.5	
6	Demonstrate theory practice correlation					V3.6	
7	Demonstrate questioning of answers					V3.7	
8	Search for evidence					V3.8	
9	Ignoring of irrelevant information					V3.9	
10	Demonstrate open mindedness					V3.10	

						OFFICE USE ONLY
4.	<b>Identify the teaching strategies used by the lecturers and indicate how often they use them.</b>					
<b>Teaching strategies</b>		<b>1. Never</b>	<b>2. Seldom</b>	<b>3. Often</b>	<b>4. Always</b>	
1	Formal Lectures					V4.1
2	Debate					V4.2
3	Group Discussions					V4.3
4	Small Group activities					V4.4
5	Self directed learning					V4.5
6	Simulations					V4.6
7	Videos					V4.7
8	Role-play					V4.8
9	Workbooks					V4.9



10	Projects					V4.10	
11	Assignments					V4.11	
12	Case studies					V4.12	
13	Portfolios					V4.13	
14	Research articles					V4.14	
	Other: specify						
	_____						
	_____					V4.15	
	_____					V4.16	
	_____						

<b>5.</b>	<b>Identify the assessment strategies used by the lecturers and indicate how often they use them.</b>					
	<b>Assessment Methods</b>	<b>6. Never</b>	<b>7. Seldom</b>	<b>8. Often</b>	<b>9. Always</b>	
1	Written tests/examinations					V5.1
2	Problem-based scenarios					V5.2
3	Assignments					V5.3
4	Case studies					V5.4
5	Project work					V5.5
6	Portfolio					V5.6
	Other: specify					
	_____					V5.7
	_____					V5.8
	_____					
	_____					



			OFFICE USE ONLY
<b>6.</b>	<b>If you provide the wrong answer during the presentations in class, how does the lecturer respond? Mark the most appropriate choice.</b>		
	Find out on your own and come back to the lecturer	1	V6 <input type="checkbox"/>
	Gives the problem as an assignment to the student and leaves the student to complete it.	2	
	Go through the available data and leaves it up to the student to seek the solution under her guidance.	3	
	Lets the students brainstorm as a class exercise in order to attain the solution.	4	
	Other: specify _____ _____ _____ _____	5	

<b>7.</b>	<b>To what extent is the following media available to the students at the college?</b>			
		<b>1. Available at the college</b>	<b>2. Available at another institution</b>	<b>3. Not available</b>
1	Videos			
2	Computer Lab			

V7.1

V7.2



3	Internet				V7.3	
4	Teaching CD disc's				V7.4	
5	Library facilities				V7.5	
6	Skills / simulation laboratory				V7.6	
7	Facilities for small group discussions				V7.7	
8	Video conferences				V7.8	

							OFFICE USE ONLY
8.	<b>Please indicate how often nurse lecturers utilize the following teaching aids in the classroom, to enhance critical thinking.</b>						
		<b>1. Not at all</b>	<b>2. Rarely</b>	<b>3. 50% of the time</b>	<b>4. Most of the time</b>	<b>5. All the time</b>	
1	Posters						V8.1
2	Whiteboard						V8.2
3	Overhead projector						V8.3
4	Training CD disc's						V8.4
5	Videos / DVD's						V8.5
6	Power point presentations						V8.6
7	Models						V8.7
8	Research articles						V8.8
9.	<b>Are you encouraged to utilize any multimedia when given assignments?</b>						



	Yes	1	V9	<input type="checkbox"/>
	No	2		
<b>10.</b>	<b>Are you provided with any multimedia when given assignments?</b>			
	Yes	1	V10	<input type="checkbox"/>
	No	2		
<b>11.</b>	<b>If you answered yes in question 9 or 10 please indicate how.</b>			
1	Training CD disc's	1	V11.1	<input type="checkbox"/>
2	Videos / DVD's	2	V11.2	<input type="checkbox"/>
3	Power point presentations	3	V11.3	<input type="checkbox"/>
4	Models	4	V11.4	<input type="checkbox"/>
5	Research articles	5	V11.5	<input type="checkbox"/>
6	Library	6	V11.6	<input type="checkbox"/>
7	Internet	7	V11.7	<input type="checkbox"/>
<b>12.</b>	<b>Are scenarios used to develop your problem solving skills in class?</b>			
	Yes	1	V12	<input type="checkbox"/>
	No	2		

Thank you for your participation