Paradigmatic perspective for development of an educational programme to facilitate critical thinking of student nurses in Namibia

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Abstract

This research paper is focuses on describing the paradigmatic perspective used for development of an educational programme to facilitate critical thinking of student nurses. The study of this nature requires a paradigmatic perspective this is a collection of logically linked concepts and propositions that provide a theoretical perspective or orientation that tends to guide the research approach to a specific direction.

The study was conducted in four phases, beginning with the needs assessment in phase 1 through which the researcher determine the needs of the students in terms of critical thinking, followed by phase 2 on the development of an educational framework and phase 3 and 4 on implementation and evaluation and this two phases were conducted simultaneously.

The positivistic paradigm allows the researcher to be orderly and disciplined in the procedures followed during the study to acquire information. For this study the researcher worked according to a specific and logical plan of action and conducted the research in a series of steps. In this study the paradigm consisted meta-theoretical such as ontological, epistemological, axiological and methodological assumption. The theoretical basis of this study included the principal of adult learning; Model of curriculum development; Nicholas and Nichols; Viedebeck's model of teaching critical thinking and Theoretical principle of constructivism. These theoretical frameworks were applied in respectively in the phases listed above.

Keywords: *Paradigmatic Perspective; Development; Educational Programme; Facilitate Critical Thinking and Student Nurses.*

1. Introduction

The study is considered to be in the interests of the nursing profession of Namibia, since it will contribute to the development of critical thinking in nursing practice, which will ultimately lead to improvement in nursing care. The researcher considers critical thinking to be the skill that could enable and empower Namibian nurses to approach problems in the health care situation of Namibia differently – with extensive benefits for the patients.

The development of an educational programme to facilitate critical thinking among student nurses was in line with the challenge of nursing education in general to move students from lower-order thinking to higher-order thinking to optimize their ability to solve problems in nursing practice (Hagerman, 2004, p.1).In 1992 the National League for Nurses (NLN) was already emphasizing the development of critical thinking skills as an essential element of nursing practice and suggesting that nursing curricula should focus in their practical component on the development of critical thinking skills, including reasoning skills, in order to allow nurses to develop as critical thinkers (Inouye & Flannely, 1998, p. 68).

Authors agree that critical thinking can give "nursing a lifeline" into future development. An intense interest in the teaching and assessment of critical thinking in nursing education has emerged owing to the fact that nurse educators realize the profound need to improve students' critical thinking skills and clinical judgment so that they will be better prepared for the demands of clinical nursing practice (Jones & Brown, 1991, p. 553; Wilkinson, 1996, p. 29; Fonteyn, 1998, p. 305; NLN, 2003, p.1)

A paradigm is defined as a "world view, a general perspective on the complexities of the "real world" or "reality" (Polit & Beck, 2004, p.13; Polit & Beck, 2006, p.13). Paradigms for human inquiry are often characterized in terms of the way in which they respond to basic philosophical questions.

This study was conducted within a positivistic paradigm which directs research activity to understanding the causes of phenomena. The positivistic paradigm allows the researcher to be orderly and disciplined in the procedures followed during the study to acquire information (Polit & Beck, 2006, p.13). For this study the researcher worked according to a specific and logical plan of action and conducted the research in a series of steps in the development such educational programme.

The philosophical basis of an educational programme refers to the underlying values and beliefs that influence and direct the programme structure and its substance. It is important that the development of the programme be in line with the philosophy and mission statement of the institution. These describe the unique purpose and reason for the existence of an institution (Csokasy, 1998, p. 97).

The educational programme was developed within the philosophical approach of humanistic existentialism, which is in line with the mission statement of the Faculty of Medical and Health Sciences at the University of Namibia where nursing students are trained. Humanistic existentialism focuses on individualism and self-

fulfillment, choices that need to be made, freedom of choice, meaning of choice and the responsibility one has for choice that indicates that a person is uniquely responsible for his/her own fate. It is believed that individuals are faced with freedom of choice to participate in the programme and that the development of critical thinking in the student and professional nurse remains a personal choice (Praeger, 1995, p. 302; Dillard & Laidig, 1998, p. 75) .

For the development of this educational programme the researcher focused on the student nurse as an individual on the verge of becoming a professional nurse who is responsible for the rendering of comprehensive health care. Rendering comprehensive health care involves the ability to identify and address the health needs of the nation of Namibia to render a service, especially in the domains of preventive, promotive, curative and rehabilitative health care.

In order to be able to render comprehensive health care, the student nurse has to develop as a critical thinker to empower him-/herself to exercise professional judgment which will ensure that the Namibian public will receive high quality safe, professionally and ethically based health care (Faculty of Medical and Health Sciences- objectives, UNAM). The above-mentioned is in line with the view of Shaw (2006, p. 3) on the existentialistic approach. Shaw says that in the class of the existentialist, subject matter takes second place to helping the students understand and appreciate themselves as unique individuals who accept complete responsibility for their thoughts, feelings and actions.

Humanistic existentialism as a philosophical approach to the study implied furthermore that student nurses should become aware of their ability to realize their potential, should have freedom of responsibility and in relation to others strive to find themselves in this process of developing critical thinking. Moreover, as human beings we should realize that we live in a world of complexities and possibilities and we all have the responsibility for making the most of this existence. Existentialism is particularly applicable to nursing because of its emphasis on self-determination, freedom of choice and self-responsibility (Praeger, 1995, p. 302; Dillard & Laidig, 1998, p. 75). A structure supportive of the philosophy of humanistic existentialism is one of the principles of constructivism which also supports the learner as a unique individual with unique backgrounds and needs.

1.1. Principles of constructivism

The constructivist paradigm, also referred to as the naturalistic paradigm, began as a counter movement to positivism and represents an alternative system for inquiry (Polit& Beck, 2006, p.15).It may also be considered a philosophical framework of learning. For the constructivist /naturalistic inquirer, reality is not fixed and many constructions are possible. In research, constructivism relates findings to the interaction between the inquirer and participants (Polit & Beck, 2006, p. 15; Wikipedia, n. d (a), p.1).

For the educational principles and approach the constructivism focuses on the learner with multiple interpretations in mind, and where interaction among the learner and other stakeholders in the education process are important. The emphasis in the constructivist approach is on facilitator-supported learning, initiated and directed by the learner (Wikipedia, n.d (a), p.1).

Constructivism emphasizes the involvement of the learner/student in his own learning to construct and create new ideas from previous experience. It is thus important that the learner is given the opportunity to voice his experience and to allow as many construction of a situation as possible. The principles of constructivism as applied to this educational programme were as follows:

- Real-world environments were incorporated into the programme, which assisted the participants to focus on everyday world problems in terms of case scenarios. However, conditions during the implementation of the programme allowed for different interpretations of a given situation which facilitated active participation by the participants of the educational programme

- The facilitator of the educational programme (researcher) served as the coach to facilitate thoughts and strategies to solve these problems but participants were allowed freedom of thought and construction.
- The presentation of the educational programme focused on knowledge construction and not reproduction (see chapter 7).
- Reflective practice was fostered because constructivism allows and emphasizes understanding of a situation and not merely a reproduction as already mentioned.
- Multiple modes of presentation were encouraged which provided for the uniqueness of the learner/participant while allowing the learner to develop and individual potential.
- Self-awareness in the construction of knowledge was emphasized (Murphy, 1997, p. 4; Savard, 2004, p.1; Polit & Beck, 2006, p.16; Wikipedia, n.d (a), p.1).

Except for the philosophical approaches, different educational approaches were also integrated into the development of the programme.

A programme is defined as a plan of things to be done or included in the development of something. Another sense of "programme" is an educational course in which material to be learned is presented in small graded amounts (Hornby, 2005, p. 1161). For this study an educational programme will be offered over a period of time, to be indicated, in which the main objective will be to facilitate critical thinking in nursing practice. The participants of this educational programme will be senior student nurses in their fourth year of study at the Faculty of Medical and Health Sciences at Windhoek.

Different definitions exist for this term, which makes it difficult to apply a single suitable definition. Critical thinking is the rational investigation of ideas, inferences, assumptions, principles, arguments, conclusions, issues, statements, beliefs and actions that covers scientific reasoning and includes the nursing process, decision making and reasoning on controversial issues (Bandman & Bandman, 1988, p. 5; Green, 2000, p.3). Facione (1998, p. 3) considers a critical thinker to be "habitually inquisitive, well informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking information, reasonable in selection of criteria, focused in inquiry and persistent in seeking results which are as precise as the subject and the circumstances of inquiry admit. Critical inquiry is considered an important quality for safe practice."

It is the opinion of Wilkinson (1996, p.11) that critical thinking is goal-oriented, purposeful thinking that involves a number of mental skills, such as determining what data are relevant, evaluating the credibility of sources and drawing inferences. It further requires that a person make clinical judgments.

The term refers to an action or process that will make things function more smoothly and easily (Hornby, 2005, p. 523). For the purposes of this study, "to facilitate" refers to the action by means of which the critical thinking abilities of student nurses will be promoted during an educational programme. Facilitating is furthermore conceptualized as the nurse's ability to create and accommodate a specific climate in which practice takes place (Cilliers & Terblanche, 2000, p. 90). For the purposes of this study, "facilitating" refers to the climate in which the programme will be conducted in order to facilitate critical thinking among student nurses.

The term indicates a "person who helps somebody to do something more easily by discussing problems, giving advice rather than telling them what to do" (Hornby, 2005, p. 523). In this study the term "facilitator" refers to the researcher who will conduct the programme to facilitate the development of critical thinking among student nurses.

This refers to a person registered as a nurse in Namibia under section 20 of the Nursing Professions Act 8 of 2004. For the purposes of this study the term "professional nurse" will be used to refer to a registered nurse at the functional level in all disciplines

of nursing (Nursing Professions Act 8 of 2004, p.31). This indicates a student nurse registered under section 21 of the Nursing Professions Act 8 of 2004 (Nursing Professions Act 8 of 2004, p.31) .For the purposes of this study, a student nurse refers to a nursing student registered with the Namibian Nursing Board as well as at the University of Namibia, in the Faculty of Medical and Health Sciences. This study will further focus on student nurses in their final year (4th year) of study for the Comprehensive Diploma in Nursing and Midwifery.

2. Aim of the study

The specific purpose of this study was to develop, implement and evaluate an educational programme that will promote critical thinking among student nurses in order to empower them to practise critical thinking as professional nurses after completing their studies. However to develop such educational programme a paradigm perspective is required to guide the research

3. Objectives of the study

The objectives of the study were to:
- Conduct a needs assessment on the needs of the student nurse in Namibia regarding critical thinking in nursing practice.
- Develop an educational programme to facilitate critical thinking among student nurses innursing practice and.
- Implement and evaluate an educational programme to facilitate critical thinking among student nurses in nursing practice.

4. Significance of the study

The study is considered to be in the interests of the nursing profession of Namibia, since it will contribute to the development of critical thinking in nursing practice, which will ultimately lead to improvement in nursing care. The researcher considers critical thinking to be the skill that could enable and empower Namibian nurses to approach problems in the health care situation of Namibia differently – with extensive benefits for the patients. The development of an educational programme to facilitate critical thinking among student nurses was in line with the challenge of nursing education in general to move students from lower-order thinking to higher-order thinking to optimize their ability to solve problems in nursing practice (Hagerman, 2004, p.1).

5. Paradigmatic perspectives of the research

A paradigm is defined as a "world view, a general perspective on the complexities of the "real world" or "reality" (Polit & Beck, 2004, p.13; Polit & Beck, 2006, p.13). Paradigms for human inquiry are often characterized in terms of the way in which they respond to basic philosophical questions. This study was conducted within a positivistic paradigm which directs research activity to understanding the causes of phenomena. The positivistic paradigm allows the researcher to be orderly and disciplined in the procedures followed during the study to acquire information (Polit & Beck, 2006, p.13). For this study the researcher worked according to a specific and logical plan of action and conducted the research in a series of steps. The paradigmatic perspectives of this study consist of Meta - theoretical assumption and theoretical assumptions and described as follow:

5.1. Meta-theoretical assumptions

According to Botes (1995), meta-theoretical or meta-paradigm assumptions influence the research decisions throughout and serve as a framework within which theoretical statements are made.

Creswell (2013) suggests that the following four fundamental interrelated questions should be asked by an inquirer in order to understand the assumptions.

Ontological assumption: Ontology refers to the study of "being" or "reality" (Mouton, 1998, p. 46; Polit & Beck, 2006, p.14) and for the purposes of this study the reality in question is critical thinking within nursing practice in Namibia. Thinking and decision making are continuous activities for the future professional nurse because people are living longer, and living with more chronic and complex problems, all of which is more challenging for nurses. The researcher is of the opinion that the need to cope with these problems makes it essential to develop critical thinking in nursing education of any kind. In hospitals, homes and communities nurses are expected to take on added responsibilities and make independent judgments and decisions, which they can only do if their everyday judgments are based on critical thinking. Therefore, the researcher considers critical thinking to be an essential competency for nurses wherever they are in the world.

Critical thinkers are people who know how to make crucial judgments in nursing. Professional nurses who are able to think critically can see beyond the obvious and analyze data to render the best possible care to the patient. These professional nurses possess intellectual autonomy, in that they refuse to accept conclusions without evaluating the evidence (facts and reasons) for themselves (Delaune & Ladner, 2002, p. 80).

For this study it was important to the researcher to focus on the student nurse as a unique individual and future professional nurse who will be involved in the rendering of comprehensive health care to meet the health needs of the nation of Namibia and render a service, especially in the domains of preventive, promotive, curative and rehabilitative health. An important focus was the development of essential critical thinking skills in student nurses.

The development of student nurses takes place in an ever-changing environment where the nurse and patient are in continuous interaction with each other. Nursing education in theory and practice is the process through which student nurses in Namibia should be developed into critical thinkers to ensure nursing care of high standard is rendered to patients in Namibia. It is furthermore expected from nurses that their everyday judgments should be derived from critical thinking. Critical thinking helps nurses to see the larger picture instead of only focusing on the details.

Epistemological assumption: The goal of social inquiry is to produce knowledge as close as possible to the truth and despite the difficulties the goal of getting to the truth remains important (Mouton, 1998, p. 28). This relates to the relationship between the researcher and the subjects being studied (Polit & Beck, 2006, p. 14).

As a nursing lecturer involved in the teaching and guidance of students, the researcher has observed that students cannot focus on one patient and analyze the patient's condition individually. It was also clear that student nurses simply followed orders from professional nurses, who followed orders and prescriptions from medical doctors. It was further observed that professional nurses are seldom or never capable of answering complex questions about patients and their treatment because they have a narrow approach to patient care. The researcher then began to ask why trained professional nurses had still not mastered the skills of critical thinking.

It was evident from a previous study by Pretorius (2001) that professional nurses in Namibia do not facilitate critical thinking of student nurses during clinical instruction, with the result that neither the novice nurse nor the more senior student nurse learns how to think critically. Student nurses are therefore unable to apply critical thinking skills once they have completed their training. The underlying reason for this is that the professional nurses do not apply critical thinking in their nursing practice.

With the given background, the researcher also wished to integrate epistemological assumptions that focused on constructivist learning, since that could be used as the point of departure in the implementation of the programme. These assumptions are that knowledge is physically constructed by learners who are involved in active learning, knowledge is symbolically constructed by

learners who are making their own representations of action, knowledge is socially constructed by learners who convey their meaning-making to others and knowledge is theoretically constructed by learners who try to explain things they do not completely understand (Gagnon & Collay, n.d, p. 1).

Axiological assumption: Axiological assumptions refer to the role of values in the inquiry on hand (Polit & Beck, 2006, p.14). Critical thinking is of great value in nursing practice, since it enables the nurse to cope with the increasingly complex nursing scenarios. It is important that professional nurses should be committed to constantly broadening their skills in order to make their current practice more efficient and effective. Continuous improvement and professional growth are imperative in nursing

It is accepted that individuals have freedom of choice and that the development of critical thinking in professional nurses remains a personal choice.

Humanistic existentialism as a philosophical approach to the study implies that a student nurse

- should achieve self-awareness in order to realize his/her potential
- should have freedom of responsibility in relation to others, should strive to find him/herself in this process of developing critical thinking
- should see him/herself as part of a world of complexities and possibilities,
- with the responsibility to make the most of this existence

Existentialism is particularly applicable to nursing because of its emphasis on self-determination, freedom of choice and self-responsibility (Praeger, 1995, p. 302). This approach could also serve as the foundation for the development of the programme.

Methodological assumption: Methodology refers to the description of the specific techniques employed and specific measuring instruments utilized and all other specific activities conducted during the study (Fouche, 2002, p.120). It further refers to seeking the best methods by which to gain knowledge (Polit & Beck, 2006, p.14). The study was quantitative and descriptive in nature and employed a quasi-experimental design. It was conducted in the following four phases:

The initial phase of the research (phase 1) consisted of a needs assessment to determine the critical thinking ability of senior student nurses by answering questions about an imaginary case scenario. Based on the data of phase 1, an educational programme to facilitate critical thinking in student nurses was developed in phase 2, where phases 3 and 4 comprised the implementation and evaluation of the programme.

5.2. Theoretical assumptions

An eclectic approach was followed in the selection of a theoretical framework for the study. The study was conducted by applying the following approaches/theoretical principles, which were found to be best, suited to the study are Principles of adult learning as explained by Knowles; Model of curriculum development by Nichols and Nichols; Viedebeck's model of teaching critical thinking , Duldt's principles on critical thinking and Theoretical principles of constructivism

Principal of adult learning: Knowles model and andragogy: Knowles developed an andragogical model that accommodates continuing education and training for adult learners, a group which includes nursing students. Andragogy is a term that "belongs" to and refers to adult education as described by Knowles and is defined as "the art and science of helping adults learn" (Knowles, 1980, p. 43; Merriam & Brockett, 1997, p. 135; Quinn & Hughes, 2007, p.29).

Knowles realized that adults learn differently from the way children learn and he was also of the opinion that people learn best when treated as human beings during a lifelong process of education. Moreover, it is necessary to keep in mind that adult learners carry with them the baggage of their expectations of learning derived from formal schooling and that a mind shift might be necessary to get them to feel at ease with the "new" environment. For

this mind shift to take place it is necessary to have an adult educator who plan and administers programmes and who counsels and facilitates learning by creating awareness in a certain subject (Heimlich & Norland, 1994, p. 146; Merriam & Brockett, 1997, p. xi; Richardson, 1998, p.21).

For the adult educator to establish this mind shift of the learner, the following elements in this process model should be kept in mind. The adult educator needs to do the following:

- Establish a climate conducive to learning; referring to the physical, human and interpersonal environment.
- Create a mechanism for mutual planning, a cardinal principle of andragogy.
- Diagnose the needs for learning where the adult learner has to realize his own needs and perceptions.
- Design a pattern of learning experiences where self-directed learning features prominently.
- Formulate and operate a programme by setting clear objectives.
- Evaluate a programme with a five-step approach, namely ongoing evaluation, learning evaluation, behaviour evaluation, results evaluation and re-diagnosis of learning needs (Dekker, 1998, p.293; Quinn & Hughes, 2007, p.31).

The concept of adult learning is supported by Caffarella and Barnett (1994, p.32), who state that most adults prefer to be actively involved versus being primarily passive recipients of knowledge. Active learning involves the student through participation and an investment of energy in all phases of the learning process. However, adults fear failure, which implies that the educator or facilitator of the programme should ensure a relaxed, psychologically safe environment where empowerment of the learner can be facilitated (Courtney, 1992, p. 99; Norton, 1998(b), p.228; Norton, 1998, p.153; Levett-Jones, 2005, p. 365).

In support of the andragogical model as described, the development of the educational programme focused on cooperative learning as based on the beliefs of constructivism. Constructivism in teaching suggests that people learn through an interaction between thinking and experience and it encourages cooperative learning and therefore enhances active participation as suggested by Knowles. Integrating a constructivist approach to the adult learning principles seemed logical and applicable to this study, since the approach can be adapted to any subject (Shaw, 2006, p. 3; Gagnon & Collay, n.d., p. 5; Murphy, 1997, p. 3; Pollard, 2002, p. 138).

The incorporation of Knowles's process model on andragogy and constructivism into the educational programme to facilitate the development of critical thinking, for this study, was done in the following way:

- All participants of the educational programme were adult learners involved in tertiary education.
- The participants were fourth-year nursing students with nursing experience to fall back on when confronted with new nursing problems.
- The strategy followed for the educational programme was that of active participation where the learners were involved in discussions and planning. However, they were not actively involved in the setting of the objectives of the educational programme because the programme was based on the needs that were identified by a needs assessment during phase 1 of the study;
- Clear objectives were formulated for the programme, which was offered over three days.
- The activities were self-directed to promote active participation and inquiry.
- Small group discussions were employed to enhance cooperative learning and build trust between members of the group, through face to face interaction.
- Groups were expected to give feedback on their progress in the cases presented during the implementation of the educational programme.

- An evaluation was done before and after the programme by a pre- and post-test to determine whether the application of critical thinking skills had improved. (Levett-Jones, 2005, p.365; Gagnon & Collay, n.d, p. 1; Baumberger-Henry, 2005, p.239; Gagnon & Collay, n.d, p. 2; Quinn & Hughes, 2007, p.30).

In addition to the above, people need to be prepared to think critically to be able to distinguish between important and less important issues and this can be achieved through adult education. Two more aspects are important in adult education and support constructivism, namely the recognition of prior experience and knowledge in the class discussions and learning activities that are "situated" as near as possible to reality so that students can transfer learning more easily. These learning activities refer to the creation of very real scenarios whereby the teacher/facilitator encourages students to engage in active learning and gives them ever-broadening tools to enable them to keep learning. By integrating these, the emphasis of the constructivistic approach to learning is on individualized rather than mass learning (Carafella & Barnett, 1994, p. 36; ThirteenEd Online, 2004, p.1; Carlisle & Ibbotson, 2005, p 528; Banning, 2005, p. 504; Davis, Kumtepe & Aydeniz, 2007, p. 115).

By taking active participation into account, the researcher aimed to include as many exercises from nursing practice and everyday life as possible, in order to encourage students to exercise their skills pertaining the situations and to use their knowledge base to solve the case scenarios. Because adult learners have broad stores of knowledge and varied experience, they can assist each other to learn (Fosnot, 1996, p. ix; Meyer, Naude & Van Niekerk, 2004, p. 89).

From the above, the roles of the adult learner and the educator/facilitator within the educational programme were summarized and are reflected in table 6.3.

Model of curriculum development: Nicholas and Nichols: An eclectic approach to the development of this educational programme was applied. Different curriculum and educational approaches were utilized in the design of the educational programme. The researcher strove to keep the programme simple but not simplistic, to serve as a guide to the nursing student in everyday nursing practice. The educational programme had an outcomes-based focus, namely to facilitate the development of critical thinking skills by the student nurse. Outcomes are described by Zundel, Needham, Richards, Kershaw, Daugharty and Robak (n.d., p. 2) as educational targets, something that the facilitator expected to achieve. The latter authors also emphasize that, during outcomes-based learning, students are assisted in the achievement of certain targets, namely, in this educational programme, the application and development of critical thinking skills. This can be achieved through courses that are assignment–centered rather than textbook and lecture centered (Mihram, n.d., p. 15; Gellin & Beard, 2007, p. 2).

The educational programme was developed within the principles of adult learning/andragogics , as indicated in the model of Knowles (Schoenly, 1998, p.196; Quinn & Hughes, 2007, p.29), and in support thereof constructivistic teaching principles were emphasized (as discussed with philosophical approaches).

The cyclic curriculum development model as presented by Nicholls and Nicholls (1978, p.21), the curriculum development model related to critical thinking by Videbeck (Feingold & Perlich, 1999, p. 43) and Duldt's framework on debating critical thinking were also utilized as part of the framework for the development of the educational programme as indicated in figure 6.2 .

With the principles of adult education and constructivism in mind, the researcher also utilized a specific method to develop the educational programme for this study. As mentioned previously, the curriculum model of Nicholls and Nicholls was used (figure 6.2 & figure 6.3).

The curriculum development model of Nicholls and Nicholls depicts curriculum development as a continuing process. This is very relevant to critical thinking. The model emphasizes the fact that actions within the curriculum are interrelated and interactive, and

that no actions can take place in a vacuum. Since the model represents a circular process, it is indicative of an ongoing process with no particular starting or finishing point, based on a situational analysis. The following five actions are evident in this model:

- Conducting a situational analysis
- Selecting objectives
- Selecting and organizing content
- Selecting and organizing teaching methods
- Evaluation (Nicholls & Nicholls 1978, p. 21).

Other authors (Mentkowski & Associates, 2000, p.237) also support the process model of Nicholls and Nicholls. The researcher therefore decided to apply this model for the development of the educational programme.

The application of this model to the educational programme developed for this study, to facilitate the development of critical thinking in student nurses, resulted in the following actions:

- A situational analysis was done in phase 1 to determine to what extent senior nursing students are able to execute and apply critical thinking in the management of a specific nursing case. On the basis of this analysis specific objectives to address in the educational programme were formulated. It is important to mention that the programme objectives related to the needs as identified in the situational analysis
- Content to assure the achievement of the objectives was constructed and suitable teaching methods designed to go with the content.
- During implementation of the programme emphasis in the choice of teaching methods was on active participation by the participants in the educational programme.
- Evaluation of the programme content was done by means of a pretest and posttest, before and after the programme, to determine whether there had been any change in the application of critical thinking skills by the student nurses after attending the programme.

Viedebeck's model of teaching critical thinking: In addition to the process model of Nicholls and Nicholls, the researcher found it appropriate to use Videbeck's curriculum model (Feingold & Perlich, 1999, p. 43) simultaneously with Nicholls and Nicholls's model (1978, p.21) as described, as an additional approach to the development of the educational programme (fig 6.2 & fig 6.3). This model includes four phases, which perfectly corresponded to the four actions of Nichols & Nicholls's cyclic curriculum model. These four phases were to describe the concept critical thinking, identify critical thinking outcomes, plan strategies to foster critical thinking skills and to evaluate student achievement during exercises of application of critical thinking (Feingold & Perlich, 1999, p. 43).

The application of this model to the educational programme for senior student nurses can be described as follows:

- The concept critical thinking was addressed and described in both the presentation of the educational programme and the handout that was provided to the participants.
- Clear outcomes for this educational programme with regard to critical thinking and its application thereof were formulated, namely that the student would "demonstrate the use of critical thinking in the execution of nursing care in addressing the patient's need".
- Specific strategies were designed for the educational programme to foster the development of critical thinking skills during nursing practice. The strategies focused on active participation by the participant during the educational programme
- The students' ability to apply critical thinking was assessed by the facilitator of the programme (the researcher) by introducing a pretest before the programme and a posttest after completion of the programme. These tests were conducted to determine whether any change(s) had taken place in the application of critical thinking skills by students, and if so, whether these changes could be ascribed to the educa-

tional programme to facilitate the critical thinking skills of senior student nurses.

Theoretical principle of constructivism: The constructivist paradigm, also referred to as the naturalistic paradigm, began as a counter movement to positivism and represents an alternative system for inquiry (Polit& Beck, 2006, p.15).It may also be considered a philosophical framework of learning. For the constructivist /naturalistic inquirer, reality is not fixed and many constructions are possible. In research, constructivism relates findings to the interaction between the inquirer and participants (Polit & Beck, 2006, p. 15; Wikipedia, n. d (a), p.1).

For the educational principles and approach the constructivism focuses on the learner with multiple interpretations in mind, and where interaction among the learner and other stakeholders in the education process are important. The emphasis in the constructivist approach is on facilitator-supported learning, initiated and directed by the learner (Wikipedia, n. d (a), p.1).

Constructivism emphasizes the involvement of the learner/student in his own learning to construct and create new ideas from previous experience. It is thus important that the learner is given the opportunity to voice his experience and to allow as many construction of a situation as possible. The principles of constructivism as applied to this educational programme were as follows:

- Real-world environments were incorporated into the programme, which assisted the participants to focus on every-day world problems in terms of case scenarios. However, conditions during the implementation of the programme allowed for different interpretations of a given situation which facilitated active participation by the participants of the educational programme
- The facilitator of the educational programme (researcher) served as the coach to facilitate thoughts and strategies to solve these problems but participants were allowed freedom of thought and construction.
- The presentation of the educational programme focused on knowledge construction and not reproduction (see chapter 7).
- Reflective practice was fostered because constructivism allows and emphasizes understanding of a situation and not merely a reproduction as already mentioned.
- Multiple modes of presentation were encouraged which provided for the uniqueness of the learner/participant while allowing the learner to develop and individual potential.
- Self-awareness in the construction of knowledge was emphasized (Murphy, 1997, p. 4; Savard, 2004, p.1; Polit & Beck, 2006, p.16; Wikipedia, n. d (a), p.1).

In this study the constructivism was applied as follow:

Table 1: Application of R Principles of Constructivism

Educator/facilitator	Learners
- Relate to the learners with respect - Create a psychologically safe environment to facilitate learning with mutual respect and acceptance of differences - Introduce learners to the clear objectives of the programme - Involve learners in assessing and determining their needs - Help learners to optimally make use of their experience - Assist learners to meet the learning objectives - Assist learners to help develop their learning activities - Promote active participation of the learner through self-directed activities - Encourage participation and cooperation with other learners - Introduce learners to situations where they can explore and find self-fulfillment - Assist learners in evaluating themselves and the programme - Acknowledge prior learning and experience	- Accept responsibility for collaborating in planning activities - Adopt goals of the programme as their own goals - Actively participate in the learning experience - Participate in monitoring their own progress - Utilize prior experience in self- directed activities - Encourage fellow learners to participate - Pace their own learning while having the opportunity to construct knowledge on experience - Build confidence and practical insight and understanding - Students raise own questions and determine their own learning experience

(Fosnot, 1996 , p. ix; Feldman, 2002, p. 20; Pollard, 2002, p.159; Thirteen Ed Online, 2004, p.1; Meyer, Naude & Van Niekerk, 2004, p. 89).

5.2.1. Duldt's framework on critical thinking

The researcher also incorporated the framework on debating critical thinking as presented by Duldt (1997, p. 3) into the development of the educational programme (figure 6.2 and figure 6.3). Duldt believes that defining and debating concepts is the core of critical thinking. The author stipulates that there are three sets of data facilitators can use to determine the level of critical thinking of students (Duldt, 1997, p.3).

These are as follows:

- The first is the most superficial level of "figuring things out" which occurs at the verbal level through discussions with the students. For this educational programme this level was determined by talking to students during the programme and listening to what they had to say about their everyday practice
- The second level is a bit harder and includes "reading" how others have figured something out. This was applied by presenting a case scenario to the students and then observing how they "figured it out".
- The third and hardest way is the writing part of "figuring it out". The facilitator can then look carefully at the structure and substance of what the students presented. As applied to the educational programme for this research, this level was assessed in the answers of students to the questions of the case scenario used in the pre-and post-test of the quasi-experimental design.

Duldt further holds the opinion (1997, p.4) that critical thinking should be learned over a period of time. For the purposes of this research, a condensed educational programme was offered to a selected group of students over a period of three days. Information vital to the discipline of nursing was handled and facilitated by the facilitator. The focus of the programme was on thinking rather than on learning. This supports the critical theory, which indicates that it is important to teach students how to think rather than what to think (Glen, 1995, p.175; Duldt's, 1997, p. 4).

6. Conclusion

The development of the educational programme for this study may benefit the Namibian community since the quality of nursing care will be enhanced if student nurses and professional nurses can think critically. The question is, however, whether students are prepared for such a challenge in a complex, changing world and how nurse educators can encourage students to look beyond the obvious in clinical nursing to address complex nursing problems (Robinson, 1998, p.4; Dillard & Laidig, 1998, p.70).

Nursing all over the world is faced with the challenge of teaching students from varying backgrounds and diverse cultures (Richardson, 1998, p.17) and Namibia is no exception to this phenomenon. Preparing future professionals in the health sciences require making judgments in highly complex environments (Facione et. al., 1997, p. 4).

The preparation of these professionals includes the development of critical thinking. Critical thinking has become one of the

benchmarks that are used to measure successful learning outcomes of students today. In the rapidly changing arena of health care, professional nurses must have critical thinking skills and use them to deliver optimal care. One way of achieving this is by offering an educational programme (Jenkins & Turick–Gibson, 1999, p.14; Gellin & Beard, 2007, p.1).

It is evident in literature that educators should move away from unilateral teaching such as lecturing which promotes dependency and passivity. Educators must be willing to examine and implement strategies that will provide participatory, meaningful and stimulating learning for the students, targeting their educational needs and priorities with self-esteem and authority. Educators are therefore challenged to identify measures and justify thoughtful, fair-minded engagement in problem solving, decision making and professional judgments which are all indicative of critical thinking. It is also emphasized that through practice and with guidance from a good facilitator, we can develop our thinking skills as far as our natural abilities allow (Pond et. al., 1991, p.22; Facione et al., 1997, p.68; Fichardt & Viljoen, 2000, p.115; Facione, Facione & Giancarlo, 2000, p.61; Banning, 2005, p. 504).

This chapter addressed the development of a programme to facilitate critical thinking in student nurses, to meet the above challenge. Initially, an overview of and rationale for the educational programme were provided and the approaches utilized to guide the development of the educational programme were discussed. It is also important to mention that the main focus of the programme was to help the student to acquire skills in a "learn by doing" approach since the programme emphasized active participation by the student (ADEA, 2006, p.931). The researcher strove to contribute towards the development of the individual's capacity for personal and social growth. "It was all about people" (Anastasi, 2004, p.10). The researcher's vision in designing an educational programme to facilitate the development of critical thinking skills in the student nurse was to develop the skills of nurses in Namibia so that they would be able to face the challenges of the nursing profession in that country. It was envisaged that the students should finish the educational programme with a knowledge base

and skills in critical thinking that they had not expected to acquire at the beginning of the programme.

It is essential, however, to realize that it is necessary to adapt whatever is taught to nursing students to address the needs of the individual student and to adapt the teaching strategies accordingly (Richardson, 1998, p.17; CTL, 2005, p.1). Furthermore it should be kept in mind that the student profile has changed tremendously over the past years, which requires the educator to be flexible in considering adult education principles.

Although some authors like Van Gelder (n.d, p.2) see the development of critical thinking as a lifelong journey that cannot be taught overnight, it is also essential to start somewhere in the development of critical thinking. Educators should begin infusing the concept, since "it is never too early or too late to start working on it" (Van Gelder, n.d, p. 3; Sternberg & Spear-Swerling, 1996, p. 111; Abegglen, 1997, p. 452).

The researcher is aware of the fact that students cannot be skilled in critical thinking after a short programme on critical thinking, but is confident that the educational programme will sensitize advanced thinkers in nursing to start developing their critical thinking skills so that the nurses of Namibia become "smart" in the execution of their nursing tasks. It is also the responsibility of an educator to provide as many opportunities as possible to the students to develop within a certain context .Learning is not the result of development, it is development. It requires self-organization from the prospective learner (Fosnot, 1996, p 29; Mentkowski & Associates, 2000, p. 58).

It is true that incorporating critical thinking into teaching pose challenges to the teacher, but those who do this in the right spirit and with dedication will be rewarded by observing clients receiving quality care!

The conceptual and theoretical framework of the educational programme to guide the facilitator as well as the educational programme that was developed to facilitate critical thinking in student nurses appears are described in figure1, 2, and 3. A schematic presentation on the development of the educational programme follows in figure 1.
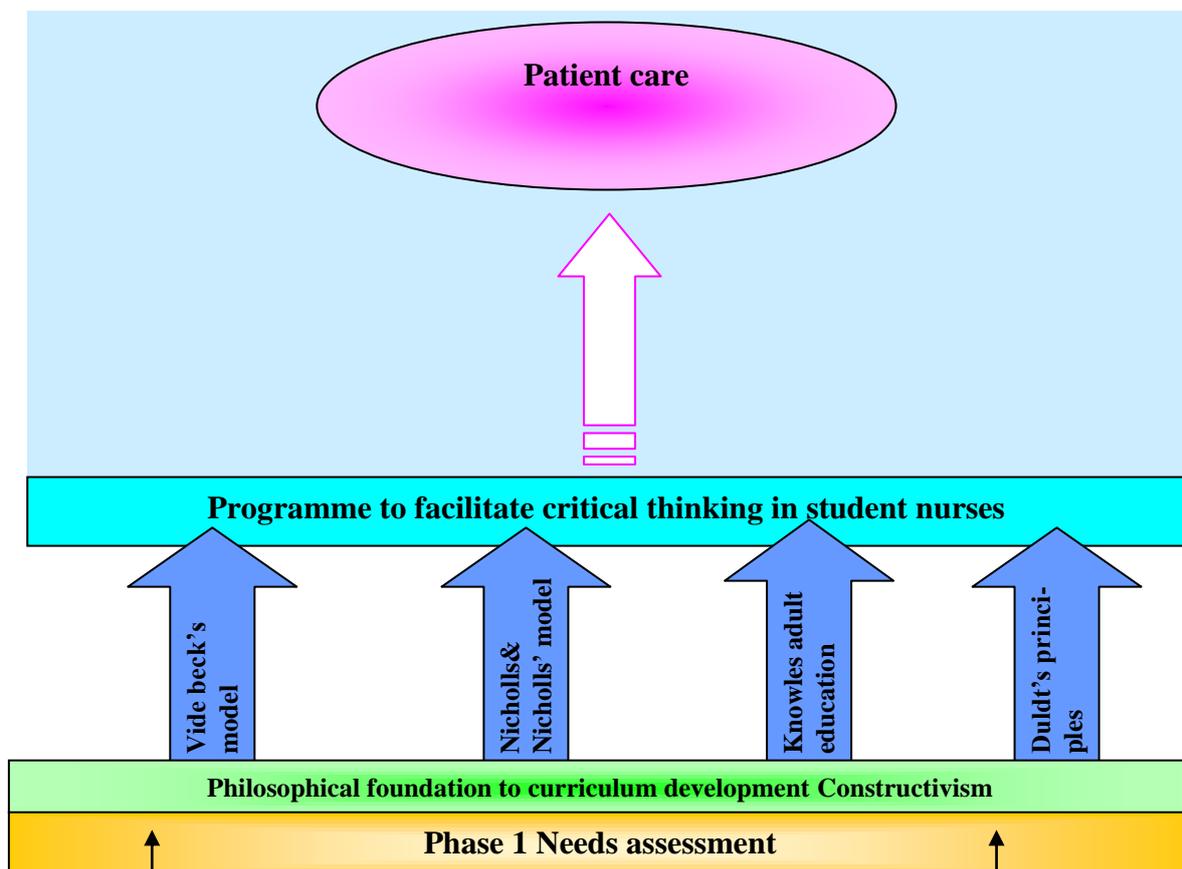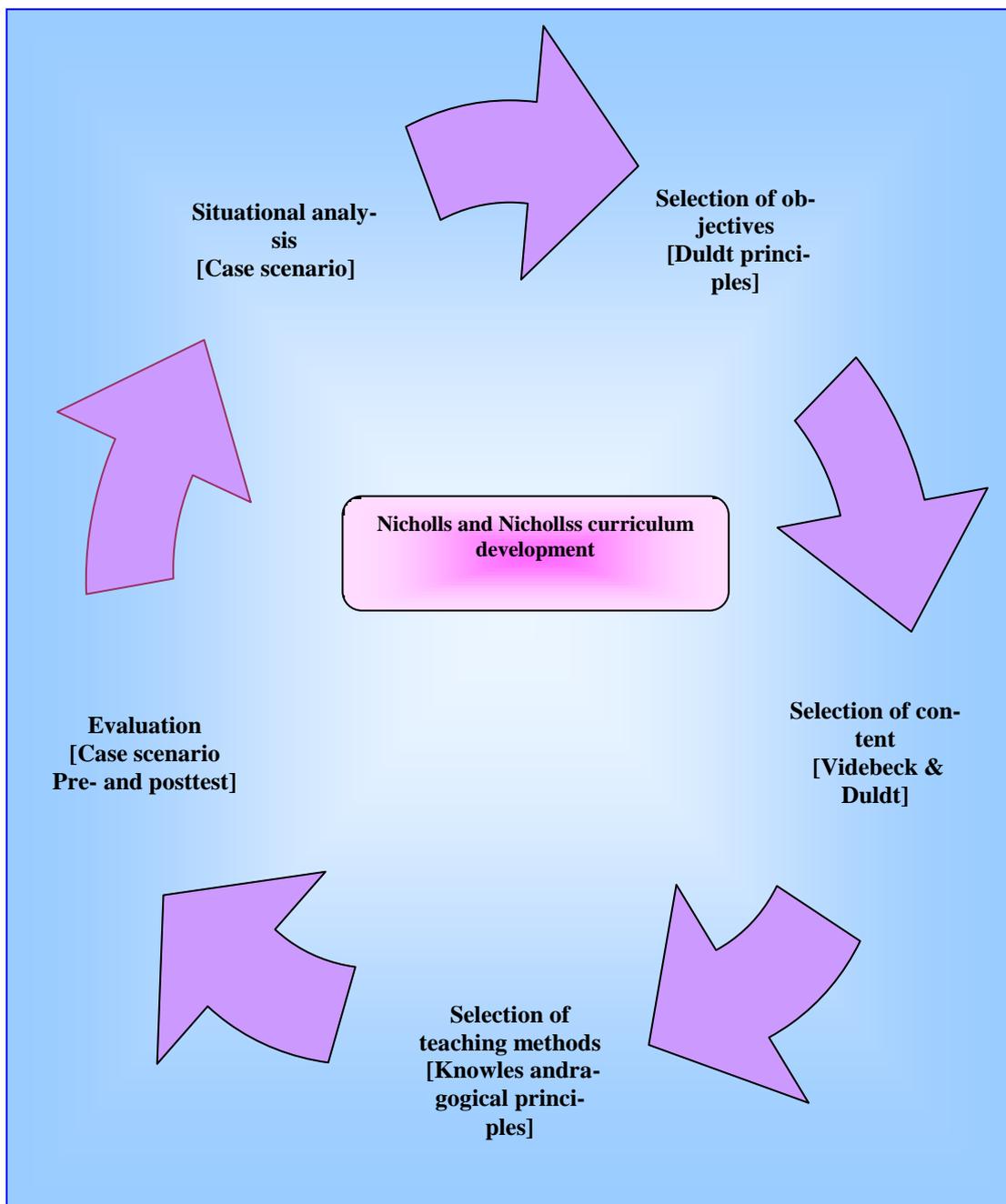

Fig. 1: Schematic Presentation of Programme development.

The researcher incorporated different components of the development of the educational programme in the cyclic model to curriculum development. The incorporation of these components is presented in Figure 1.

Fig. 2: Schematic Presentation of Integrated Components within Nicholls and Nicholls's Cyclical Model to Curriculum Development.

Designing the implementation of the educational programme is a logical step to execute after the process of programme development as indicated in fig 2.

The components of the researcher's curriculum cycle as original contribution is summarized in figure 3.
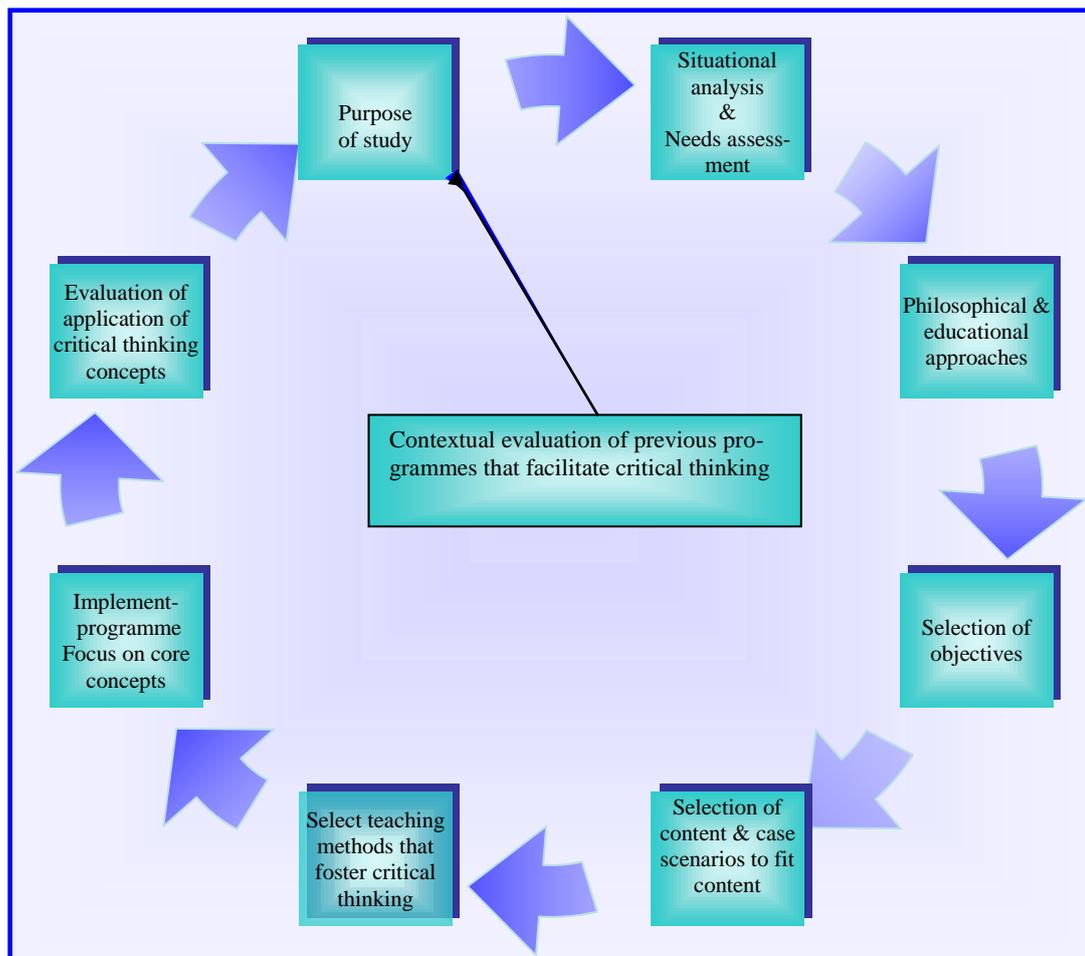
Fig. 3: Schematic Presentation of the Researcher's Integrated Curriculum Cycle for a Programme to Facilitate Critical Thinking.

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