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# Model for the education of neonatal nurses as reflective practitioners

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A model is developed for the education of neonatal nurses as reflective practitioners in a South African context to prepare them for their demanding role in neonatal nursing practice. An exploratory and descriptive design was used, which was in essence qualitative and contextual in nature. Neonatal nursing practice related to education of reflective neonatal nurses was explored and verified to synthesise competences and professional characteristics expected of reflective neonatal nurses and to deduce the content outline of an educational programme. The model was constructed, described and evaluated by experts in model development, higher education, nursing education and/or neonatal nursing practice.

## Model vir onderrig van neonatale verpleegkundiges as reflektiewe praktisyns

'n Model is ontwikkel vir onderrig van neonatale verpleegkundiges as reflektiewe praktisyns in 'n Suid-Afrikaanse konteks. 'n Ondersoeke en beskrywende ontwerp is gebruik wat in wese 'n kwalitatiewe en kontekstuele aard het. Neonatale verpleegpraktyk rakende onderrig van reflektiewe neonatale verpleegkundiges is ondersoek en gevalideer om die verwagte bevoegdheids en professionele eienskappe van reflektiewe neonatale verpleegkundiges te sintetiseer, en 'n oorsig van die inhoud van so 'n program af te lei. Eksperts in modelontwikkeling, hoëronderrig, verpleeg-onderrig en/of neonatale verpleegpraktyk het die model gevalideer.

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Registered professional nurses working in a neonatal intensive care unit (NICU) take care of pre-term, critically ill and high-risk neonatal infants. The health problems of these infants are often associated with mortality or severe morbidity. The care of these babies includes basic care such as warmth and a safe environment, as well as advanced nursing care such as mechanical ventilation to support breathing or the use of technology and medication to maintain blood pressure or other crucial bodily functions.

These professional nurses have at least a diploma or degree in nursing science and are registered with the South African Nursing Council (SANC). They can further their studies at a university to become specialised neonatal nurses with an independent professional role in the NICU.

Neonatal nursing has seen significant changes over the past three decades in particular: knowledge has advanced and technology becomes more sophisticated; surviving neonates are younger, smaller and more acutely ill; mortality has decreased and, as more infants survived long-term complications, morbidity increased (Verklan & Walden 2004: xiii). Trends contributing to a changing neonatal practice scenario include staff shortages, increased workloads, greater frequency of litigation, and higher demand for quality care and reflective practice in health-care services (Kirby & Kennedy 1999: 3-24).

Due to changed needs, the traditional apprenticeship-style training has become inadequate for delivering competent neonatal nurses. Foster & Greenwood (1998: 170) describe “routinised” versus “reflective” neonatal nurses. Routinised nurses lack reflective skills and rely on routine care and “recipes” to cope with the demands of day-to-day neonatal nursing even if these are unsuitable for a specific patient. By contrast, reflective nurses provide patient-specific care according to the unique needs of the neonate, using a continuous process of reflection that involves analysing and interpreting cues, weighing the evidence and only then making appropriate clinical decisions.

The challenge in neonatal nursing education is to prepare neonatal nursing students for their specialised professional role in reflective neonatal nursing practice, while complying with the ethical-

legal framework of the profession and the higher education scenario. This led to the development of a model for the education of reflective practitioners for neonatal nursing practice in a South African context (Maree 2007).

## 1. Background and rationale

Reflective practitioners tend to show self-awareness and skills such as description, critical analysis, synthesis and evaluation of situations. They use reflection before action, in action and on action (Foster & Greenwood 1998: 169-71), and use theoretical knowledge, previous experience and personal perspectives in decision-making while nursing (Greenwood *et al* 2000: 1106). They link the concrete to the abstract, and focus on the “why” and not the “how” of their actions (Van Aswegen *et al* 2000: 124). Hillier (2002: 23, 25) describes reflective practitioners (in this study neonatal nurses) as competent professionals, who seek to improve their practice, can adapt to the different social contexts in which they find themselves and can take control of their professional practice, acknowledging both what they are able to transform and what they are powerless to change, by means of an emancipatory process.

The education of neonatal nurses aims to prepare them to meet the demands of reflective practice. They must obtain the competences that equip them for the present and the future, with an efficient knowledge base, appropriate cognitive skills, the necessary psychomotor and technical skills as well as optimal professional characteristics within a specific framework. The education of reflective practitioners for neonatal nursing practice (referred to in this article as reflective neonatal nurses) in a South African context is thus an identified challenge that prompted the study.

## 2. Problem statement and research question

Prescriptive legislation expected of nursing educational programmes is stipulated by SANC (2004: 1-21, 1993: 14-6 & 1992: 3), the Department of Higher Education (MoE 2006, DoE 2007), the South African Qualifications Authority (RSA 1995), the Council on

Higher Education (Higher Education Quality Committee 2004a: 1-24 & 2004b: 1-37) and the approved educational institution.

Thus, prescriptive legislation promotes the education of reflective neonatal nurses, but does not give much clarity on exactly how this is to be achieved. The research question was therefore: How can nurses be educated to become reflective practitioners in neonatal nursing practice?

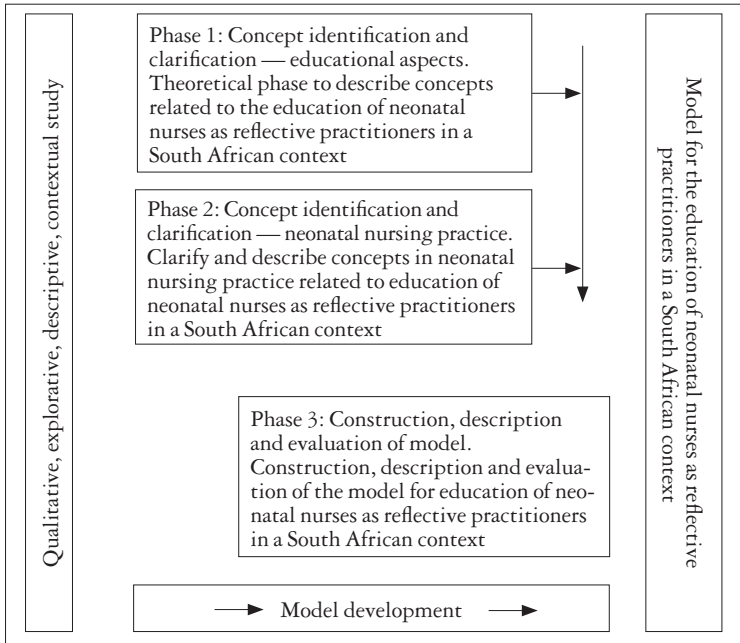
### 3. Research methodology

The aim was to develop a model for the education of reflective neonatal nurses in a South African context using a qualitative research approach. The study used an explorative, descriptive design within its particular context to illustrate the phenomenon in terms of concepts and statements as well as relationships between them (McEwen & Wills 2002: 85).

The development of the model was based on the process used for theory development as described by Walker & Avant (2005). The study had three phases with different goals, which occurred simultaneously. The process is presented in Figure 1.

Phase 1 was a theoretical phase, whose main activity was a theoretical inquiry, as described by Streubert & Carpenter (2003: 119-20), exploring educational aspects related to teaching and learning of neonatal nursing science in a South African context. Various literature sources were analysed by means of inductive and deductive reasoning to identify relevant concepts in the data and to clarify, define, give meaning to and make sense of these concepts as well as synthesise the relationships between these within a specific context. Deliberate attempts were made to identify and explore all relevant aspects in the higher-education scenario as well as those related to nursing education that impact on the teaching and learning of neonatal nursing science.

Figure 1: Schematic representation of methodology



In phase 2 of the study, concepts in neonatal nursing practice in the South African context related to teaching and learning of neonatal nursing science, were identified and clarified. The attributes of neonatal nursing practice and its demands on reflective neonatal nurses were explored and described by means of inductive and deductive reasoning, followed by in-depth literature control (Streubert Speziale & Carpenter 2003: 119-20). Expected competences and professional characteristics of reflective neonatal nurses were synthesised from these attributes and demands of neonatal nursing practice, and the content outline of an education programme was deduced. These were subjected to peer review (Babbie & Mouton 2001: 84-8) by nine neonatal nursing experts in either neonatal nursing management or neonatal nursing education. Six gave written feedback and three participated in a consensus group discussion.

The purpose of the third phase of the study was to construct a model for the education of reflective neonatal nurses in a South African context from the concepts and relationships identified, explored, clarified and described in the previous two phases. The last steps included organising and systematically describing these relationships as a theoretical illustration of the reality, and evaluating this illustration by means of expert review (McEwen & Wills 2001: 91-108). Thirteen experts were purposively selected, based on their field of expertise to evaluate the model. Ten experts participated, some of whom were experts in more than one field: higher education (four), nursing education (six), reflective practice (four), neonatal nursing practice (three) and model development (two).

Dickoff *et al*'s (1968: 545-54) framework to describe "agents" was used to develop the components of the model. Table 1 shows the designation of these components of the model.

Table 1: Components of the model

Agents/components (Dickoff <i>et al</i> 1968: 545-54)	Description of agents/components (Dickoff <i>et al</i> 1968: 45-54)	Components of the model
Framework	Context in which the activity takes place	Framework for the education of reflective neonatal nurses: Nursing education arena (Phase 1) Higher education arena (Phase 1) Neonatal nursing practice (Phase 2)
Recipient	Who receives the activity	Neonatal nursing students (Phase 2)
Dynamics	Energy source for the activity	Reflective learning (Phase 1)
Purpose of model	Goal or endpoint of the activity	Outcomes of the education of reflective neonatal nurses: Applied outcomes (Phase 2) Critical outcomes (Phase 2) End-product outcomes (Phase 2)
Agent	Who is responsible for the activity	Neonatal nursing educator (Phase 2)
Procedure	Procedure, technique or protocol of the activity	Educational programme: Outline of content (Phase 3) Educational approaches (Phase 3)

#### 4. Strategies for trustworthiness

The strategies to enhance trustworthiness were mainly taken from Lincoln & Guba (1985: 291-331) and Krefling (1991: 214-22):

- Credibility or truth-value was enhanced by the researcher's prolonged engagement in the context of advanced neonatal nursing care as a professional nurse, as well as an educator in neonatal nursing at a tertiary institution. The researcher knew and understood the context, the culture and values as well as the processes common in neonatal nursing practice and nursing education.
- Credibility was also enhanced by means of triangulation of data collection methods: theoretical sampling and expert opinions.
- To enhance the theoretical validity of the study, a deliberate attempt was made to develop definitions that truly reflect the concepts from which the model was built (for instance, reflective learning and competences), and accurate relational statements in the first two phases of the study, which were confirmed by peers and experts.
- Transferability or applicability was not the main aim of the study, but rather an unsought consequence of the thick description yielded by the research process and the validation of the results.
- The detailed description of the methodology enhanced the dependability or consistency of the findings by making scrutiny possible.
- Confirmability or neutrality was enhanced by triangulation, peer review and the description of a confirmable audit route and process.

#### 5. Ethical considerations

Ethical decisions were made based on guidelines described by Strydom (2002: 64-74): no known harm or adverse effects were expected for any participants, only benefits; all principles of privacy, anonymity and confidentiality were adhered to throughout the study; the researcher was competent and adequately skilled to undertake the study, and throughout adhered to the requirements of the tertiary institution; in writing and publishing this study all sources were acknowledged as accurately and completely as possible. Ethical approval was obtained from the Ethics Committee of the University of Pretoria.

## 6. Description of the model

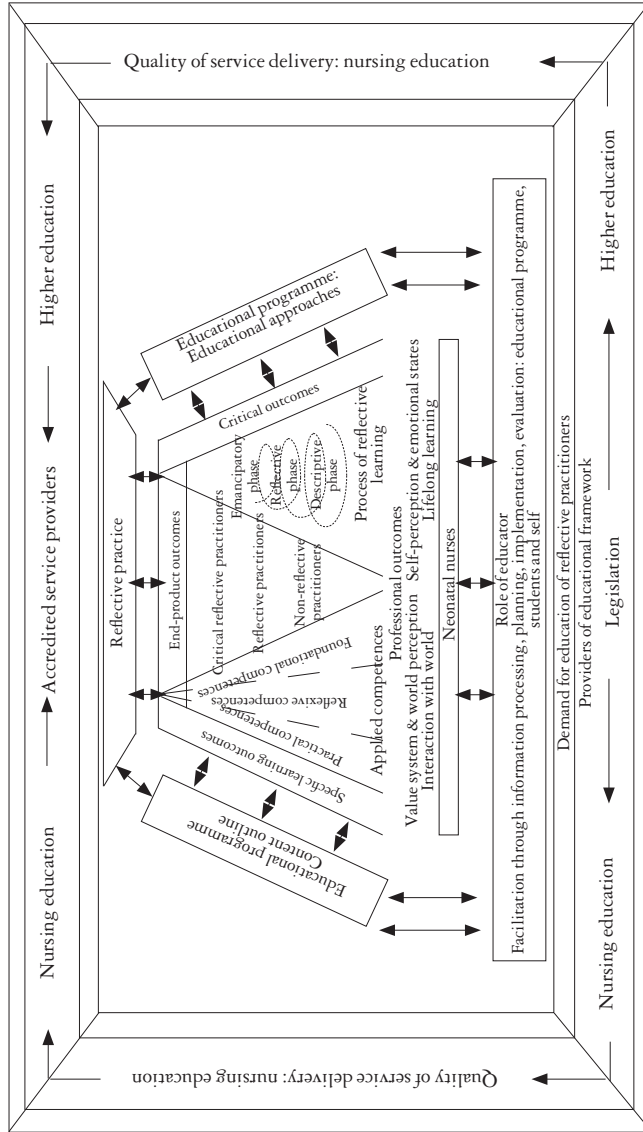
The model for the education of neonatal nurses as reflective practitioners in a South African context is presented in Figure 2. There are six main components, namely the educational framework, neonatal nursing students, reflective learning, the outcomes of the education of reflective neonatal nurses, the role of the educator and the education programme.

The symbolic meanings of the schematic representation are as follows:

- The frame around the model represents the educational framework.
- The figure in the centre represents all aspects related to neonatal nursing students.
- The boundary surrounding the central figure represents the outcomes of the educational programme. It still forms part of the central figure, as it is an integral part of the processes occurring in neonatal nursing students.
- The figure below the centre indicates the role of the educator as facilitating the processes that occur in neonatal nursing students, utilising the educational programme as indicated to the left and right of the central figure. The shape of the specific figure does not have any particular meaning.
- The figure above the central figure represents reflective practice, which is an outcome outside the neonatal nursing students (in neonatal nursing practice) as a result of what has occurred in them.
- The processes take place from the base to the top: the educational framework is driven from the providers to the accredited service providers, and from the educator to the neonatal nursing student to reflective practice.
- The arrows indicate the direction of flow. The unidirectional arrows indicate a single direction of influence or flow. The bi-directional arrows indicate that there are influences or flow in both directions, which contribute to the dynamics of the processes.
- The triangles symbolise processes that start at the bottom and culminate at the top. The processes in the two triangles and the



Figure 2: Model for the education of neonatal nurses as reflective practitioners



upside-down triangular shape occur more or less simultaneously at the same level, as indicated in the descriptions of the components of the model.

- The dotted lines indicate a strong relationship and no clear distinction between the areas that are divided by the dotted line.
- The base under the triangles (“professional outcomes”) serves as the foundation for the processes to occur within the neonatal nursing students, which is eventually effected to become part of the end-product outcomes. Its shape has no specific meaning.
- The model contains less detail than the schematic presentations of the individual components to prevent an overcrowded presentation. The individual components will be addressed in more detail in separate published articles.

## 7.1 Educational framework

The framework for educating reflective neonatal nurses is a description of the context of the study. It has two sides: South African higher education and nursing education in South Africa. The legislative framework of South African higher education is provided by the South African Qualifications Authority Act, No 58 of 1995 (RSA 1995), the Higher Education Act, No 101 of 1997 (RSA 1997) and the legislation flowing from these acts. The framework for nursing education in South Africa is based on the South African Qualifications Authority Act, No 58 of 1995 (RSA 1995), the Nursing Act, No 33 of 2005 (RSA 2005), and related legislation.

The South African Qualifications Authority (SAQA) was established to develop and implement the National Qualifications Framework (NQF), to ensure that the provisions for accreditation are complied with and, where appropriate, that registered standards and qualifications are internationally comparable (RSA 1995).

According to SAQA, the underlying philosophy of the NQF is outcomes-based education (OBE). The learning outcomes of all qualifications should include critical cross-field or generic skills to promote lifelong learning and discipline-, domain-specific or specialised knowledge, skills and reflexivity (MoE 2006). To help achieve this,

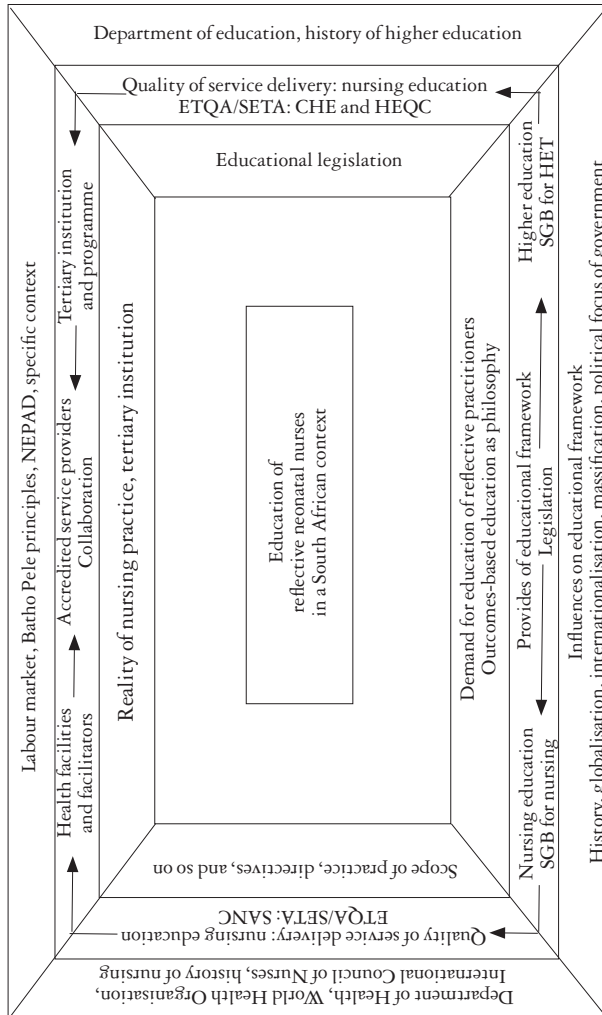
relevant legislation and documents specify the requirements of the NQF, OBE, higher education qualification descriptors, the Higher Education Management Information System, National Standards Bodies (NSB)/Qualifications and Quality Assurance Councils (QC), Standard Generating Bodies (SGB), Education and Training Quality Assurance Bodies (ETQA) and Sectoral Education and Training Authorities (SETA) (Council on Higher Education 2002, SAQA 2006, DoE 2007).

SAQA is the point of departure of the educational framework for both higher and nursing education (refer to base of middle frame, Figure 3). Both sides of the framework, which is higher education (right side of the frame, Figure 3) and nursing education (left side of the frame, Figure 3) consist of providers of the educational framework (right and left bottom of middle frame, respectively, Figure 3), bodies responsible for quality control of service delivery (right and left upper beams of middle frame, respectively, Figure 3), and accredited service providers respectively right and left upper beam of frame, Figure 3). Various influences have an effect on the framework (outer frame, Figure 3). The framework for higher education and nursing education, in turn, contributes to the need for education of reflective practitioners (inner frame, Figure 3).

#### 7.1.1 South African higher education

The providers of the framework in higher education are NSBs/Expert Consultative Panels (NSB 05-Education, Training and Development), which are proposed to be replaced by the HI-ED QC (Qualifications and Quality Assurance Council for the General and Vocational/Career Pathway in Higher Education), and the SGB, which is the HET SGB. The NSB recommends the boundaries of the field (education) and the framework for the subfields (in this instance higher education at NQF levels 8-10), and oversees the activities of the SGB. The responsibilities of the HET SGB include generating standards and qualifications, updating and reviewing these standards, recommending standards and qualifications to the ETD NSB, and recommending criteria for the registration of assessors and moderators or moderating bodies (Olivier 2002: 15-8, DoE 2007, SAQA 2006).

Figure 3: Schematic representation of the educational framework



These providers are influenced by, among others, the history and development of higher education, globalisation, internationalisation, massification as well as the political focus and undertakings of the government (CHE 2002: 7-15, Gravett & Geysler 2004: 140-2, MoE 2006, SAQA 2007a).

The body or ETQA/SETA responsible for the quality of service delivery in higher education is the Council on Higher Education (CHE) with its permanent subcommittee, the Higher Education Quality Committee (HEQC). These bodies are responsible for promoting quality assurance in higher education, auditing the quality assurance mechanisms of higher education institutions, and accrediting programmes of higher education (HEQC 2004a & b, SAQA 2007b, RSA 1997).

Influences on the quality of service delivery in higher education is influenced by, among others, the history of higher education and the political focus of the Department of Education (DoE 2004 & 2007, MoE 2006a).

The accredited service providers in higher education for NQF levels 7-9 are tertiary institutions accredited by the HEQC for specific programmes (HEQC 2004a & b). Their role is crucial for society in terms of intellectual, institutional and professional development, and the demand for reflective practitioners. They are influenced by the labour market and realities of educational practice, and the implementation of various undertakings such as Batho Pele principles, skills development, labour legislation and creation of comprehensive universities (Gravett & Geysler 2004: 17-8, RSA 1998 & 1999, DPSA 2000, DoE 2004 & 2007).

### 7.1.2 Nursing education in South Africa

The providers of the educational framework for nursing education are the NSB 09-Health Sciences and Social Services or Expert Consultative Panels, which are proposed to be replaced by the TOP QC (Qualifications and Quality Assurance Council for the Trade, Occupation and Professional Pathway) in collaboration with the SGB for Nursing appointed in terms of the SAQA Act (RSA 1995) and the SANC. The latter is the professional authority for the nursing profession

in South Africa in terms of the Nursing Act, No 33 of 2005 (RSA 2005). The SGB for Nursing is responsible for generating standards and qualifications in accordance with SAQA requirements, updating and reviewing these standards, recommending standards and qualifications to the NSB, and recommending criteria for the registration of assessors and moderators or moderating bodies. SAQA will not consider the qualifications if these are not supported by the SANC (Olivier 2002: 18, SANC 2004, SAQA 2007a & b, RSA 2005). They are influenced by the history and development of health and nursing education, globalisation, internationalisation, massification, the political focus and undertakings of the government and the SANC, as well as the demand for reflective nursing practitioners (DPSA 2000, DoE 2004 & 2007, DoH 2006 & 2004, Gravett & Geysers 2004: 140-2, NEPAD Health Strategy 2005, SAQA 2006).

The SANC is accredited as the ETQA for nursing with the main responsibility of quality of service delivery as they accredit providers of nursing programmes; promote quality among constituent providers; monitor nursing programmes; evaluate assessment and facilitate moderation among constituent providers; register constituent assessors for unit standards and qualifications falling within its primary focus; certificate students; co-operate with relevant moderating bodies; recommend new standards or qualifications or modifications to existing standards and qualifications to the NSB/Expert Consultative Panel or Qualifications and Quality Assurance Council; maintain a database of students, providers, and so on, and submit reports to SAQA (SAQA 2007a, RSA 2005).

The SANC collaborates with the HEQC in accrediting and evaluating professional and work-based programmes leading to NQF-registered qualifications, as well as other aspects of quality assurance policies and systems for teaching, learning, research and knowledge-based community service (HEQC 2004a & b).

The educational framework emphasises the demand for reflective practitioners who can manage the changing and complex reality of health care services (including neonatal nursing practice) in South Africa, and the need for collaboration between higher and nursing education to meet the demand.

## 7.2 Neonatal nursing students

Neonatal nursing students are professional registered nurses who are adult learners motivated by their own specific needs and interests. Their orientation is life-centred; they prefer experiential learning and being independent and self-directed, and have a profound need to protect their self-esteem (Boleman & Kistler 2005). Adult learners often engage in learning simply because they like it and enjoy finding out about things (Hillier 2002: 30). They have significant personal knowledge and experiences that can be used to guide practice and learning (Gravett & Geysler 2004: 36-9). They engage voluntarily in the educational programme for neonatal nursing science.

Neonatal nursing students are central in the model described. They are the recipients of the education programme in whom the process of reflective learning takes place, producing the expected outcomes.

## 7.3 Reflective learning

The researcher developed the following definition of reflective learning after exploring literature and using inductive and deductive reasoning (Maree 2007: 80-94): Reflective learning can be described as a process of conscious and intentional examination by an individual of what occurs in a learning experience, in terms of thoughts, feelings and/or actions, compared with underlying beliefs, assumptions, knowledge and the particular context. It can occur as reflection-before-action, reflection-in-action and reflection-on-action on a hierarchy of levels of complexity, resulting in a changed perspective and consequent changes in practice. The sequence of levels of complexity includes a descriptive phase, reflective phase and critical/emancipatory phase.

Various spheres of differing degrees of complexity are thus involved in reflective learning, following each other in a sequence, with different competences underlying each phase.

The descriptive phase involves a description of the situation or incident (actions, thoughts and feelings), and examination of these descriptions for genuineness and comprehensiveness. The main competences applicable in this phase are relative low cognitive abilities to understand the meaning of occurrences and language, memorise

and describe facts and figures, and find and use resources to explore and analyse meanings (Maree 2007: 98-9).

The reflective phase entails reflective analysis of the experience against espoused theories (scientific, ethical and aesthetic), of the situation itself and of intentions against actual practice. Underlying competences include high cognitive abilities of association, integration, validation and appropriation, which are applied in clinical reasoning, critical thinking and reasoning, and reflective thinking and reasoning (Maree 2007: 100-3).

The critical/emancipatory phase involves critique of practice in terms of conflicts, distortions and inconsistencies (between values/beliefs and practice, intentions and actions, and clients' needs and nurses' actions), and engagement in emancipatory and change processes. The competences of relevance are metacognitive abilities of critical reflective thinking, creative and proactive thinking and multi-logical reasoning (Maree 2007: 103-5).

#### 7.4 Programme outcomes

The outcomes of the education programme are described in terms of critical outcomes, specific learning outcomes and end-product outcomes, as relevant to the neonatal nursing students as recipients of the programme, and reflective/critical-reflective neonatal nursing practice. These are indicated as the border surrounding the central figure in the schematic presentation of the model (Figure 2).

Critical outcomes, determined and formulated by SAQA, are generic and cross-curricular outcomes relevant to all learning areas. They are "soft" or intangible outcomes, such as the capacity to apply knowledge, skills and attitudes in an integrated manner, common to all subjects or learning areas. These critical outcomes drive the learning process used to achieve competences in more than one sphere of life (HEQC 2002b: 34, Olivier 2002: 32-4). According to the researcher, they are integral to the outcomes associated with the process of reflective learning.

Specific learning outcomes are the particular outcomes of an educational programme, which are formulated as applied competences.



Applied competences include the relevant knowledge, skills and values or achievements that students should be able to demonstrate at a specific level of competence, in their specific context and field (Olivier 2002: 32-3). The term “applied competences” thus embraces three interconnected kinds of competence, namely practical, reflexive and foundational competences (CHE 2002: 48-9).

Foundational competences are the scientific and personal knowledge (the what) which individuals possess and on which they rely for decision-making and action, while reflexive competences are the abilities to use the underlying cognitive and metacognitive processes (the how) to use this knowledge. Practical competences are the technical executions of procedures or skills based on foundational competences (knowledge) and supported by cognitive abilities and emotions (CHE 2002: 48-9). The competences occur on different levels from least to most complex; these are not always exact, but are integrated and build on each other to create the total meaning.

End-product outcomes are the final results of the programme, the product, service or decisions made up of the critical and specific outcomes as a unity. End-product outcomes only become observable after students have experienced a range of learning activities (Olivier 2002: 32-3, 41). These end-product outcomes include professional outcomes for the individuals involved and reflective practice for the community.

Professional outcomes are the end results that impact on the working lives of and the quality of the service delivered by the individuals involved, and are to a large extent determined by the individuals’ characteristics and needs. These characteristics depend partly on the individuals’ core value system and perception of the world, and perception of themselves and their emotional status. The observable results of these characteristics are the individuals’ interaction with the outer world, and an attitude of lifelong learning.

An individual’s core value system and world view include beliefs, values and perceptions about the world that guide choices. Values that promote reflective learning and practice include value for life, morality and moral integrity, and respect (Smith & Lovat 2003: 55).

Self-perception and emotional state significantly influence how choices are made and implemented. Self-perception is usually stable or changes only slowly over an extended period of time and is determined by the belief in one's own competence, worth and the degree to which individuals perceive they can influence events around them (Henniger 2004: 132-3). Emotion is central to the process of rational thought and learning. Positive emotions such as a sense of well-being and a state of relaxed alertness are necessary for learning, while negative emotions such as depression, anxiety and threat inhibit learning (Gravett & Geysler 2004: 38-9).

Interaction with the outer world involves observable attitudes, behaviour as well as verbal and non-verbal communication resulting from their values and world view, self-perception and emotional state, and their foundational knowledge, practice competences and reflexive competences.

Lifelong learning is a significant additional professional outcome of reflective learning. It is "the extent to which a learner can undertake action for learning independently, the extent to which a learner takes responsibility for his/her own learning and the extent to which a learner is self-reflexive about, and can evaluate the quality of his/her learning, and eventually that of others. Progression in this category of learning is from dependence on other-regulation to full self-regulation, and from close supervision to creative, self-directed learning and the ability to supervise the learning of others" (CHE 2002: 49).

Reflective practice is an important outcome that benefits the community. It meets the demands of a specific context by using more than merely rational and evidence-based knowledge and skills; it includes experience and personal growth, based on the underlying processes of reflective learning and the hierarchy of competences. It narrows the gap between theory and practice, prevents habituation and enhances professional development (Kuiper & Pesut 2004: 386).

## 7.5 Role of the educator

The educator is the agent of the activity, the person responsible for educating reflective neonatal nurses. The educator is merely a facilitator of the educational process, taking teaching beyond content by using a more process-oriented approach and a variety of educational approaches and teaching strategies. The emphasis is on learning through reflection and self-assessment in order to integrate formal theory with experiential knowledge (Rolfe 2000: 84-124).

The educator's responsibilities include information processing (assessment) by becoming familiar with the programme (including content and expected outcomes), the students (including their needs, expectations, perceptions, prior knowledge and experience); the framework and context within which the teaching takes place (including relevant institutional policies and culture, student selection methods, available resources, related subjects or programmes, and clinical practical situations), and the educator's own beliefs and assumptions (Hillier 2002: 142-67).

Planning and implementation in the teaching process involves choosing appropriate educational approaches and teaching/learning activities; planning resource use, socialisation and enculturation; establishing a community of inquiry and interpretation; empowering all involved; and managing the logistics of the community in order to develop reflective practitioners (Olivier 2002: 101-6).

Evaluation includes student assessment and feedback; evaluation and accreditation of the programme, and self-evaluation throughout the learning process and at the end of the academic year or programme (Gravett & Geyser 2004: 90-9, HEQC 2004b: 12, 33).

## 7.6 Educational programme

The educational programme in this model is the procedure component, the technique or protocol of the activity, the two main aspects being the outline of content and the selected educational approaches.

This outline of content for a programme for educating reflective neonatal nurses is the domain-specific or specialised knowledge of a particular discipline, in this instance neonatal nursing science.

The outline of content is related to the competences required from reflective neonatal nurses, as well as the expected professional characteristics of reflective neonatal nurses to be inculcated by the programme. It is outlined under the following headings: neonatal patients, neonatal nursing practice environment, family-centred care, multi-professional teamwork, and professional nursing practice (managerial aspects, ethical-legal aspects, and professional and personal outcomes). It was subjected to evaluation by experts in neonatal nursing practice and neonatal education (Maree 2007: 154-8).

The educational approach must be chosen according to the purpose or desired outcomes, which can be foundational competences, reflexive or practical competences, and professional characteristics. The approaches can be broadly classified as behavioural, cognitive-constructivist, humanist, social and reflexive. The different approaches are based on different premises, use different teaching techniques to facilitate learning, and make different contributions to achieving the expected outcomes for the education of reflective neonatal nurses. The best course is not to use a single selected approach, but rather a combination of approaches suited to the particular expected outcomes, available resources and context (Waghid 2001: 77-83).

## 8. Significance of the study

By developing a model for educating reflective neonatal nurses this study contributes to reflective practice, neonatal nursing, nursing education and nursing science as a whole. The model is a unique contribution, as it brings neonatal nursing education in line with the real-world demands and expectations of neonatal nursing practice within the current South African context of health care and higher education.

## 9. Recommendations

It is recommended that the model be implemented in neonatal nursing programmes in different contexts, that it be presented at conferences, and be published in national and international journals with the focus on its various components. The model would be made available to the SANC for inclusion in postbasic neonatal nursing

courses, specifically in the light of the current transformation process and revision of qualifications. A number of research studies can be recommended, in particular regarding the implementation of the study. Other potential studies could be related to the changes that occur in practice, or in the individuals, the impact of reflective practice, education strategies and so on.

## 10. Limitations

A limitation of the study was the restriction of the study to the education of reflective neonatal nurses in a South African context, which implies limited generalisation. The study does, however, have the potential for a broader interpretation as indicated by some of the expert evaluators of the model.

As the study covers a large number of data on various aspects of neonatal nursing education, reflective practice and reflective learning, it was not possible to cover all these aspects efficiently in one article. Additional articles will be published on the different components described in the model.

## 11. Conclusion

This model attempted to simplify and synthesise a large number of factors influencing education of reflective neonatal nurses into a broad, usable and flexible structure that can be used to enhance neonatal nursing education and practice and to omit trial-and-error approaches. It has been described in terms of its different components, namely the educational framework, neonatal nursing students, reflective learning, programme outcomes, role of the educator and the educational programme. The education of reflective neonatal nurses remains complex and multidimensional, integrating many processes and components. These were addressed by the development of the model for the education of reflective neonatal nurses in a South African context. The challenge is now its dissemination in order to produce reflective neonatal nurses.

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