DEVELOPMENT AND IMPLEMENTATION OF A TRAINING PROGRAMME FOR PRECEPTORS: A REALIST EVALUATION

By

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Submitted in fulfilment of the requirements in respect of the Doctoral Degree qualification in Nursing in the School of Nursing in the Faculty of Health Sciences at the University of the Free State

29 June 2018

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The financial assistance of the National Research Foundation (NRF) towards this research is hereby gratefully acknowledged. Opinions expressed and conclusion arrived at, are those of the author and not necessarily to be attributed to the NRF.

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Acknowledgements

Many people have told me that the PhD road is a lonely one. Upon reflection I would agree, especially with regard to the discovery of new knowledge venturing on the road no one has wandered before as every PhD is unique. I have, in retrospect, also never felt so supported and cared for in my career as a nurse. In my personal opinion I feel that the journey of a PhD project is empty without love and support from loved ones, colleagues and everyone that wants to see you succeed.

Firstly, I would like to give all the glory and honour to Father God. “Thank You Lord for the privilege and guidance during this journey. Without you I could not have done this.”

The love of my life, Jaco van Dyk, “You came in and swept me of my feet and every day you still take my breath away. Thank you for being my support during this time. I love you always.”

Mom and Dad: “Thank you for everything that you have done and for all that you have sacrificed in the past 36 years. “I love you.” Jean-Pierre, thank you for your support and all the calls bouncing thoughts and ideas off each other. It is a privilege to have finished our Master’s degree and now our PhD’s together. Esme, Kristen and William thank you for keeping up with us when all we could talk about was ‘PhD’”.

My mentor and role-model, Prof Yvonne Botma: “thank you for walking this road with me. I know I can be a drama queen sometimes, especially during feedback. I will never forget the day after writing the methodology amendment, sitting across you, mad, because I had to read up on yet a new methodology. I have learned so much from you and am excited to learn even more”.

Thank you to Tannie Elna en Oom Gerrie van Dyk for your support and encouragement during this time. “Thank you for receiving me as a child in your house and loving me as your own. To Hymne and Ig: “Love you guys.”

To a very special person, Mari Prinsloo, you have come in beside me and just lifted my wings, especially during the past year. Words cannot express how thankful I am toward your support at work. My team of preceptors, Ingrid Lombard, Danelle Haumann, Theresa de Vries, Reinsie Hatting, Vanessa Booysen, Annette Furter, LJ Mogakwe and Magriette Mogadi, thank you for all your support. I couldn't have asked for a better team than you. I am thankful for you. My cup flows over."

The 'dapper drawwers': "Thank you for all the stress relief therapy; from wine tasting to running marathons. I love the way we just operate as a group."

My colleagues at the School of Nursing: "Thank you for all your support." I would like to mention a few colleagues on who I could always relay on whatever the need; Prof Magda, Mandie Jacobs, Bennie Botha, LJ Mogakwe, Elzarie Devenish, Carien Beckman, Suzette Geringer, Delene Botha, Cynthia Spies, Marisa Wilke, and Winnie Motlolometsi.

Christina Botha: "thank you for your friendship my friend, even when I was absent due to studies and work. I love you."

The head of departments at the data collection sites: "Thank you for allowing me to conduct the research at your NEIs". To my colleagues at the data collection sites; you know who you are. Thank you for standing by me, helping me with this very difficult data collection method, you were the light in a very dark tunnel. For those who became close friends: "I love you dearly and hope that we can collaborate on other projects as well." All the students that participated at the data collection sites: "Thank you for your time during your busy schedules."

Support staff of the ethics committee, particular Maré Marais: "Thank you for all your kindness and support."

Al my undergraduate students at the School of Nursing; thank you for keeping up with me, especially the past few months. Training you is my passion and an honour.

To the student assistants who helped me with the data clearance and capturing.

Prof Gina Joubert: “Thank you for all Prof’s guidance and assistance on the data as my biostatistician.”

To Ruth Albertyn, Jackie Viljoen and Annemie Grobler, thank you for your valuable input.

Abstract

Preceptors need training for two main reasons; one is to successfully facilitate students' learning through theory-practice integration and secondly to equip preceptors with the necessary skillset to do so. Currently, no preceptor-training programme exists that is built on the clinical nursing education and training model where preceptors are employed, supported and trained by nursing education institutions. There is also limited quantitative research done to measure the effect of preceptorship on students' learning. The researcher hypothesised that undergraduate students who are accompanied by trained preceptors will experience quality support and be more competent than those accompanied by untrained preceptors. This thesis offers not one but two new contributions to the field of knowledge: a preceptor-training programme and a refined programme theory for preceptorship.

The study unfolded in three phases. The first phase comprised a multimethod process to generate topics for the preceptor-training programme. A nominal group technique and general literature review were used to generate topics which were verified through a Delphi technique where the twelve participating experts reached a 70% consensus on each topic. Seven outcomes were formulated, based on the results. The training programme is immersed in strong pedagogical theories and principles that promote active engagement and thinking operations.

Phase two piloted the training programme as a quantitative experimental randomised control trial with a pre-test and post-test design. Two nursing education institutions were randomly selected as the experimental and control groups. Census sampling allowed 21 preceptors at the experimental group and 346 students from both institutions to participate in the intervention. The pre-test comprised assessing students' competence and students completed a preceptor support questionnaire. Shortly thereafter, the researcher presented the training programme to undergraduate preceptors from the experimental group. Only six preceptors attended the training. Students continued to complete the support questionnaire after each clinical rotation. The competence of students was reassessed during the post-test. Quantitative data

showed a poor outcome that may be due to poor participation by preceptors and high student attrition rates. Critical reflection allowed the researcher to describe several valuable lessons learned during the execution of the pilot study.

The researcher used a realist evaluation, as phase three, to explore the implementation of the intervention in the 'real world'. Reflective field notes made during the pilot study allowed the researcher to describe the context-mechanism-outcome configuration of the programme. By exploring the context, insight was gained into the influences and motivation of preceptors to transfer their learning. The mechanism describes the complex interrelationships within the systems where preceptors need to function.

Through the realist evaluation, the researcher concluded that a preceptor-training programme is not the sole determinant that promotes the transfer of learning by preceptors to their students. A systems approach is essential as preceptors' function both within the nursing education institution and healthcare system. Nursing education institutions need to support and value preceptors as a stakeholder by creating a place for them within their system. Other results revealed that institutions should be mindful of the enacted curriculum and the alignment of theory with practice. Through a realist evaluation the researcher presents a refined theory for a positive outcome where preceptors can function optimally.

Keywords: Intervention; nursing education institutions; preceptors; preceptor-training programme; programme development; realist evaluation; refined programme theory; transfer of learning; undergraduate nursing students.

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Nature of document: PhD thesis, University of the Free State

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A training programme for preceptors in South Africa: A consensus seeking

Preceptor-training intervention: Lessons learned design

Looking beneath the surface of a preceptor-training programme through a realist evaluation

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25 June 2018

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List of abbreviations

CBL	Content-based learning
CHE	Council on Higher Education
CMO	Context, mechanism and outcome configuration
CR	Critical realism
DoH	Department of Health
EBP	Evidence-based practice
FUNDISA	Forum of University Nursing Deans of South Africa
GAPFON	Global Advisory Panel on the Future of Nursing and Midwifery
IMCI	Integrated management of childhood illnesses
ISBAR	Identify, Situation, Background, Assessment and Recommendations
NEI(s)	Nursing education institution(s)
NRF	National Research Foundation
OBE	Outcomes-based education
PDSA	Plan, Do, Study, Act cycle
PhD	Doctor of Philosophy
SANC	South African Nursing Council
SAQA	South African Qualifications Authority
SDL	Self-directed learning
SNAPPS	Summarize briefly, Narrow the diagnosis, Annalise the reasoning, Probe the preceptor, Plan management, Select a case-related issue

SP(s)	Standardised Patient(s)
SWOT	Strengths, Weaknesses, Opportunities, and Threads
ToL	Transfer of learning
UFS	University of the Free State
WHO	World Health Organization
WIL	Work-integrated learning

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Orientation of this manuscript

Dear Reader

Thank you for taking the time to read this manuscript. My hope is that you will be enlightened by the findings of this particular study as I believe nursing education is at a cross road. We can either continue on the road travelled for so many years which may lead to an unprepared Workforce 2030, or we, as stakeholders, can change our way of thinking about nursing education and preceptorship by taking important notice of the findings and recommendation that this study present.

The manuscript is an article style thesis and unfolds in five chapters. Chapter one comprises of an introductory chapter where the researcher gives an overview of what is to follow. Chapter two to four presents three publishable articles that were written in accordance to the chosen journal. Article one in chapter two describes the development of a preceptor-training programme. Chapter three takes the reader through article 2 through the piloting of the training programme as an intervention. The last article in chapter 4, describes the researcher's attempt to explore the outcomes of the preceptor programme through a realist evaluation. This type of format may lead to repetition of content.

All three articles start with an orientation section to update the reader about relevant information on the chosen journal, ethical considerations and addenda associated to the article. Each article ends off with its own reference list. The thesis is concluded with chapter five as the conclusion chapter with limitations and recommendations.

Concept clarification and operational definitions

The following concepts used in this study are listed alphabetically.

Competence

Competence is a nurse's ability to demonstrate functional knowledge through the incorporation of foundational and procedural knowledge within a specific context while providing healthcare based on best available evidence (Botma *et al.*, 2014; Goudreau *et al.*, 2009). A competent nurse has the ability to reflect on their thinking operations to develop meta-cognitive knowledge (Bruce & Mtshali, 2017). Competence was measured through a competence assessment instrument as developed by Piek and Botma (2017); refer to Addendum G.

Nursing student

Nursing student is a person registered with the South African Nursing Council (SANC) as a learner nurse or midwife in terms of section 32 of the Nursing Act (SANC, 2013b). Students in this study are registered with the SANC and are enrolled in a Bachelor of Nursing programme at a nursing education institution (NEI).

Pilot study

A *pilot study* is a preliminary small scale study that is often used to examine the methods and determine the feasibility of an intervention, should it be implemented to a larger extent (Polit & Beck, 2017). The intervention is implemented as a pilot study at two nursing education institutions to determine its feasibility and transferability, should it be implemented to a larger extent.

Preceptor

Preceptor is “a compassionate nurse expert who develops a one-to-one time limited relationship with a novice in a clinical setting, provides support, facilitates thinking operations, and assesses competence in order to promote metacognition and care that is based on the best available evidence,” as adapted from Botma (2014). For the purposes of this study, preceptors are registered nurses, appointed by the NEI to accompany undergraduate students in a Bachelor of Nursing programme.

Realist evaluation (RE)

Realist evaluation as a methodology is a theory-driven evaluation that aims to explain the mechanisms involved and to evaluate interventions or programmes implemented in social reality. It rests on the epistemology of realism (Fletcher, 2017; Pawson & Tilley, 2013). A realist evaluation is used to evaluate the implementation of the preceptor-training programme through exploring the theories, context, mechanism and outcome.

Support

Support may include activities or behaviours of a person who provides care and comfort to another person (Gardner, 1979). For the purpose of this study, three types of support are distinguished namely cognitive, system and emotional as described by Hugo *et al.* (2018). The preceptor support questionnaire (Addendum H) was used to determine the level of support that preceptors offer to students.

Training programme

A *training programme* is defined as a structured set of learning experiences that will give a person training in a specific skill set (World Health Organization, 2012). A preceptor-training programme was developed by the researcher and verified by experts.

Transfer of learning

Transfer of learning refers to the process where classroom knowledge or skills are applied and demonstrated through performance in real world or simulated situations (Botma, Van Rensburg *et al.*, 2013; Kirwan & Birchall, 2006). Transfer of learning by nursing students was measured by means of the competence instrument as developed by Piek and Botma (2017); refer to Addendum G.

CHAPTER 1
Introduction to the study

1.1 Introduction

The competence of healthcare professionals has steadily gained more attention over the past years. Specifically, nurses' competence warrants particular attention because they comprise up to 80% of healthcare professionals (Squires *et al.*, 2015) and are therefore considered the backbone of health services (Department of Health [DoH], 2012). Competence is a person's ability to demonstrate incorporation of foundational and procedural knowledge in context-specific environments when rendering optimal healthcare to their patients (Goudreau *et al.,* 2009). Competent clinicians have reflective thinking characteristics about their thinking operations to develop meta-cognitive knowledge (Bruce & Mtshali, 2017). The competence of nurses is pivotal to address complex and challenging healthcare needs of communities and reduce mortalities.

Low income counties, such as South Africa, are challenged with a quadruple burden of diseases that include communicable and non-communicable diseases, maternal and child mortality, as well as injury and trauma (DoH, 2012). Meanwhile, the diseases themselves, such as co-morbidities, multi-drug resistant and emerging diseases and new technology put additional demands on healthcare workers to keep up with the rapid changes in the management of these diseases (Frenk *et al.,* 2010; Van Graan *et al.,* 2016; World Health Organization [WHO], 2016b). It is therefore essential that nurses have current and sufficient knowledge to address the healthcare needs of their communities.

There is a strong link between competence and the quality of healthcare delivery, healthcare outcomes and a decrease in mortality rates. Cho *et al.,* (2015) state that well-trained nurses will help to reduce mortalities. The WHO (2016a) and Squires *et*

al., (2015) concur that highly educated nurses result in low complication rates, shorter hospitals stays, and low mortality rates. Grasping the importance of competence, the WHO has made quality education and training a focus area of its policy titled Global Strategic Direction for Strengthening Nursing and Midwifery (WHO, 2016a) and the Global Strategy on Human Resources for Health: Workforce 2030 (WHO, 2016b) to guide health systems globally and promote the delivery of quality healthcare. Nursing education institutions (NEIs) are irreplaceable role-players in promoting competence, consequently strengthening the healthcare system.

1.2 Background

The South African Department of Health (DoH) acknowledged the challenges the nursing profession faces, especially being encumbered by the quadruple burden of diseases. They aligned their strategies with the WHO by prioritising nursing education and training in a 2011 National Nursing Summit (DoH, 2012). Recommendations from the aforementioned summit even today direct nursing education and training, and gave life to this particular study.

Globally, there is a call to use innovative educational strategies to produce competent nurse practitioners (WHO, 2016a). During the summit, the Nursing Education Stakeholders group proposed a clinical nursing education and training model that highlights preceptorship as an innovative strategy (The Nursing Education Stakeholders group, 2012). The aim of the summit was to highlight issues of concern to the future nursing workforce. A collaborative approach among stakeholders delivered the training model. The DoH model accepted the proposed training model and the nursing governing body incorporated it in the regulations of the South African Nursing Council (SANC), as reported by the Nursing Summit Organising Committee and the Ministerial Task Team (2012).

The model proposed that nursing preceptors, as valued role-players, be employed by NEIs, linking NEIs and healthcare facilities while facilitating students' learning (The Nursing Education Stakeholders group, 2012). To assist students to develop competence, the SANC requires nursing students to work a minimum of 4000 experiential learning hours as part of their work-integrated learning (WIL) (SANC, 1985). Furthermore, the SANC requires that 70% of these hours should be supervised (SANC, 2014a). Students rotate monthly between specialities in both public and private hospitals and are consequently accompanied by different preceptors.

The benefits of preceptor accompaniment have been described throughout literature. Support that preceptors provide may alleviate students' stress levels (Aggar *et al.,* 2017; Marks-Maran *et al.,* 2013). Students in general reflect positively on the practice of precepting as they envisage that preceptors will assist them to develop important skills such as communication, clinical skills and professional socialisation abilities (Marks-Maran *et al.*, 2013). McKillop *et. al.* (2016) state that under the supervision of preceptors, students' thinking operations are developed which in return improved patient healthcare outcomes.

For the purpose of this study, a preceptor is defined as "[a] compassionate nurse expert who develops a one-to-one time limited relationship with a novice in a clinical setting, provides support, facilitates thinking processes, and assesses competence in order to promote meta-cognition and care that is based on the best available evidence" (Botma, 2014).

Taking the definition into account, it is crucial for NEIs to recruit and employ preceptors with distinguishing personal and professional attributes to be role-models and effectively build professional relationships with their students. Preceptors should provide support to students in the clinical facilities so that students can become competent practitioners (Tiwaken *et al.,* 2015).

Three types of support are described by Hugo *et al.,* (2018), namely system, cognitive and emotional support. System support involves preceptors orientating students, communicating students' outcomes for the placement and negotiating learning opportunities for students to achieve these outcomes (Dimitriadou *et al.,* 2015).

Cognitive support is the most important type of support that preceptors can provide. Preceptors should use various facilitation techniques to guide students to critical thinking, clinical reasoning, clinical judgement, and reflect on these thinking operations in order to function in an increasingly complex clinical environment (Papathanasiou *et al*., 2014; Popil, 2011; Tanner, 2006). Emotional support is provided when preceptors demonstrate friendliness, availability and interest in their students (Aggar *et al*., 2017).

Providing comprehensive support to students places a big responsibility on preceptors. Many preceptors have expressed their role as stressful and complex (Valizadeh *et al.,* 2016). It is not just the role that is challenging; it is also the highly specialised environment in which they function that comes with its own challenges (Chang *et al.,* 2015). Environments where there is a shortage of equipment, consumables and resources also challenge the effectiveness of preceptors (Msiska *et al.,* 2014). Therefore, preceptors need training to assist them not only with the challenges involved in precepting, but also to equip them with the skills set to develop competence in students.

The benefits of preceptor-training programmes have been reported (Chang *et al*., 2015). Training provides preceptors with a good foundation to provide student support (Haggerty *et al.,* 2012). Trained preceptors reported higher confidence, feeling competent in their role and experienced less stress (Cotter & Dienemann, 2016; Kang *et al.,* 2016). Students who were accompanied by competent preceptors had more self-confidence in providing patient care (Kang *et al*., 2016). Therefore, preceptors should be trained on topics relevant to their role.

The relevance of preceptor-training topics is essential and the training programme should be built on sound educational theories and principles. Chang *et al.* (2015) state that current training did not satisfy preceptors' learning needs and was unusable. They further reported that insufficient training was given before appointment and furthermore it was more theoretical than practical. Chen *et al.* (2017) add that preceptor-training programmes should have a strong pedagogical framework. Therefore, a wide-ranging approach is needed in designing preceptor-training programmes.

1.3 Problem statement

Preceptor-training programmes are designed to be context specific (Jeggels *et al.,* 2013) and based on the learning environment, needs and conditions of that context (Hallin & Danielson, 2008). The available preceptor-training programmes vary in content and have different approaches. In the United Kingdom, preceptors are linked to newly registered nurses in the clinical facilities that support nurses in successfully completing daily activities mainly through professional socialisation (Price, 2009).

In South Africa, specifically, various needs and conditions should be taken into consideration when developing a preceptor-training programme. South Africa has a primary healthcare focus that is predominantly nurse-driven. Registered nurses are expected to be independent autonomous practitioners who can demonstrate sound clinical judgment in the management of patients (Handel, 2016). WIL should equip prospective registered nurses with these thinking skills. The SANC prescribes outcomes- or competency-based curricula as a foundation to promote competent nurses on exiting their four-year degree programme (SANC, 2013a). Due to the critical shortage of nurses (DoH, 2012), newly qualified nurses are expected to enter facilities ready to perform the duties of a registered nurse; there is simply no time to re-train nurses.

During the data collection of the core competencies of preceptors (Botma, 2016), an additional census, confirmed that there is only one preceptor-training programme that is offered by one other South African NEI. According to the researcher's knowledge up to date, this fact remains true. However, this particular training programme is not based on the clinical education and teaching model which had been accepted by the DoH. There is a need to develop a preceptor-training programme that is based on the prescribed model accepted by the DoH and integrated in the regulation of SANC (The Nursing Education Stakeholders group, 2012).

The question remains on what the outcomes and content of a preceptor-training programme should be. Botma (2016) took the first step by identifying topics that include the assessment and development of thinking operations through constructivism and facilitation techniques that will promote student learning on evidence-based practices. However, these topics need to be confirmed and possibly expanded.

There is a plethora of qualitative studies describing the experiences of preceptors and preceptees. However, measurable evidence is needed on the feasibility and transferability of a contextualised preceptor-training programme.

1.4 Research question

The researcher asked the following question:

> *"What is the feasibility and transferability of a contextualised preceptor-training programme as developed by the researcher? "*

1.5 The aim and objectives

The aim of this research study was to develop a contextualised preceptor-training programme and describe its feasibility and transferability.

The objectives of this study were to:

a) Develop a training programme for undergraduate nursing preceptors in a South African context. (Article 1)
b) Pilot the training programme through an intervention study. (Article 2)
c) Describe how the context influenced the implementation of the developed preceptor-training programme at nursing education institutions. (Article 3)

1.6 Conceptual framework

The conceptual framework of this study is based on Botma's adapted model (Botma, Van Rensburg *et al.,* 2013) of the systematic transfer of learning model as proposed by Donovan and Darcy (2011). Transfer of learning occurs when students incorporate theory when performing newly learned skills or tasks in the clinical environment (Botma, Van Rensburg *et al.*, 2013; Merriam & Leahy, 2005). Students have to persistently transfer learning to improve their performance (Kirwan & Birchall, 2006). Several factors influence students' transfer of learning, namely: student characteristics, educational design, transfer climate and the work environment. If one of these factors does not function optimally, the student's motivation to transfer may be low and performance will be suboptimal (Donovan & Darcy, 2011; Merriam & Leahy, 2005).

Botma, Van Rensburg *et al.* (2013) adapted the transfer of learning model to show how preceptors can influence and promote *students*' motivation to transfer learning. In essence, preceptors play a pivotal role in students' transfer of learning as indicated in Figure1.1.[1]. In Chapter four, the transfer of learning model as described by Donovan and Darcy (2011) was used to describe the contextual findings and how it relates to *preceptors*' transfer of learning.

It is important to keep in mind that this model can also be applied to the preceptor's transfer of learning, as they also need to be motivated to effectively support and develop students' competence.

[1] Figure 1.1 also appears in Article 1 as the adapted transfer of learning model forms the conceptual framework of the project and the article is a separate publishable entity.

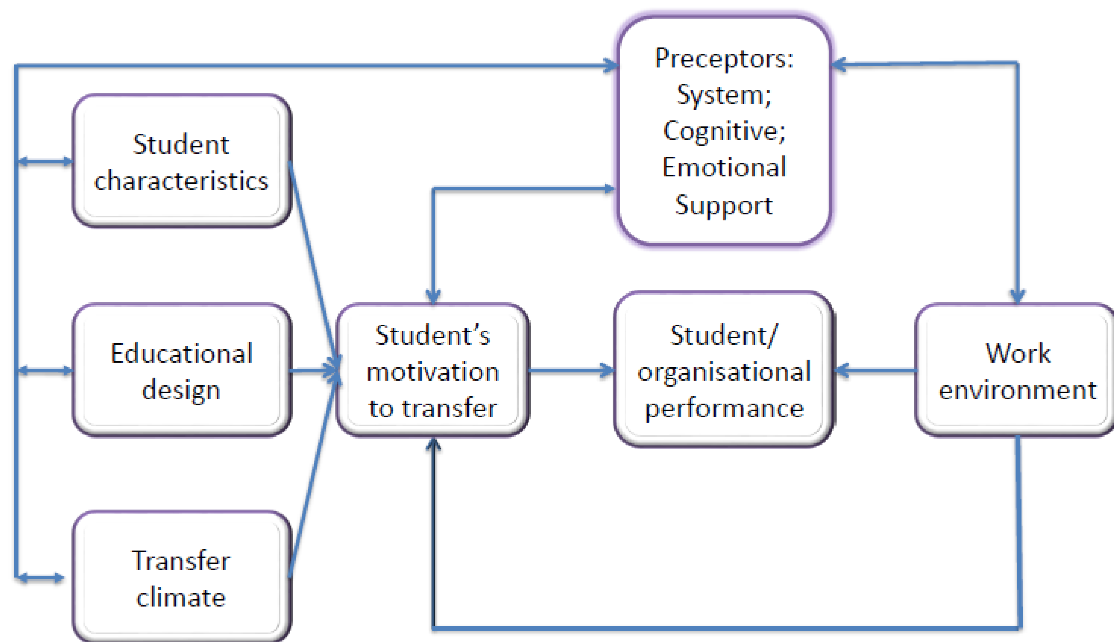

FIGURE 1.1: The relationship between support by the clinical preceptor and the transfer of learning as adapted by Botma, Van Rensburg et al. (2013) from Donovan and Darcy (2011)

1.7 Methodology

A mixed method research approach with an explanatory sequential design was used. This design comprises two distinctive interactive phases with the initial collection and analysis of the quantitative data, followed by the collection and analysis of the qualitative data (Creswell & Clark, 2011; Polit & Beck, 2017).

The research unfolded in three phases. The first two phases accounted for the quantitative part that comprised the development of the preceptor-training programme and the piloting of the intervention. The qualitative component explores the reasons for the outcome of the study by means of a realist evaluation. Each phase will be discussed separately. See Table 1.1 for an overview on the mixed method design.

TABLE1.1: Layout of mixed method explanatory sequential design

Phase	PHASE 1	PHASE 2	PHASE 3
Description	Developing a preceptor-training programme	Piloting of the developed preceptor- training programme	Realist evaluation of the programme implemented
Paradigm	Pragmatism	Positivism	Realism
Design	Quantitative	Quantitative and qualitative	Qualitative and quantitative
Technique	Delphi technique	Experimental Intervention study Reflective field notes	Realist evaluation Reflective field notes
Population	Experts in the field of preceptorship	Preceptors and students from NEIs participating in the intervention study.	Preceptors and students from NEIs participated in the intervention study.
Sample/sampling /sample criteria	Purposive sampling of experts in the field of students support, preceptorship and clinical nursing education	Census sampling of all preceptors and second and third year nursing students from randomised experimental and control group	Census sampling of all preceptors and second and third year nursing students from randomised experimental and control group

1.8 Phase 1: Development of the preceptor-training programme

The first step in this study was to develop a preceptor-training programme. O'Neill's (2015) process of programme design as illustrated in Figure 1.2 directed the development of the programme. This programme design includes (1) educational philosophy and the needs analysis; (2) curriculum models; (3) programme aims and outcomes; (4) programme organisation and structure; (5) programme teaching, learning and assessment strategies; and (6) module design. The researcher defined the programme objectives, assessment strategies and learning content and activities for the programme (Bartholomew *et al.,* 2011). Principles of authenticity, scaffolding, student-centredness and constructivism were applied in the development of the programme and study material. The researcher adhered to intervention fidelity, as described later in this chapter. A needs analysis informed the structure and

development of the programme. Thereafter the outcomes of the programme were finalised by means of the Delphi technique.

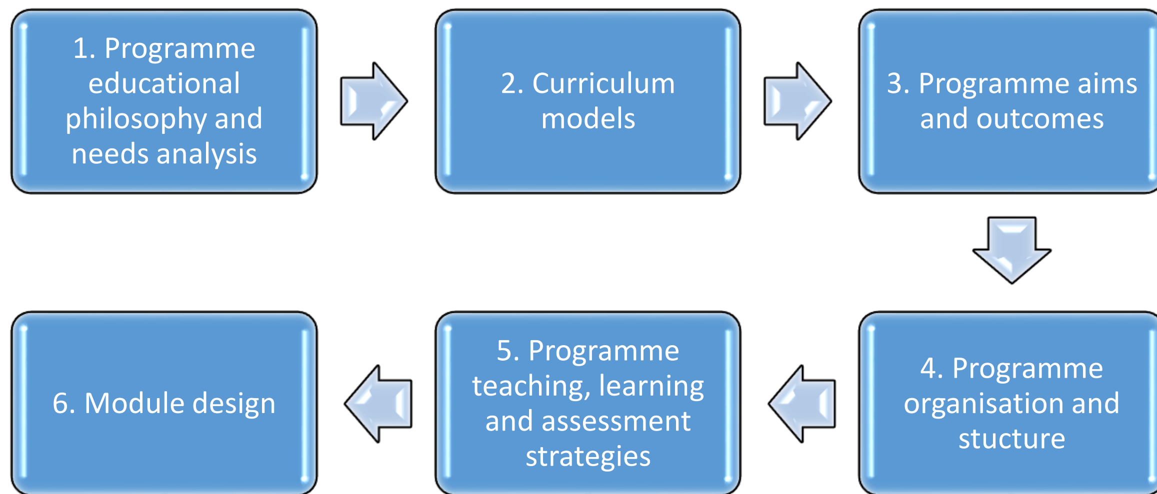

FIGURE 1.2: Process of programme design proposed by O'Neill, 2015

The needs analysis focused on the content that preceptors deem to be necessary for their training programme.

For the programme development, the researcher worked from a pragmatist stance. Pragmatism is not affiliated with any philosophy thereby allowing the researcher to find the best methods to solve the problem identified (Rahi, 2017). It allows the researcher to generate and verify through induction and deduction, the topics included in the training programme (Polit & Beck, 2017).

1.8.1 Research method

A multimethod approach was used to develop the programme which included findings from a nominal group, general literature overview and reflective transcripts of informal discussions. The nominal group was done prior to this research where Botma conducted a needs analysis in 2014 with members of the Forum of University Nursing Deans in South Africa (FUNDISA) and nurse educators who attended the annual nurse education conference (Botma, 2016). The educators in Botma's analysis

recommended that thinking operations, its facilitation, evidence-based practices (EBP) and assessment should be included in the contents of a preceptor-training programme. Botma's (2014) article include relevant literature that support the importance of content identified. The work done by Botma (2014) is depict as step one in Figure 1.3 and do not form part of the study. Step two to six form part of this particular study.

The researcher added relevant topics as identified through a general literature overview as well as research notes from informal discussions with other preceptors. Finally, the expert panel of the Delphi technique enhanced the relevance of the programme content. The Delphi technique is a method to obtain judgment about an issue from a group of experts (Grove *et al.,* 2012; Polit & Beck, 2017) which provided clarity on which content to include in the programme. Figure 1.3 shows the process of the preceptor-training programme development.

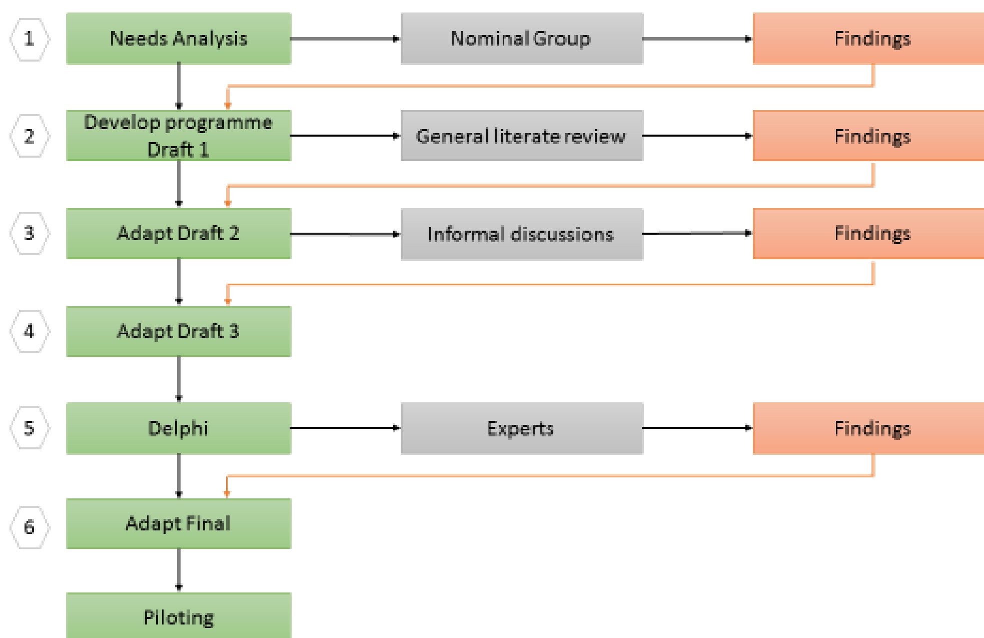

FIGURE 1.3: Layout of the development of the preceptor-training programme

1.8.2 Population and sampling

Purposive sampling comprised of thirty-two (16 national and 16 international) experts on student support, preceptorship, and clinical nursing education who responded to questions about the preceptor-training programme. The researcher invited as many experts as possible to participate in the Delphi (see Addendum A1 for Delphi participants) due to high associated attrition rates (Green, 2014). Correspondence was done via email. Although the training programme was designed for a South African context, international experts were invited to ensure inclusiveness of content which was verified through consensus.

1.8.3 Data collection

Sixteen experts showed an interest to participate, but only 12 responded in round one, 5 resided nationally and 7 internationally. Five experts resided in South Africa and seven international countries. Respondents gave feedback online via a Delphi feedback form as depicted in Addendum A2.

1.8.4 Data analysis

A quantitative descriptive design directed the analyses of the responses. After data was analysed by the researcher, a summary on the responses was sent again to experts. This process continued until ≥ 70% consensus was reached as proposed by Polit and Beck (2017) on each topic. If 70% consensus was not reached, the item was automatically excluded unless there were missing responses. The Delphi process was concluded after four rounds. See a detailed discussion in Chapter 2 on the programme development.

The next section describes phase two, which includes the piloting of the preceptor-training programme as an intervention.

1.9 Phase 2: Piloting of the training programme

A pilot study is a small version of the main study that is conducted prior to the main study (Polit & Beck, 2017) to determine the: 1) feasibility, 2) collaboration, and 3) refinement of the study, which are described as 'lessons learned'.

1.9.1 Research method

Phase two followed a positivistic paradigm, where followers accept that true knowledge is gained objectively through observation and experimentation by the use of scientific methods (Polit & Beck, 2017; Rahi, 2017). The ontology of positivism is realism and the epistemology is objectivism where knowledge about an objective reality is described (Du-Plooy-Cilliers, 2015; Polit & Beck, 2017). The researcher is of the opinion that the development and piloting of the preceptor-training programme can be measured and scientifically explained by means of observation and analysis.

The pilot study was a quantitative, experimental randomised control trial. Melnyk and Morrison-Beedy (2012) state that a randomised control trial should conform to an experimental group (who would receive the intervention) and a control group. The trial requires the random assignment of subjects to both groups by probability to increase the internal validity so that the researcher can deduce that the intervention contributed to the desired outcome.

An intervention is an action implemented in a specific situation to bring forth a desired outcome that is beneficial towards a person or group (Grove *et al.*, 2012). The researcher ensured efficacy by controlling experimental conditions as far as possible in order to produce a good outcome. Environmental variables were addressed in the section on measurement errors. The researcher also attempted to control the intervention fidelity, which included accuracy, consistency and thoroughness throughout the study as described by Polit and Beck (2017). Fidelity was ensured by introducing the same intervention (training programme) within similar conditions, and the same person presented the training programme to ensure equivalence. Implementation setbacks were managed accordingly.

The preceptor-training programme was the intervention to the experimental group. In order to randomise the groups, as described by Grove *et al.* (2012), the researcher first categorised NEIs at universities according to their curriculum approaches and preceptorship programmes. NEIs were categorised into those offering a competence/outcomes-based curriculum and those offering traditional or problem-based learning. As most NEIs claimed to offer outcomes-based curricula – which aim to develop critical thinking skills in students. The researcher's NEI and another NEI with a preceptor programme were excluded from the pool. The researcher first selected the experimental site by simple randomisation. This was done by mixing NEIs' names in a hat and selecting names consecutively. The second NEI identified served as the control group. Both NEIs met the inclusion criteria of employing preceptors, although not offering a preceptor-training programme and their curriculum were listed as outcomes-based. Only two NEIs were selected as phase two only served as a pilot study.

Baseline data were collected during the pre-test at both the experimental and control group during the first month. Student participants at both NEIs completed consent forms in Addenda I1, I2, J1 and J2 during the pre-test. The preceptors from the experimental group shortly thereafter received the training programme as intervention. Preceptors attending the three-day preceptor-training programme developed artefacts that portrayed their understanding of content and their perceptions of context. The researcher accompanied undergraduate preceptors for two hours after training while they were engaging with students in the clinical setting. Only six of 21 undergraduate preceptors attended the training as the head of department announced it as voluntary. After the intervention, up to month five, preceptors had the opportunity to adapt and apply their newly learned facilitation skills. The researcher individually followed preceptors up, face-to-face, two months after the intervention. The intervention concluded with the post-test at both institutions. The following section describes how the objectives were measured in the study. Figure 1.4 gives an overview of the measurements followed by a detailed description of the process.

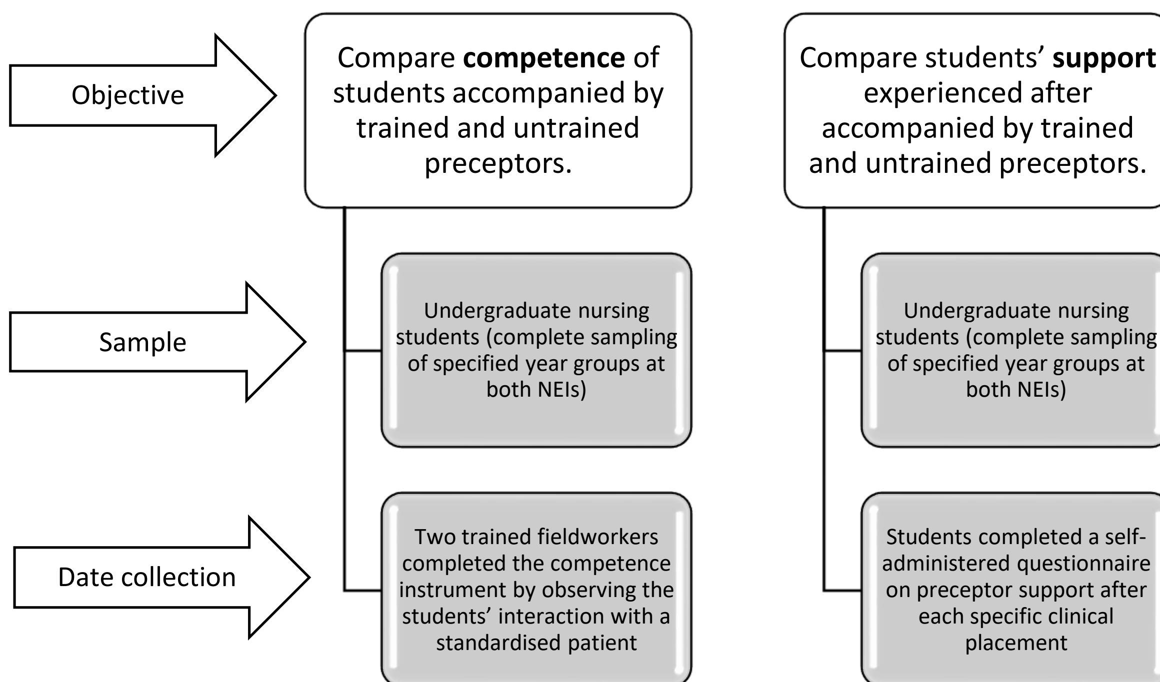

FIGURE 1.4: Overview of intervention measurements

1.9.1.1 Competence

Competence is a student's ability to think critically, reason clinically, judge clinically and reflect on these thinking operations, as described by Tanner's (2006) clinical judgement model.

1.9.1.1.1 Population and sample for competence assessment

The population (346 students) consisted of second- and third-year undergraduate nursing students. Census sampling allowed every student to participate in the study. The intervention site comprised 116 students and the control site 230 students.

1.9.1.1.2 Competence assessment instrument

Piek and Botma (2017) developed the competence assessment instrument to measure students' performance through a methodological study. The instrument is based on the thinking operations as described by Tanner (2006) and Botma and Klopper (2017). The instrument was validated by Piek and Botma (2017). See Addendum G for instrument.

1.9.1.1.3 Data collection: competence

The researcher in collaboration with the supervisor developed simulation scenarios based on the information received from both NEIs. Real cases formed the base of the scenarios and were tested with students at the NEI to which the researcher is affiliated.

Each NEI recruited their own standardised patients (SPs) who were mainly lay people or students. The researcher trained them on the case at least 24 hours before the simulated sessions. All SPs received hard copies to study to enhance consistency of patient information during the simulated sessions.

All fieldworkers involved in data collection were register nurses. The researcher explained the instrument to the fieldworkers and gave them the opportunity to practice while observing recorded video footage. Each field worker received a number and the researcher kept record of the paired numbers. Paired fieldworkers individually observed and evaluated students' performance during the SP simulation session and completed the competence assessment instrument (Piek & Botma, 2017) based on Tanner's (2006) model. Fieldworkers was paired to increase interrater reliability of students' competence performance.

See Figure 1.5 for an overview on the data collection of the study. The researcher assigned a random number to the students so that the individual could be tracked during the data collection process.

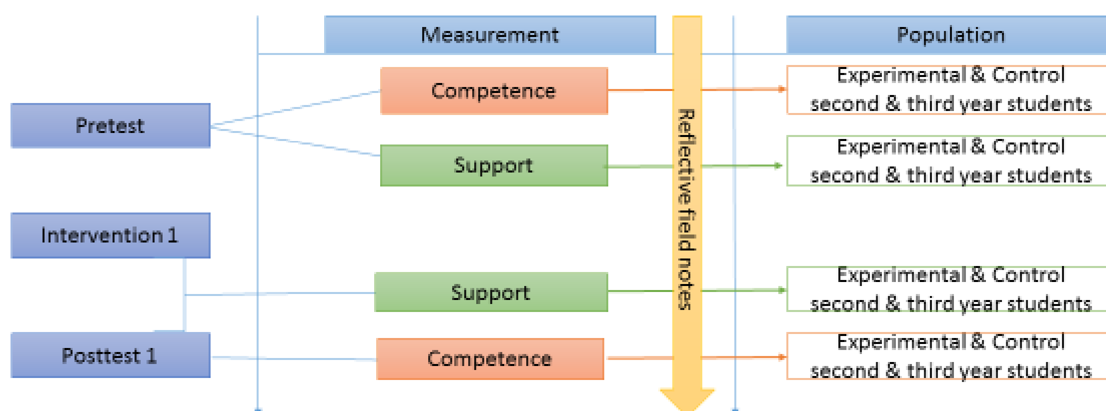

FIGURE 1.5: Overview of data collection

Data on competence were collected at both sites during the pre- and post-tests.

1.9.1.1.4 Reflective field notes

Polit and Beck (2017) describe descriptive and reflective field notes that enable triangulation of data. Descriptive notes are summaries of observed events, conversations, and information of actions and settings. Reflective notes are methodological notes that reflect observations on why things or actions 'worked' or 'did not work' (Polit & Beck, 2017). Reflective field notes aim to critically describe events or problems in an objective manner (Mulhall, 2003). Reflective notes can be linked to new knowledge as it expands our comprehension of events in a research study (Thoresen & Öhlén, 2015). These notes can bring forth new strategies on how to improve the intervention.

The researcher debriefed all students after their encounter with the SP and made reflective field notes. Each day on concluding the data collection process, the researcher debriefed the fieldworkers and again made reflective field notes as well as directly after or during the session which contribute to the quality of field note data.

1.9.1.1.5 Data analysis: competence

A student assistant coded the hard copies and captured the data electronically on an Excel™ spreadsheet. A second independent student assistant, were verified the captured data. Both assistants were trained on capturing, coding and verification of data. The researcher preformed random verification checks to ensure quality of data before handing it to the biostatistician for inferential data analysis.

1.9.1.2 Support

For the purpose of this study, support is defined as the caring behaviour of preceptors towards their students that include system, cognitive and emotional support, as described by Hugo *et al.* (2018). Students need support to integrate theory and practice and develop their thinking operations. Preceptors play a pivotal role in creating a conducive learning environment by being available during and negotiating learning opportunities for students.

1.9.1.2.1 Population and sample: support

Second- and third-year undergraduate nursing students at both NEIs evaluated the support offered by preceptors. The population and sample were the same as for competence under section 1.9.1.1.5.

1.9.1.2.2 Preceptor support questionnaire

Hugo *et al.* (2018) developed the support questionnaire by means of a methodological study (Addenda I1 and I2). An exploratory factor analysis confirmed the three types of support, namely system, cognitive and emotional support and indicated that the instrument has construct validity (Hugo *et al.*, 2018). The instrument showed a reliability with an overall Cronbach alpha of 0.98.

1.9.1.2.3 Data collection: support

Students first completed the self-administered preceptor support questionnaire as part of the pre-test at both NEIs and subsequently completed the questionnaire at the end of each clinical placement. Paper, as well as an online copy, were available and students could use whichever one was most convenient. Students submitted hard copies at the office of the gatekeeper (a representative of the NEI) per institution where the researcher collected it. Students were provided with a website link that would guide them to the support questionnaire. Students were kindly reminded monthly about the availability of the questionnaire on the online site. Only the researcher had access to the online site.

In the following section, the planned data analysis is discussed as well as the anticipated intervention outcomes.

1.9.1.2.4 Data analysis: support

Data were managed in the same manner as described under section 1.1.9.1. The biostatistician was unable to perform inferential data analysis due to a high attrition rate of both preceptors and students. In collaboration with the biostatistician, the researcher and supervisor agreed on descriptive analysis on the pre-test data.

1.10 Anticipating the outcomes

By the application of an intervention to a problem, a better outcome is anticipated. This however, is not always the case in all intervention studies.

The researcher anticipated that the training programme would empower preceptors to effectively support students in facilitating their thinking operations by linking theory and practice to promote competence. This could, however, not be proven due to challenges experienced during the implementation phase, and warrants a deeper investigation to explain the current outcome.

1.11 Phase 3: Realist evaluation

It is common to expect that programme evaluation will be able to assess whether an intervention had been successful or not. However, a programme is a social intervention that is implemented in another context with its own social interactions and is therefore complex in nature (Pawson & Tilley, 2013). The researcher used a realist evaluation (RE) to explain how the intervention worked, based on the findings of the intervention.

An RE is not associated with any particular method (Fletcher, 2017) and it is therefore a 'method natural'. Data collection and analysis are guided by the evaluation question. The realist evaluation question was: "Why did the programme work/not work?" The objective of this phase was to explore the aspects that influenced the outcome of the intervention study.

RE is derived from a realism paradigm, describing and explaining the relationship within social events in an intervention and making recommendations to overcome hindrances in a programme (Fletcher, 2017). Realism draws from elements of both positivism and constructivism (Wong *et al.*, 2012). Positivism claims that reality is objectively observed while constructivism has multiple interpretations of that reality and aims to understand how individuals construct reality within their context.

An RE is a theory-driven intervention evaluation, which tests the theory underpinning the programme (Marchal *et al.,* 2012). It aims to answer the questions: "What works for whom, why and under what circumstances" (Pawson & Tilley, 2013). The researcher initially theorised that a well-developed preceptor-training programme would assist preceptors to support students and develop their thinking operations by linking theory and practice. This hypothesis is the implementation theory. The normative theory comprised theories underpinning the intervention (Marchal *et al.*, 2012). In this study the researcher focused on outcomes/competence-based education, constructivism as learning theory, and design principles, such as scaffolding, authenticity and constructive alignment.

It is important to be mindful that although careful planning was done and sound educational theories were used, programmes are most often implemented in a social context. Pawson and Tilley (2013) and Dalkin *et al.,* (2015) state that a programme is implemented in a pre-existing social context that changes the way of reasoning, which alters the behaviour of the participants and results in an outcome. A new theory, namely causal theory, or refinement of an existing theory, may derive from this evaluation.

This third phase of this research is qualitative in nature and seeks to explain the outcome of the intervention. Data were mostly in the form of unstructured field and reflective notes as captured during and after debriefing of students and fieldworkers. Artefacts developed during the preceptor-training programme also contributed to the data set. For the purpose of this study artefacts refers to the products created by preceptors. Patton (2015) describes reflective field notes as rich in data. They take into consideration the context and interactions within the social intervention that is essential for a realist evaluation. The observational field notes were completed in as much detail as possible and as soon as possible. Reflective field notes were narratively analysed (Patton, 2015) and structured under the transfer of learning characteristics to explain the researcher's understanding and explanations on what emerged from the study.

To understand and explain what underpins the outcomes of the programme, the researcher looked at the context-mechanism-outcome (CMO) association, also known as the realist causation. Dalkin *et al.* (2015) present the context, mechanism and outcome framework as depicted in Figure 1.6.

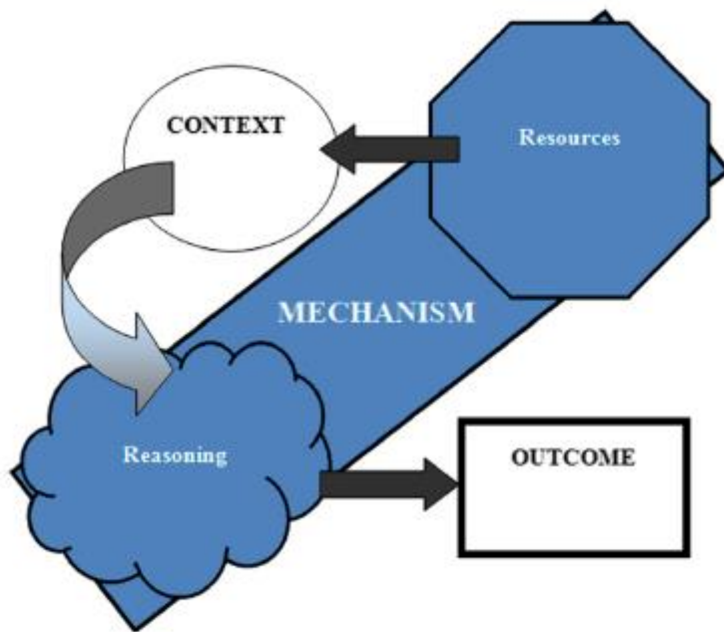

FIGURE 1.6: Context, Mechanism and Outcome framework (Dalkin et al., 2015)

1.11.1 Programme context

Programmes are introduced into a pre-existing social context with its own set of rules, regulations, and social context (Pawson & Tilly, 2013). The programme was implemented at two NEIs each with its own social context. Botma *et al.* (2013) describes a framework for preceptorship to illustrate the complexity of the context in which preceptors need to function. Figure 1.7 illustrate the framework for preceptorship.

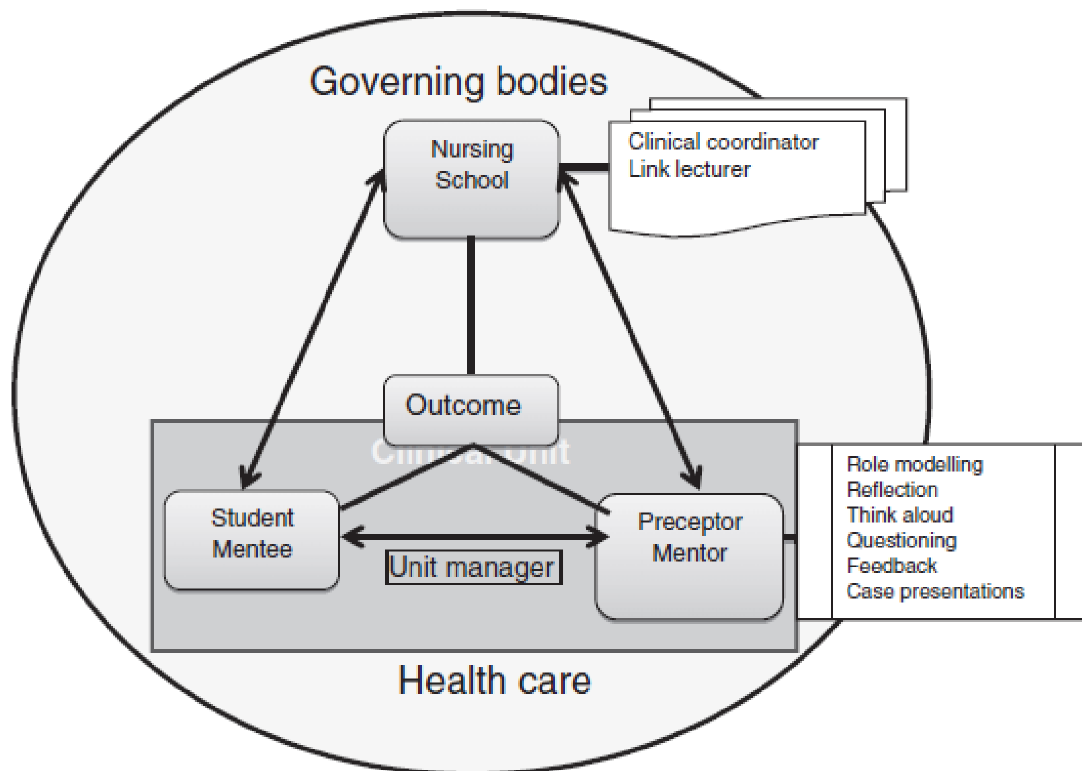

FIGURE 1.7: Framework on preceptorship (Botma, Hurter et al., 2013)

It is essential to describe the contextual factors of the implemented programme, as it provides a picture of the interaction between the programme and political, social, and organisational effects. Pawson and Tilly (2013) explain that it is the prior set of social rules, relations, systems and regulations that set limits to the effectiveness of the programme mechanisms. The context in which implementation takes place can provide crucial information, which may explain why the programme is successful or not. The results of the intervention and reflective notes showed that there are major contextual influences on the preceptor-training programme that need to be described to explain the outcome of the study.

1.11.2 Programme mechanism

The causal mechanism captures the ideas that are usually hidden. Observing the interworking within the programme explains how things work (Pawson & Tilly, 2013). It reveals the possible resources and reasoning as part of its process as illustrated in Figure 1.6. A realist evaluation of a programme allows the researcher to explore both micro- and macro-social mechanisms and programme mechanisms which can shed

light on the generated outcome of the programme (Blamey & Mackenzie, 2007). By exploring the underlying mechanisms activated by the preceptor-training programme, the researcher was able to describe the factors that contributed to the outcome.

1.11.3 Programme outcome

A realist evaluation ends with a programme outcome or a refined programme theory. It examines the original theory by explaining particular findings and aspects from the analysis of the context and mechanisms, and generates a refined theory for future testing (Blamey & Mackenzie, 2007; Wong *et al.*, 2012). Davidoff et al., (2015) wrote that it is useful to understand that maps or models showing a coherent picture of the complex phenomenon or interaction are also “theoretical”. The researcher described the findings of the RE in Chapter 4 and subsequently delivered a refined programme theory.

1.12 Quality of the study

The sections that follow will describe how the researcher addressed the matters of ensuring rigour, intervention fidelity and minimising measurement errors.

1.12.1 Rigour

Rigour refers to the process of development and execution that a researcher followed to ensure the integrity and quality of the final product (Grove *et al.*, 2012; Polit & Beck, 2017). Polit and Beck (2017) concur with Laher (2016) who identified several factors that threaten rigour in quantitative studies; these factors include internal validity, external validity, reliability, sampling, instruments used, data collection methods and data analysis.

The researcher made every effort to minimise extraneous variables by training all fieldworkers on the competency instrument and SPs on case scenario scripts prior to simulation, to minimise measurement errors and to ensure sound internal validity. The case scenarios were based on ‘real life’ cases to promote authenticity so that students

could interpret data accurately to make sound clinical judgments. Scenarios were tested before data collection to ensure that comprehensive information was included. Experts validated the preceptor-training programme and the researcher applied educational principles and theories in the development of the teaching and learning activities.

Population, ecological (also known as the setting), and time validity form part of external validity factors (Laher, 2016). The gatekeepers (a lecturer who assists the researcher) at both institutions invited all second- and third-year undergraduate students to participate in the research. All the preceptors from both NEIs were invited and encouraged to attend the preceptor-training workshops. Registered nurses, of whom many were educators, were trained on how to use the competency assessment instrument. Using two NEIs situated at universities enhanced the ecological validity. Pre- and post-test data collection occurred in the same simulation area at each NEI in the same timeline.

The instruments for measuring competence and support were tested for validity and reliability. The competence and support questionnaire had a Cronbach alpha value of 0.90 and 0.98 respectively. Both instruments were developed through methodological studies.

Sampling comprises three elements namely composition of sample, representativeness of sample and sample size (Polit & Beck, 2017). To achieve a good representation of the population, the researcher used a census sample of second- and third-year undergraduate nursing students of the four-year undergraduate programme at both NEIs. Imbalance in sample size would statistically addressed. Both year groups were accompaniment by preceptors and had the necessary experience in the clinical environment to effectively evaluate their preceptors. First-year students were excluded as they had not received accompaniment from preceptors at the time of data collection, therefore not adhering to the composition of the sample. Fourth-year students were excluded because data collection would have exceeded their completion date. The researcher provided students with both a paper-based copy and an online platform to complete the questionnaire in order to minimise attrition and

nonresponses. All untrained preceptors from the experimental group were invited to attend the training programme.

To contribute to rigour of data, reflective field notes were entered timely into a journal during the implementation and after debriefing sessions with students and fieldworkers. Detailed reflective notes were kept to assist the researcher with reflection of events and conversations. The journal was kept in a locked fireproof cabinet to uphold privacy.

1.12.1.1 Intervention fidelity

During the development of the training programme, the researcher made every effort to maintain intervention fidelity as described by Grove *et al.*, (2012). Intervention fidelity refers to the researcher's effort to stay true to the implementation plan of the intervention (Polit & Beck, 2017). Melnyk and Morrison-Beedy (2012) described five strategies to enhance intervention fidelity, which are supported by Polit and Beck (2017). These strategies are numbered and discussed in the next section.

1. A clear conceptual model was established by embedding the intervention in sound underlying theories. The development of the training programme, as well as the intervention is supported by literature. Funding was made available to ensure that the intervention could be concluded.

2. The intervention proposal was well planned in collaboration with a biostatistician. A research committee at the School of Nursing evaluated the research proposal. Methodological integrity is an ethical principle and the Health Sciences Research Ethics Committee of the University of the Free State as well as the ethics review boards at both participating universities approved the research proposal. The researcher negotiated with the heads of departments at both NEIs on expectations regarding the study. The researcher planned an outline of the activities to increase precision and consistency in the delivering of the training programme (described in Chapter 3). The preceptor-training programme was compiled in the form of a workbook with teaching and

learning activities that engage the preceptors with the study material (described in Chapter 2).

3. The head of the NEI appointed gatekeepers who were knowledgeable and experienced and who had insight into the institutional structures and procedures. Preceptors currently employed by the NEIs who accompanied undergraduate students were included in the training. The researcher trained the fieldworkers on the use of the competence assessment instrument. All fieldworkers were registered nurses or nurse educators who had been trained on the instrument. The gatekeepers at each participating NEI recruited SPs who were trained to portray accurate and consistent information during the simulation sessions.

4. The researcher liaised with the gatekeepers at both NEIs to negotiate dates, recruit fieldworkers and SP, to recruit students to participate in the study, and to arrange logistics regarding the data collection process. Monitoring occurred throughout the process and gatekeepers were again alerted to their responsibilities.

5. Ongoing supervision was done to ensure the maintenance of the intervention fidelity. The researcher monitored the responsiveness of students through student support questionnaires by requesting the students to complete the questionnaire after completion of a clinical placement. Trained preceptors were followed-up two months after training had been presented.

Several variables that may influence the reliability of the measurement of the study were identified by the researcher, as indicated in the following section.

1.12.1.2 Measurement errors

The researcher attempted to control and eliminate variables that might have influenced the outcome of the study (Melnyk & Morrison-Beedy, 2012). In this study, the independent variable was the preceptor-training programme. The dependable

variables were the support preceptors provided to students and the competence of the students. Polit and Beck (2017) and Grove *et al.* (2012) describe six errors that may influence measurements, which the researcher will use to guide the discussion.

1.12.1.3 Situational factors

Situational factors describe the conditions that affect the scores which may lead to measurement errors (Polit & Beck, 2017).

SPs interacted with students. Students from the experimental group, had limited interaction with simulation. SP simulation are mainly used in their psychiatry module. Not knowing what to expect could have influenced their performance. The researcher briefed all students on what was to be expected before the student engaged in the simulation session.

Two fieldworkers observed students during the simulation session that made students aware that they were being observed and consequently may have influenced their performance. Only one of the two NEIs had cubicles with observation windows. The researcher decided to rather be consistent by placing both fieldworkers at both NEIs in the same room and documented it as a limitation.

The researcher trained all SPs before each simulation session on what to expect and how to give accurate patient information. SPs received hard copies of the simulation scenario that allowed them to study the content at their convenience.

Fieldworkers were trained on the simulation scenario to ensure that accurate information was given by SPs to students.

Students were asked not to talk about the SP simulation after they had completed the session as it could influence the measurement of other students' competence.

1.12.1.4 Transitory personal factors

This section describes the participants, fieldworkers and standardised patients' individual states that could have influenced measurements.

- Two extra SPs per group were included to rotate in order to prevent and relieve fatigue.

- Regular breaks were scheduled in between the assessment of students' competence for fieldworkers to alleviate exhaustion.

- Students may have become bored with completing the support questionnaire repetitively.

- Students progressing through the academic year could possibly influence maturation. The complexity of the case scenarios in the SP simulation aligned with the content addressed in the theoretical classes. However, the same competency principles (critical thinking, clinical reasoning, clinical judgment and meta-cognition) remain the same across the year groups. The content of the module and simulation scenario determined the context.

- The researcher and gatekeepers scheduled SP simulations before or after examination periods to minimise stress in students, which could influence their performance.

1.12.1.5 Response set biases

With regard to self-administered scales, students may respond with an agreement or desirability bias (Polit & Beck, 2017). Although students were asked to be truthful during their assessment of their preceptors, they could have responded to the self-administered support questionnaire by feeling biased towards a preceptor, or rating all items similarly and not answering them individually.

1.12.1.6 Administration variations

Measurement variations may occur when method collection from one person to another is made. Fieldworkers were urged not to speak to each other during or after the evaluation of students' competence in order not to influence students' results. Both pre- and post-test data collection methods were used by including the same simulation facility and the same instrument at both NEIs.

1.12.1.7 Instrument clarity

Poorly understood scales may lead to measurement errors as various respondents may interpret them differently. Fieldworkers from each institution were trained beforehand in the process of data collection and the use of the instrument. During the training the fieldworkers had the opportunity to complete the competence assessment instrument while observing video footage of a simulated interaction with an SP. A discussion on the completion of the instrument, uncertainties, and discrepancies among fieldworkers followed.

The support questionnaire was discussed with students prior to them completing it.

1.12.1.8 Instrument format

Measurement may be influenced by the technical layout of the instrument. Both the competency and support questionnaires were evaluated for face and content validity whereby experts also gave feedback on the general appearance of instruments and clarity of instructions.

1.12.1.9 Processing of data

Errors may occur during the coding and capturing of data (Polit & Beck, 2017). Data were coded and captured by an assistant while another independent person confirmed the correctness of the captured data.

The last phase evaluated the programme by considering the pre-existing context and mechanism in which the intervention was implemented.

1.12.2 Triangulation

Both source and method triangulation were used to support the qualitative reflective field notes. Patton (2015) and Polit and Beck (2017) describe various types of triangulation methods. The researcher used multiple data sources including time, space and person triangulation. Data for time triangulation were collected through the simultaneous collection of competence and support data during the pre-test and post-test phases. Two NEIs participated that serve as multiple sites, to collect data consistently. Students and fieldworkers accounted for different perspectives on the phenomenon. Multiple methods were used to triangulate data. These methods included quantitative data on competence and support, as well as a general literature search on the issue described in reflective field notes. Artefacts produced during the preceptor-training were also used to triangulate data.

1.13 Ethical considerations

The researcher will elaborate on the key ethical norms and standards (Department of Health[DoH], 2015), by incorporating the Belmont principles, which include respect for people, beneficence/non-maleficence, and justice (Polit & Beck, 2017), that should guide ethical research. This section explains how the researcher adhered to eight ethical norms and standards, as described by the DoH (2015).

1.13.1 Relevance and value

Research done in South Africa should be relevant to, and address the needs of the target population. A need for a preceptor-training programme that aligns with the Clinical Nursing Education and Teaching Model was identified. The methodological process followed in developing the preceptor-training programme provided a standard for training. It further addressed the preceptors' need for training and the students' need for support in the clinical facility.

1.13.2 Scientific integrity

Prior to submission to the various ethics review boards, an evaluation committee that consisted of an expert in preceptorship, a biostatistician, and two researchers experienced in clinical trials reviewed the research proposal. Thereafter the researcher submitted the proposal to the relevant ethics review boards namely the university the researcher (ECUFS no 134/2013b) is affiliated with (Addendum C), and the respective universities of the experimental group and of the control group. Identifiable information in Addendum D was redacted from addenda to ensure participatory NEIs' privacy.

1.13.3 Role player engagement

Quality and rigour of research are improved through regular engagements with relevant role-players (DoH, 2015). First, the researcher contacted the heads of departments to raise interest and support of the project at their NEI. Thereafter the head of each NEI appointed a gatekeeper to assist the researcher in planning and implementing the project. Regular face-to-face, telephonic and online correspondence occurred with the gatekeepers and relevant year coordinators. The gatekeepers informed students face-to-face about the research. Engagement with fieldworkers and SPs were also prioritised.

1.13.4 Favourable risk-benefit ratio

The risk-benefit ratio should be determined prior to conducting research as the benefits of participants should outweigh the potential risk of harm (DoH, 2015). This is also described by the Belmont report as beneficence or non-maleficence. Beneficence involves the researcher in sheltering participants from harm/risks and maximising possible benefits participants that may derive from a study. The primary ethical principle of doing good should always override doing harm, with any harm being excluded as far as possible (Polit & Beck, 2017; DoH, 2015). Benefits included free training of preceptors at both NEIs; additionally, all students at the two NEIs would benefit from trained preceptors. Funding was available to cover costs involved in the study. All students from both NEIs should therefore receive cognitive, system and emotional support when preceptors transferred their learning. The researcher did not foresee any harm that might be inflicted on participants except for the time that it would take for students to complete the support questionnaire and participate in the simulation and for preceptors to attend training.

1.13.5 Fair selection of participants

Fairness and equal selection of participants exclude unfairness and bias from research studies. Scientific principles were used to promote fairness of the study (DoH, 2015). Justice as an ethical principle includes the equal distribution of risks and benefits in a study. Fairness refers to the manner in which participants were selected and whether these participants would receive benefits (Polit & Beck, 2017; DoH, 2015). Although the experts in the Delphi were purposively selected, their selection was based on their expertise on preceptorship and student support. The two NEIs were sampled randomly and census sampling allowed all preceptors and all second- and third-year students at both institutions to participate in the study. Sampling was fair and unbiased with regard to gender, age and race and all preceptors (experimental and control group) were included for the training programme as nominated by NEIs. First-year undergraduate nursing students were excluded as they had possibly not received accompaniment from preceptors at the time of data collection and the fourth-year students as they could have finished with their work-integrated hours by the time of

data collection. Although first- and fourth-year students were not included in the student population sample, they could still benefit, as all were invited to partake in training. There were no expenses for the students as a time was allocated for the simulation while they were already on campus. Preceptor-training was presented free of charge.

1.13.6 Informed consent

All participants should engage in research voluntarily after having been informed in detail of the extent of the research and their responsibilities prior to the study (DoH, 2015, Polit & Beck, 2017). Respect for people or autonomy should be captured in informed consent. Respect for human dignity is supported in research when the participants' right to be treated with respect, to full disclosure, right to self-determination and right to informed consent are adhered to. The researcher invited identified experts for the Delphi technique electronically by explaining their role and responsibilities and inviting them to participate. Thereafter, written informed consent was obtained from those who indicated their interest to participate.

Preceptors were informed about the research before the training started. Permission was requested to use their artefacts and reflection reports (Addenda K1 and K2). None of the undergraduate preceptors, however, handed in their reflection reports. Students were informed about the study prior to the completion of the questionnaire (Addenda I1 and I2); if they chose not to take part in the study they could just leave the questionnaire blank. An invitation to and information on the simulation session took place prior to simulation so that students could decide to participate. Informed consent was obtained (Addenda J1 and J2) during the briefing of simulation. Preceptors and students were made aware that information and data obtained will be used for publication purposes.

1.13.7 Ongoing respect for enrolled participants

Participants should be assured that the researcher would prioritise confidentiality and privacy of collected data (DoH, 2015). The researcher gave each student a random number to use on the support questionnaire in order to maintain confidentiality. Fieldworkers and SPs signed a form agreeing that they would not discuss students' performance, thereby promoting confidentiality. See Addendum O. Data were coded and reported in a collective manner. Only the researcher and her team had access to data. Data are currently locked in a fireproof cabinet and will be kept for a minimum time of seven years. No identifiable information was included in the reflective field notes or artefacts.

1.13.8 Research competence and expertise

Researchers should be qualified and competent in conducting research (DoH, 2015). The researcher is a graduate professional who has an additional Diploma in Nursing Education, and obtained the Master's Degree in Nursing *cum laude*. See Addendum S for her Doctoral degree registration. Her supervisor is a National Research Foundation (NRF) acknowledged researcher. A biostatistician assisted throughout the planning, implementation and reporting phases of the project.

1.14 Conclusion

Competence in nursing students transpire when they are able to link theory to practice while applying thinking operations in the clinical practice. NEIs need to train and support their preceptors so that they can provide adequate support to their students to become competent in their nursing practice performance. The hypothesis is that a preceptor who has been adequately trained by a preceptor-training programme that focuses on thinking operations can improve students' performance in clinical facilities. It is, however, important to evaluate, describe and highlight the pertinent aspects that influence preceptorship in NEIs. Not taking these aspects into consideration may lead

to the failure of nursing education institutions in motivating their preceptors to deliver optimal facilitation of the future nursing workforce.

1.15 Chapter layout

The next three chapters comprise of three publishable articles that are required for an article style thesis. An orientation section before each article provides the reader with relevant information regarding the article. The three articles are listed as:

CHAPTER 2:	Article 1: A training programme for preceptors in South Africa: A consensus-seeking design
CHAPTER 3	Article 2: Implementing a preceptor-training intervention: Lessons learned
CHAPTER 4:	Article 3: Looking beneath the surface of a preceptor programme through a realist evaluation

Chapter 5 concludes the study with conclusions, limitations and recommendations.

CHAPTER 2

Orientation

Phase one of this study, namely the development of the preceptor-training programme, is discussed in this chapter. Phase one describes the programme development process, the theoretical underpinnings of the training programme, and the process of generating and validating topics.

Phase 1 is in article format and has already been submitted to *Nurse Education in Practice* due to the extended process of review and publication. Addendum L2 shows proof of submission. This journal offers the researcher an opportunity to report on innovative developments and practices in nursing education that promote the facilitation of learning and professional practice. Journal guidelines (presented in Addendum L1) limit the abstract to a maximum of 200 words and the article manuscript itself to 6000 words. The current article manuscript comprises 5989 words, including in-text references, abstract, keywords and reference list, while the abstract consists of 158 words. References were done according to author guidelines.

Ethical considerations of this chapter

The researcher recruited experts to participate in the Delphi technique seeking consensus by electronically sending them the information brochure and requesting them to respond, should they be interested to participate (See Addendum A1). Although the researcher could link responses to a specific individual, none of the participants would be able to identify a responder. Confidentiality was maintained throughout the process by disseminating feedback in an aggregate manner.

Other addenda

Addendum A2 is an example of the Delphi feedback form, prior to data collection. Addendum B is the developed training programme. As the relevant articles are indicated in the compulsory reading sections and readily available, it was deemed unnecessary to attach the reader with these articles.

ARTICLE 1

A training programme for preceptors in South Africa: A consensus-seeking design

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Acknowledgement

The research was funded by the PLUME FUNDISA/NRF grant (2015/001).

Abstract

Trained preceptors support nursing students to function in a complex clinical environment to become practitioners who can think critically and make sound clinical judgments. Therefore, it is vital that a training programme for preceptors should have a strong pedagogical foundation and address the needs of participants. The question is on which aspects preceptors need training? A multimethod approach was used to generate training topics. Initial topics were identified through nominal group discussion, literature and reflective transcripts of informal discussions with preceptors. The researchers elaborate on the development process of the programme. A quantitative descriptive design with a consensus-seeking Delphi technique was used to finalise topics. The Delphi technique was concluded in four rounds. The expert panel added twenty-seven items and the final preceptor-training programme comprises nineteen topics. Programme outcomes, assessment criteria and teaching and learning activities were formulated from topics generated. This article contributes a well-

designed preceptor programme with relevant topics on which preceptors should receive training.

Highlights:

- Educational theory-infused preceptor-training programme
- Focus on system, cognitive and emotional support
- Expert-validated programme outcomes

Keywords: Preceptors, clinical accompaniment, preceptor-training programme, programme development.

Introduction

Countries are challenged with a multifaceted clinical environment where nurse practitioners are confronted with complex co-morbidity and multidrug-resistant diseases, introduction of new technologies and treatments, equipment and medication shortages, as well as human resource challenges, such as staff shortages (World Health Organization [WHO], 2016b). The burden of the clinical environment results in nurses experiencing burnout and compassion fatigue, which lead to nurses leaving the profession (Neville & Cole, 2013). The complexity and demands of patient care and the restraints of the clinical environment leave little time for nurse practitioners to attend to students' learning needs (Carlson & Bengtsson, 2015). Due to the aforementioned challenges, the National Department of Health (DoH) in South Africa has adopted the Clinical Education and Training Model to improve standards of nursing education (The Nursing Education Stakeholder Group, 2012). The model proposes that Nursing Education Institutions (NEIs) should employ clinical preceptors to support students in the clinical environment, with the advantage being that preceptors do not have the patient workload of the clinicians in practice. Preceptors consequently have the time to link a student's classroom knowledge with clinical practice. They are therefore an irreplaceable asset in clinical nursing education. For the purpose of this article, a preceptor is defined as –

> [A] compassionate nurse expert who develops a one-to-one, time-limited relationship with a novice in a clinical setting, provides support, facilitates thinking processes, and assesses competence in order to promote metacognition and care that is based on the best available evidence (Botma, 2014).

Preceptors are indispensable to support students who are placed in clinical facilities on entering a nursing training programme as part of work-integrated learning (WIL). The nursing regulatory authority requires students to work a minimum of 4 000 hours in a variety of accredited clinical settings over a four-year training period (South African Nursing Council [SANC], 1985). SANC requires that 70% of these hours be supervised (SANC, 2014). Being continuously rotated between different clinical facilities may increase student's stress (Tiwaken *et al.*, 2015). Students often perceive the clinical environment as an unfriendly and negative learning environment (Botma & MacKenzie, 2016). This type of setting demotivates students to learn, which has a direct effect on their ability to become competent nurse practitioners.

Preceptors function in a complex healthcare environment and use a different skills set to that of clinical nurses. Therefore, preceptors should be well trained to support students adequately in the clinical environment (Kang *et al.*, 2016). A preceptor-training programme serves two main purposes, namely to ensure that nursing students are supported in the clinical environment, and to equip preceptors to facilitate students' learning in the clinical setting. Students experience less stress, their communication and clinical skills improve, and they experience a fluent transition to their professional role with support from preceptors (Pasila *et al.*, 2017). Students who had well-trained preceptors have self-confidence in their ability to render better patient care (Clipper & Cherry, 2015).

Preceptors reported their role as challenging and stressful (Chang *et al.*, 2015). It has been reported that a training programme decreases preceptors' stress levels (Kang *et al.*, 2016), promotes their confidence (Sandau *et al.*, 2011), and enables them to offer optimal support according to students' needs. Overall, a well-compiled training programme enables preceptors to add a positive influence towards their profession, their students and the development of organisations (Marks-Maran *et al.*, 2013).

Similarly, preceptors who do not have the necessary experience or training will not be able to provide students with the support they need during their clinical placements (Williamson *et al.*, 2011). Preceptors consequently need training to become competent and confident in their new role.

Several preceptor-training programmes are available internationally. Currently in South Africa, there are only two universities that offer a preceptorship training programme. One programme is being presented at the NEI where the researchers reside while the other is at a different NEI and is not based on the Clinical Model as proposed by the Nursing Education Stakeholder Group and accepted by the National DoH (The Nursing Education Stakeholder Group, 2012). Chang *et al.* (2015) emphasise the importance of a preceptor-training programme being tailored to address the learning needs of preceptors. Similarly, Jeggels *et al.* (2013) state that preceptor-training programmes should be contextualised to fit the unique needs of the clinical environment and local healthcare needs. Training programmes should thus be tailored to address the challenges and issues that students and preceptors face in a South African context.

It seems there is still disagreement on the content of a preceptor-training programme (Botma, 2016). The question remains, "what should a preceptor be trained on?" Awareness of topics to be included in a preceptor-training programme could contribute to tailoring and constructing the programme to address the learning needs and challenges that preceptors face during their accompaniment of students.

This article firstly reports on the development of a preceptor-training programme by using sound educational principles, and secondly on the process of agreement on topics to be included in such a training programme through a Delphi method.

Preceptor-training programme design

A well-designed programme is essential for preceptors to have significant learning experiences to transfer their learning (Fink, 2003). For this reason, the researchers applied O'Neill's (2015) process of programme design because it provides a strong pedagogical framework (Chen *et al.*, 2017). Figure 1 presents the phases used to develop a programme and directs the discussion of the programme development process.

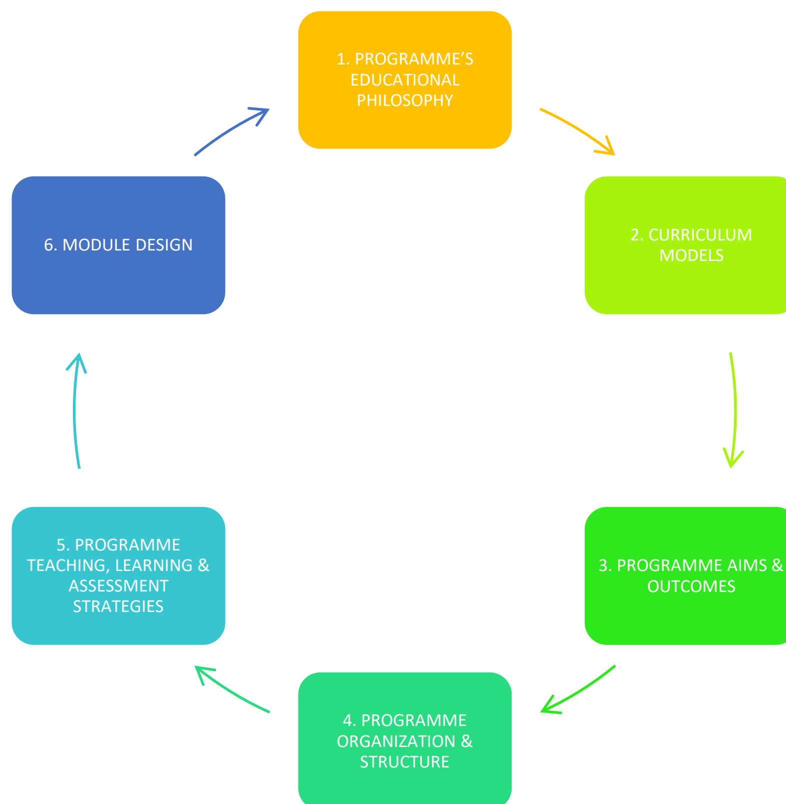

Fig 1. Process of programme design (O'Neill, 2015)

Phase 1: Educational philosophy and needs analysis

An educational philosophy embodies the beliefs and values that motivate learning in students (Chen *et al.*, 2017). O'Neill's process uses pragmatism, as ideas and scientific methods are tested and adjusted to deal with change.

Relevant content enables preceptors to meet their learning needs. Fink (2003) states that when learners experience content as applicable to their daily tasks, they are more

likely to retain what they have learned, and they continue learning long after the course has ended.

The researchers used a multimethod approach during the needs analysis. Table 1 illustrates the evolution of topics elicited by the different methods, namely the nominal group discussions (Botma, 2016), literature, and informal discussions.

Table 1
Summary of topics included in the preceptor-training programme prior to the Delphi technique

	Topics to be included in a preceptor-training programme	**Stage 1: Nominal groups (Botma 2016)**	**Stage 2: General Literature overview**	**Stage 3: Informal discussions**
1.	Significance of preceptors related to global strategy of human resources for health: Workforce 2030 (WHO, 2016b)		√	
2.	Significance of preceptors in preparing competent nurses in a South African context		√	
3.	Concept clarifications			√
4.	Attributes of a good preceptor		√	
5.	Ethics in preceptorship			√
6.	Transfer of learning model (ToL)	√		
7.	Student motivation to learn		√	
8.	Student characteristics, including learning styles		√	
9.	Design factors, including constructivism	√		
10.	Transfer climate, which includes a positive learning environment		√	
11.	Physical environment		√	
12.	Facilitation of thinking operations in nursing students	√		
13.	Role players and their responsibilities		√	
14.	Types of support: system, cognitive and emotional support	√		
15.	Communication tools to enhance people-centeredness		√	
16.	Facilitation techniques	√		
17.	Self-directed learning (SDL)		√	
18.	Evidence-based practices (EBP)	√		
19.	Assessment in clinical practice	√		

In a separate article, Botma (2016) identified the development of thinking operations, assessment principles, and knowledge translation of research findings to be essential topics for a preceptor-training programme. This was done through nominal group

discussions. Additional topics, as identified through a general literature review, were –

- the significance of preceptorship related to global and national strategy of human resources for health;
- the attributes of a good preceptor;
- elements of the transfer of learning model;
- educational approach of NEIs;
- communication tools;
- people-centeredness; and
- self-directed learning.

The transfer of learning model's elements refers to the preceptor's role, student characteristics (learning styles, personality traits and academic level), educational design, transfer climate and physical environment were included. Following informal discussions with local preceptors, the researchers added ethics in preceptorship and concept clarifications as topics.

The researchers used the Delphi technique to get consensus on the topics outlined in Table 1.

Population and sampling for Delphi technique

Six to 11 experts are sufficient to reach consensus (Waggoner *et al.*, 2016). However, the Delphi technique is associated with a high dropout rate (Green, 2014) therefore, the researchers invited 16 international and 16 national experts to participate in the study. Habibi *et al.* (2014) suggest a diverse expert panel to enhance inclusive opinions on the subject. Expert panel members were experts in the field of preceptorship, nursing education and student support.

Delphi data collection

The content as listed in Table 1 was converted into an instrument with a three-point Likert-type scale with the options of 'include', 'maybe include' and 'exclude' in terms of the topics. The panel had to provide biographical data, indicate their rating of each item, and had the opportunity to add topics to the existing list. Of the 32 experts, 16 showed interest in participating in the study, but only 12 responded during round one. Seven experts responded during round two, eight during round three and eight during round four.

Data analysis of Delphi

The researchers decided beforehand that consensus would comprise 70% agreement on each topic, as proposed by Polit and Beck (2017), as an acceptable agreement rate. The researchers calculated the agreement rates per item after each round and gave written feedback to the panel. In the subsequent rounds, participants had to respond to the topics they had omitted to respond to or about which they were unsure. Round four concluded the Delphi process.

Delphi results

Five experts were South African citizens, four from two sub-Saharan African countries and three from non-African countries. Six experts held PhD degrees in nursing, five had master's degrees and one had a bachelor's degree. The participants' areas of expertise varied from student supervision to student support, clinical learning environment, clinical education and preceptor programmes – which all related to the field of preceptorship.

Table 2 presents a summary of the number of respondents per round and agreement rate per item. Results will be discussed according to the topic and related items regarding the agreement rates during the respective rounds.

Table 2

Summary on the final agreement rates on topics during Delphi technique

	Description	Round 1	Round 2	Round 3	Round 4
	Number of experts selected	16	12	12	12
	Number of experts who responded	12	7	8	8
No.	**Topics to be included in training programme**				
1.	**Significance of preceptors related to development of human resources for health (in line with the global strategy on human resources for health: Workforce 2030)**	91.7%			
2.	**Significance of preceptors in preparing competent nurses in a South African context**	91.7%			
3.	**Concept clarifications**				
3.1	Preceptors	91.7%			
3.2	Supervisors	91.7%			
3.3	Competence	100%			
3.4	Evidence-based practice	91.7%			
3.5	Self-directed learning	91.7%			
3.6	Person- or people-centeredness	83.3%			
3.7	Clinical facilitator (private sector hospital groups)	Added	71.4%		
3.8	Unit manager (private sector hospital group)	Added	Missing data	Missing data	50%
4.	**Attributes of good preceptors and those of a good student**	83.3%			
4.1	• Professionalism within preceptorship	Added	85.7%		
5.	**Ethics in preceptorship**	91.7%			
6.	**Transfer of learning: Student motivation to learn**				
6.1	• Ability of a student	Added	100%		
6.2	• Preceptor's ability to teach or transfer knowledge	Added	85.7%		
6.3	• Students need to develop their learning action plan by using Strength, weakness, opportunities and threats (SWOT) analysis	Added	Unsure	62.5%	
7.	**Transfer of learning: Student characteristics**				
7.1	• Learning styles	83.3%			
7.2	• Principles of adult learning	Added	85.7%		
7.3	• Good learning habits	Added	100%		
7.4	• Student characteristics	Added	85.7%		

	Description	Round 1	Round 2	Round 3	Round 4
7.5	• Challenging students: Possible solutions in managing them	Added	100%		
8.	**Transfer of learning: Design factors**				
8.1	• Constructivism (a theory of knowledge construction)	75%			
8.2	• Scaffolding of learning activities. The concept is related to designing from simple to complex	Added	85.7%		
8.3	• Reflective practices	Added	100%		
8.4	• Kolb's learning theory	Added	Unsure	87.5%	
8.5	• Skills laboratory	Added	Unsure	50%	
8.6	• Simulation	Added	Unsure	62.5%	
9.	**Transfer of learning: Transfer climate**				
9.1	• Positive learning environment	83.3%			
9.2	• Difference between the clinical learning environment and classroom environment	Added	85.7%		
9.3	• Opportunities to transfer	Added	71.4%		
9.4	• Supportive leadership	Added	71.4%		
9.5	• Social issues (e.g. poverty) and other issues (e.g. #FeesMustFall)	Added	Unsure	25%	
10.	**Transfer of learning: Physical environment**				
10.1	• Reality	83.3%			
10.2	• Challenges	91.7%			
10.3	• Possible solutions	91.7%			
10.4	• Peer pressure	Added	Unsure	62.5%	
11.	**Facilitating thinking operations in nursing students:**				
11.1	• Critical thinking	100%			
11.2	• Clinical reasoning	100%			
11.3	• Clinical judgment	100%			
11.4	• Metacognition (reflexivity)	91.7%			
12.	**Role players and their responsibilities**	83.3%			
13.	**Types of support (system, cognitive and emotional) offered to students**	91.7%			
13.1	Financial support	Added	Unsure	25%	
14.	**Communication tools to enhance people-centeredness**				
14.1	• Health dialogue	Unsure/ Missing data	Unsure	Unsure/ Missing data	62.5%

	Description	Round 1	Round 2	Round 3	Round 4
14.2	• Identify, Situation, Background, Assessment and Recommendation (ISBAR)	Unsure/ Missing	Unsure	87.5%	
14.3	• Inter-professional communication	Added	71.4%		
14.4	• Assertiveness	Added	85.7%		
15.	**Facilitation techniques:**				
15.1	• Mind mapping	75%			
15.2	• Thinking aloud	75%			
15.3	• Five-minute preceptor technique/One-minute preceptor technique	Unsure	Unsure	87.5%	
15.4	• Role modelling	100%			
15.5	• Debriefing	100%			
15.6	• Case presentation; Summarize the case, Narrow the differential, Analyse the differential, Probe the preceptor, Plan management and Select an issue for self-directed learning (SNAPPS)	100%			
15.7	• Feedback	100%			
15.8	• Reflection (different from debriefing)	100%			
15.9	• The Plan–Do–Study–Act (PDSA) cycle for learning and improvement	Added	85.7%		
16.	**Self-directed learning**				
16.1	• Process	100%			
16.2	• The role of the preceptor	91.7%			
16.3	• Developing a learning portfolio	Added	71.4%		
17.	**Evidence-based practices**				
17.1	• Find sources	83.3%			
17.2	• Appraise best practice guidelines according to WHO AGREE II tool (Brouwers *et al.*, 2010)	Unsure/ Missing	Unsure	75%	
17.3	• Knowledge translation	Unsure	Unsure	75%	
17.4	• Policies and practices	Added	Unsure/ Missing	75%	
18.	**Assessment in clinical practice**				
18.1	• Reliability of assessment	83.3%			
18.2	• Types of assessment instruments	83.3%			
18.3	• Fairness and feasibility	75%			
18.4	• Formative and summative assessment	83.3%			
18.5	• Continued assessment through portfolio development	Added	71.4%		
18.6	• Validity of assessment	Added	71.4%		
18.7	• Competency instruments and how to use them	Added	100%		

	Description	Round 1	Round 2	Round 3	Round 4
19.	**Management in preceptorship**	Added	85.7%		
19.1	• Induction of mentorship programme in preceptorship	Added	Unsure	62.5%	
19.2	• Accountability	Added	85.7%		
19.3	• Policy and procedures that support preceptor's role within NEI	Added	71.4%		
19.4	• Job description of preceptors within the NEI	Added	71.4%		
19.5	• Delegation	Added	100%		

Nine items were excluded because they did not meet the 70% agreement rate. Experts agreed that 'health dialogue', 'social and other issues', 'financial support', 'the development of action plan through a SWOT analysis', 'simulation', 'peer pressure', 'concept clarification about unit manager' and 'training on skills laboratory' and the 'introduction of a mentorship programme in preceptorship' should be excluded from the programme.

Most experts (91.7%) agreed that the significance of preceptors globally and in a South African context should be addressed. Experts in the Delphi concurred that concepts such as preceptors, competence, supervisors, clinical facilitators, evidence-based practices and self-directed learning should be included.

Attributes of good preceptors and good students (83.3%), which included professionalism within preceptorship, were agreed on. Ethics in preceptorship was included with an agreement rate of 91.7%. The five aspects as shown in the transfer of learning model in Figure 2 were agreed on.

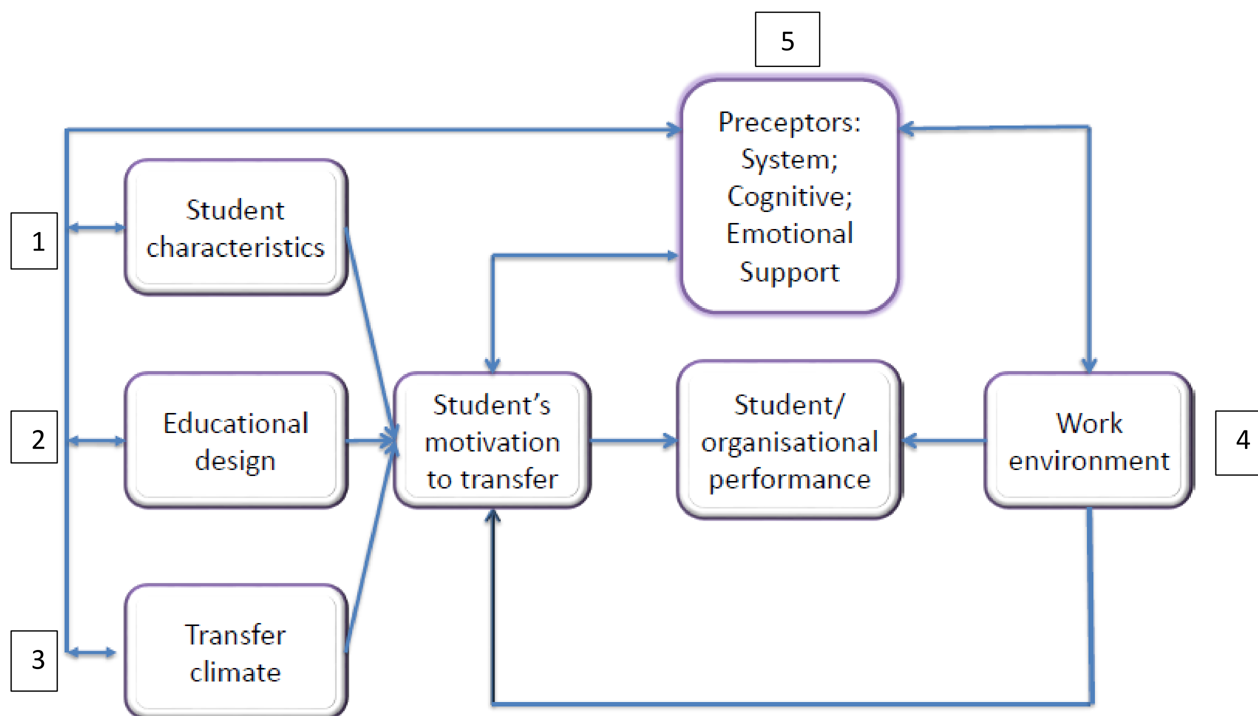

Fig 2. The relationship between support by the clinical preceptor and transfer of learning as adapted by Botma, Van Rensburg *et al.* (2013) from Donovan and Darcy (2011)

Thirteen content items were added by individual experts during round one, and consensus was reached during round two. Kolb's learning theory (85.5%) was included during round three with 87.5% consensus.

The panel agreed that facilitation of thinking operations, namely critical thinking, clinical reasoning, clinical judgment and metacognition should be included.

Role players and their responsibilities, and the types of support that students need were included during round one with 83.3% and 91.7% respectively. Experts agreed that communication tools, such as ISBAR (87.5%), inter-professional communication (71.5%), and assertiveness (85.7%) should be added to the training programme.

Experts acknowledged the importance of facilitation techniques in preceptorship. Seven facilitation techniques were included during round one, but agreement (87.5%) on the five-minute preceptor technique was only reached during round three. The PDSA cycle for improvement in learning was added as content, and 85.7% of experts agreed during round two.

Self-directed learning, its process, and the role of the preceptor were included during round one. During round two, the role of the preceptor was included, and the development of learning portfolio was included during round three.

Finding evidence-based practice (EBP) sources had an 83.3% agreement rate during round one. Appraisal of available guidelines, policies and procedures as well as knowledge translation was agreed on.

Experts concurred that assessment in clinical practices should be included in the programme. Reliability of assessment, types of assessment instruments, fairness and feasibility, and formative and summative assessment were included during round one. Continued assessment, validity of assessment and implementation of competency instruments were included as well.

Management in preceptorship as a new component with relevant content items was added by the experts. In summary, the experts agreed on all the topics and content items as originally suggested. The experts added 27 additional content items. The final programme comprised 19 topics. Phase two of O'Neill's (2015) process of programme design is incorporated into phase 4 which is to follow. Phase 3 described the formulation of programme outcomes based on the identified topics from the Delphi technique.

Phase 3 Programme aims and outcomes

Identified topics were grouped to form outcomes for the preceptor-training programme. The format used for formulating learning outcomes comprises of a 'verb' and 'noun' and 'qualifier' (Botma *et al.*, 2014). The formulation of assessment criteria comprised

of ‘noun’ and ‘verb’ and ‘qualifier’. Table 3 depicts seven programme outcomes in relation to topic number, assessment criteria, and teaching and learning activities.

The first outcome relates to NEIs as important stakeholders in the Global strategy on human resources for health: Workforce 2030’ initiative (WHO, 2016b). They have a responsibility to deliver optimal and quality training to the future nursing workforce (The Honor Society of Nursing, 2017). Preceptors are significant role players within the stakeholder saga. In South Africa, NEIs should employ and train preceptors that are able to equip nurses with a unique skill mix to address the healthcare needs of the population (WHO, 2016a).

The second outcome influences students’ behaviour directly. Baldwin *et al.* (2014) state that preceptors who are competent and compassionate and who have professional confidence, contribute to a knowledgeable, compassionate and confident workforce. It is within the preceptor–student relationship that preceptors’ role model professional and personal values and ethical behaviour towards patients and patient care (Hilli *et al.*, 2014). Preceptors may be perceived as unethical if they neglect their responsibility towards their students and profession, for example when they do not fail a student who is not yet competent (Luhanga *et al.*, 2014). A positive preceptor–student relationship creates a positive learning transfer climate (Hilli *et al.*, 2014). However, several elements, as shown in Figure 2, influence a preceptor’s ability to facilitate learning and to transfer their learning as preceptors from the training programme. Outcome three highlights that preceptors should consider the students’ characteristics, the educational design, the transfer climate within the clinical learning environment, and the physical environment.

Table 3
Programme outcomes of preceptorship programme

Outcome	Topic number	Associated assessment criteria	Teaching and learning activities
The preceptor is able to: 1. Debate the significance of preceptors in the development of human resources for health.	1, 2	Significance of preceptors in the development of human resources for health is debated.	Group discussions.
2. Portray attributes of a good preceptor in clinical practice.	3, 4, 5	Attributes of a good clinical preceptor are portrayed in clinical practice.	Mind maps, group discussions, individual reading and reflection.
3. Consider the elements of the transfer of learning model while facilitating learning in the clinical environment.	3, 6, 7, 8, 9, 10	The principles depicted in the transfer of learning model are considered in clinical practice.	Individual reading and reflecting, group discussions, experimentation, brainstorming, mind maps, video recordings.
4. Support students in a clinical learning environment by providing system, cognitive and emotional support.	3, 11, 12, 13, 14, 15, 16	System, cognitive and emotional support is provided to students in various clinical learning environments. Various facilitation techniques are used to facilitate the development of thinking operations and metacognition. Lifelong learning is promoted through the development of self-regulation in students.	Role play, role modelling, standardised patient simulation, mind mapping, brainstorming, group discussions, audiotapes, video recordings, computer search, individual reading, reflecting.
5. Direct students to find, evaluate and implement best practice guidelines.	3, 17	Students are supported to find, evaluate and implement best practice guidelines.	Group discussion, computer search.
6. Conduct valid and reliable assessment of student performance in the clinical setting.	3, 18	Valid and reliable assessment of students' performance is demonstrated in the clinical setting.	Group discussion, video recordings, and individual reading, simulation, review existing assessment instruments.
7. Establish the role and functions of preceptors within education and healthcare systems.	3, 19	Role and function of preceptors within the educational and healthcare system are established.	Group discussion.

Preceptors function within the transfer of learning model (Figure 2) can influence students' motivation and performance by the support that they provide. Students' characteristics, personality and learning style preference determine which facilitating approach a preceptor can use. Using various facilitation techniques as part of the educational design promotes competence through the development of cognitive processes (Merriam & Leahy, 2005). There is an association between the transfer climate of the clinical setting and the development of new knowledge in students (Aktaş & Karabulut, 2016). A positive clinical learning environment, including the physical environment, motivates and promotes transfer of learning in students.

The fourth outcome relates to support. There are three types of support that preceptors should provide to promote learning, namely system, cognitive, and emotional support (Hugo *et al.*, 2018). By providing system support, preceptors offer structure to students and staff during the placement (Botma, Hunter *et al.*, 2013) by preparing staff for students' arrival, orientating students and discussing outcomes to be achieved during the placement. Preceptors offer cognitive support when they guide students in applying their classroom learning in clinical practice. Tanner's (2006) clinical judgment model is an instrument that preceptors could use to develop students' critical thinking, clinical reasoning, clinical judgment and metacognition. Preceptors should use a variety of well-developed facilitation techniques to develop competence and promote self-directedness in students. Students need emotional support because they experience the clinical environment as complex and stressful. By showing interest in their students and being approachable, preceptors provide emotional support that install confidence and value in students (Hilli *et al.*, 2014).

Outcome five captures evidence-based practice in preceptorship. By role modelling and integrating best available evidence in clinical practices, preceptors nurture a nursing workforce that improves nursing care practices and patient outcomes, and also reduces costs to patients and employers (Melnyk *et al.*, 2010). Olsen *et al.* (2015) state that preceptors who are trained on EBPs, are likely to facilitate the finding of sources, appraisal of best practice guidelines, knowledge translation and policies, and practice in their students.

Assessment is an important aspect of preceptorship, and is captured in outcome six. Assessment of students' practices and competence determine whether they have reached the required outcomes. Training of preceptors on how to use comprehensive integrated assessment instruments is essential to enhance reliability of students' grades (Wu *et al.*, 2015). Preceptors should develop the skill to give constructive feedback to students after formative and summative assessments in order to transform assessments into learning opportunities (Gallagher, 2017).

The last outcome in Table 3 notes that NEIs should have a structured preceptorship programme, and that preceptors should be well trained and monitored. It is advisable to compile policies and procedures for preceptors. Job descriptions and delegations should be transparent to preceptors so that they can execute their tasks within the NEI and clinical setting effectively. It is challenging to develop a cohesive preceptor-training programme; therefore, it is important to consider the organisation and structure of a programme.

Phase 2 and Phase 4 Curriculum model and programme organisation, and structure

SANC argues that nursing education should be outcome- or competence-based curriculum model (SANC, 2014). Constructivism is the foundational learning theory for both programme models; therefore, the preceptor-training programme also embraces constructivism as learning theory. In addition to the tenets of constructivism, the researchers used scaffolding, authenticity and constructive alignment as design principles. The 'design-down, deliver-up' approach (Chambers *et al.*, 2013; South African Qualification Authority [SAQA], 2005) was used to plan learning goals, determine associated assessment criteria with assessment instruments, and plan teaching and learning activities with continuous feedback as depicted in Table 3. The deliver-up approach reverses the design approach and ends with determining whether the candidate achieved the learning and programme outcomes (Fink, 2003; SAQA, 2005).

Phases 5 and 6: Module design and programme teaching, learning and assessment strategies

The programme learning activities are student-centred and require active participation of students. Contextualised learning takes place and builds on pre-existing knowledge where students (preceptors) make meaning of information and their experience through social interaction with each other and facilitators consequently creating new knowledge (Lee & Hannafin, 2016). The researchers used a blended approach in developing the programme which include simulation, scenarios, group activities, discussions and individual activities.

The preceptor-training programme covers a variety of learning activities, including experiential learning (Chang *et al.,* 2015) to enhance learning. The researchers promoted authenticity by basing the teaching and learning activities on real-life situations. The integrated assessment assignment in the form of a reflection report, required preceptors to accompany one student over a period of a month and to reflect on their interaction with the student regarding the student characteristics, facilitation techniques used, emotional needs of the students and the transfer climate. A rubric, containing the mentioned aspects, guided the preceptor's reflection report.

Conclusion

NEIs have the responsibility to train nurses who are able to adapt and perform in an increasingly complex clinical environment. Preceptors have become pivotal in supporting students to become professional nurses who can think critically and make sound clinical judgments. A fundamental requirement of preceptors is that they must be experts in their clinical field. A well-designed preceptor-training programme may equip preceptors with a different skills set than clinical nurse experts. Additional skills and knowledge that preceptors require have been identified and confirmed by means of the Delphi technique.

The needs analysis in this study showed that preceptors should be able to:

- debate the significance of their contribution to healthcare;
- role model good attributes;
- consider elements that influence students' transfer of learning;
- provide system, cognitive and emotional support;
- promote evidence-based practices;
- conduct valid and reliable assessment; and
- establish their function within the NEI while execute tasks accordingly.

In this article, the researchers described the identification of content and the development of a preceptor-training programme.

This study was done within the South African context where registered nurses function autonomously within a wide scope of practice. Consequently, not all the outcomes for the preceptor-training programme may be applicable in countries where the registered nurses have a limited scope of practice.

The newly developed programme should be piloted using an intervention study to determine whether students and preceptors benefit from the training of preceptors. Implementation and evaluation of the preceptor-training programme in different contexts will allow the researchers to determine what works for whom and under which circumstances it worked or did not work.

An excellent training programme may or may not contribute to the development of excellent nurses. As Aristotle (384–322 BC) said, "[w]e are what we repeatedly do. Excellence, then, is not an act but a habit."

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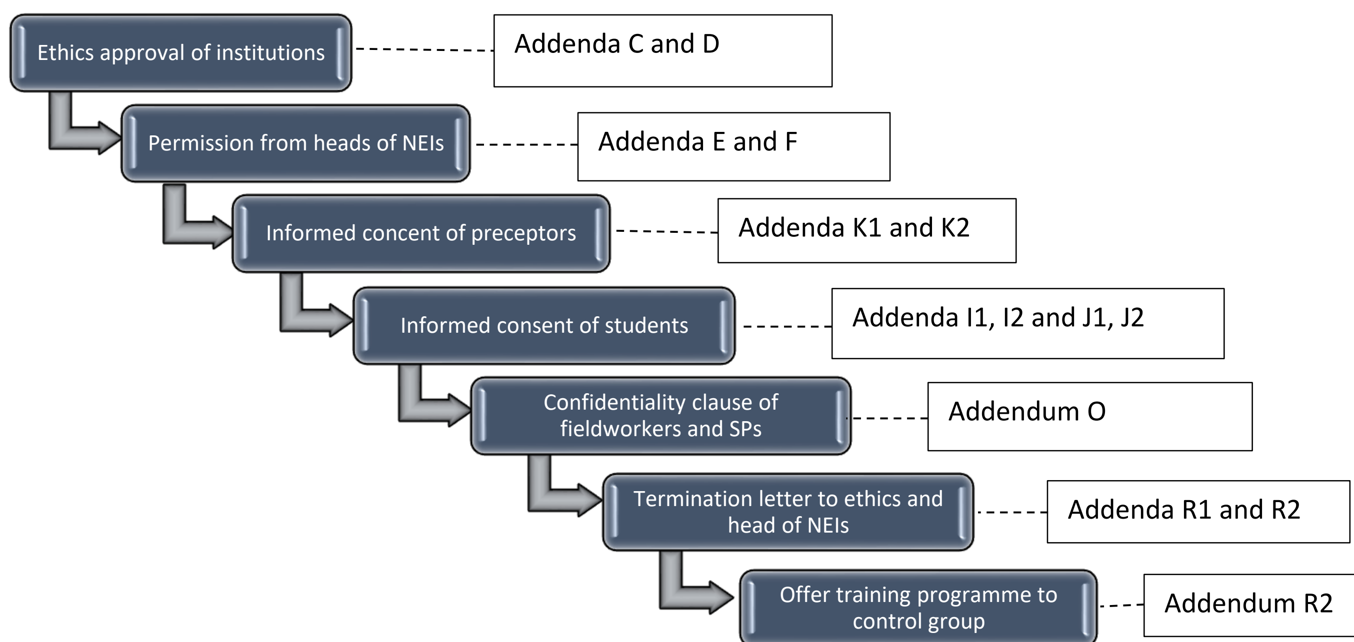
CHAPTER 3

Orientation

Article 2 reports on phase 2 of the study, namely the findings of the piloted randomised control group pre-and post-test intervention studies. The presentation of the preceptor-training programme was the intervention, and therefore constituted the independent variable. The two dependable variables were the support offered by preceptors, and the competency of students. Chapter 3 is presented in article format and the *International Journal of Nursing Studies* was chosen as the preferred journal for publication; Addendum M2 is proof of submission to the selected journal. The article was already submitted because of the prolonged process of journal review and publications. The journal focuses on describing, evaluating and understanding innovative and complex health care interventions. A maximum of 7000 words are allowed for the journal manuscript and the abstract is limited to 400 words. Referencing is done according to journal specifications as indicated in Addendum M1. The abstract comprises 392 words and the total manuscript word count, including abstract, keywords, in-text references and reference list, is 6997 words.

Ethical considerations of this chapter

The researcher followed the process illustrated in the flow diagram to show the ethical considerations followed in Chapter 2.



Additional information

Due to challenges experienced as described in the article to follow, the researcher encountered an unexpected outcome.

As Trafford and Leshem (2008:94) so elegantly stated, “Most researchers encounter some problems during their research – even if they choose not to admit it. Your account of such difficulties would acknowledge changes in the context of your specific research environment. You would need to explain this in detail within your thesis. By including such explanations in your text, you are telling your readers about the reality of doing research. This brings the experience itself alive and shows that you too have experienced the ‘ups and downs’ of undertaking serious and complex research”.

Results of this article lead to a title and methodology amendment (Addendum Q). In consultation with a biostatistician it was decided that post-test 2 was impractical due to the low attrition rates in post-test 1. The methodology was therefore changed by limiting the study to post-test 1 and adding a realist evaluation to explain the outcome of the intervention. The ethics review boards and the head of department at the nursing education institutions of the experimental and control groups were informed about the

researcher's decision to terminate further data collection. Dates to offer the preceptor-training programme at the site of the control group were arranged as it had been part of the original research plan, and constituted an ethical obligation to the researcher.

Due to the change in the research methodology, a title amendment was submitted to the Health Sciences Research Ethics Committee, UFS, and approved at the Faculty Board Meeting of May 2018. The original title, "The influence of a training programme for undergraduate nursing preceptors on competence, support and transfer of learning" was changed to "Development and piloting of a training programme for preceptors: A realist evaluation", in order to be aligned with the methodology.

Other addenda

Addendum G	Competency assessment instrument
Addendum H	Preceptor support self-administered questionnaire
Addendum P1-6	Standardised patient simulation case scenarios

ARTICLE 2

Implementing a preceptor-training intervention: Lessons learned

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Acknowledgement

The research was funded by the PLUME FUNDISA/NRF grant (2015/001).

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Abstract

Background: The world needs more, but also better-trained nurses to meet the healthcare needs of communities. Well-trained preceptors are a way to improve nurse education as they accompany students in clinical practice and facilitate the development of thinking operations through the integration of theory-practice. Appropriate training equips preceptors with skillsets that allow them to provide support and develop competence in students.

Objective: This article describes the extent to which trained and non-trained preceptors contribute to support and competence of students.

Design: A quantitative experimental randomised control trial with a pre-test and post-test design was used.

Setting: Two nursing education institutions were randomly selected from 21 higher education institutions. Selected institutions offer a four-year outcomes-based

bachelor's degree programme, employed preceptors but offered no formal preceptor-training programme. A preceptor-training programme was implemented as an intervention at the experimental site.

Participants: Census sampling allowed all preceptors at the experimental site and all second- and third-year nursing students of selected institutions to participate. The population comprised of 346 students, 116 at the experimental site and 230 students at the control site.

Method: Paired trained fieldworkers did the pre- and post-test, using a validated instrument to measure the students' competence during their interaction with a standardised patient-simulated session. Simulation case scenarios covered competences as per institutional theoretical modules. The intervention occurred shortly after the pre-test. Students evaluated preceptors' support through a self-administered questionnaire. Measurement of support commenced during the pre-test, continued after each clinical rotation and concluded with the post-test.

Results: Testimonies of outcomes-based curriculum proved to be untrue. Only six of 21 preceptors attended the training programme. Seventeen second-year and 11 third-year students from experimental group, and seven second-year and five third-year students from the control group participated in the pre- and post-tests. Inferential statistical analysis could not be done, due to high attrition rate among students and preceptors. However, students from both groups reported that preceptors provided support, but students were found to be incompetent during competence assessment.

Conclusion: Several lessons were learned during the course of this intervention. Commitment is established by capturing negotiations in writing and reviewing curricula to ensure that proclaimed curriculum is being enacted. Compulsory preceptor-training and students' engagement in simulation should be negotiated as described in this article. Insight into procedures used in a training intervention and challenges experienced could guide nurse educators in developing and testing future interventions.

Keywords: Preceptors, preceptor-training programme, intervention study, nursing education institution, nursing students, competence, support

Introduction

Nurses are expected to be competent on exiting their training and they should hit the ground running. With the current shortage of nurses in South Africa (Department of Health [DoH], 2012), there is no time for re-training. Curricula should therefore be selected to stimulate thinking operations that promote competence on nurses exiting their programme.

Globally, healthcare practices are becoming more challenging and increasingly complex with new emerging diseases for example Zika virus, listeriosis, co-morbidity, multidrug-resistant organisms (Aggar *et al.*, 2017; World Health Organization [WHO], 2016b). In many countries, nurses are the front-runners and the backbone of healthcare systems (WHO, 2016a; Department of Health [DoH], 2012); therefore, they need to be motivated and competent to meet the healthcare challenges of their communities.

The World Health Organization (WHO) has documented the importance of training nurses who are competent and able to strengthen healthcare systems of countries and function autonomously within communities (WHO, 2016a). The Global Advisory Panel on the Future of Nurses and Midwifery (GAPFON®) concurs that the quality of nursing education should improve in every country (The Honor Society of Nursing, 2017). South Africa too is prioritising the training of competent nurses. This priority is evident as the Department of Health accepted the proposed clinical nursing education and teaching model proposed by The Nursing Education Stakeholders (2012) group of South Africa (The Nursing Summit Organising Committee and the Ministerial Task Team, 2012). The model emphasises the importance of skilled preceptors to support student nurses during their work-integrated learning experiences in a variety of healthcare settings (The Nursing Education Stakeholder, 2012).

Health professionals' learning largely relies on students' experiences during 'real-life' work-integrated learning to develop critical problem solving skills (Kamphuis *et al.*, 2014). From their first year, nursing students learn and function within a complex environment as part of their compulsory work-integrated learning. Students often experience stress during their clinical placements, which influences their learning

(Zhao *et al.*, 2015). The support provided by preceptors is highly valued and can reduce the stress students experience (Marks-Maran *et al.*, 2013). Hugo *et al.* (2018) describe three types of support preceptors should provide while accompanying students, namely system, cognitive and emotional support.

System support requires preceptors to inform clinical units of the students who are placed with them so that such students can be oriented regarding the physical layout of the unit and the daily routine; and that students, and clinical staff, be aware of the learning outcomes that students should achieve during the placement (Dimitriadou *et al.*, 2015; Hugo *et al.*, 2018; Papathanasiou *et al.*, 2014). Preceptors provide cognitive support when they use different techniques to guide students, and to make them aware of their thinking operations while interacting with patients (D'Souza *et al.*, 2015; Hugo *et al.*, 2018). Students experience emotional support when preceptors show interest in them, encourage them, and are accessible during their placements (Hugo *et al.*, 2018; Mikkonen *et al.*, 2015).

Providing comprehensive support to students is challenging and places stress on preceptors (Valizadeh *et al.*, 2016). Preceptors use different skillsets when working with students than when they are caring for patients (Hsu *et al.*, 2014), and very few competent clinical nurses are naturally good preceptors. Generally, preceptors need training on various aspects to become competent in supporting students and facilitating clinical learning. The WHO (2016a) states that persistent nursing challenges could be addressed through innovative and transformative strategies to equip nurses and midwives to become competent nurses.

Studies have shown that a preceptor-training programme improves preceptors' knowledge about clinical educational competencies (Clipper & Cherry, 2015; Hsu *et al.*, 2014). Furthermore, students who have been accompanied by well-trained preceptors are confident in providing safe and optimal care to their patients (Clipper & Cherry, 2015). A well-designed preceptor programme provides a good foundation for preceptors to accompany their students in the clinical facilities (Haggerty *et al.*, 2012). No such programme has been developed in the context of South Africa based on the accepted clinical teaching and learning model yet. The researchers in the study on which this article reports, thus developed a preceptor-training programme to support

the future nursing workforce in becoming competent nurses who are able to function within complex clinical environments.

Nursing students in South Africa are required to complete a minimum of 4 000 hours as part of work-integrated learning over their 4-year bachelor's degree programme (South African Nursing Council [SANC], 1985) to assist them to acquire the necessary competence. For the purpose of this study, competence is defined as the performance of the person who demonstrates incorporation of foundational and procedural knowledge in a context-specific environment when rendering healthcare to the advantage of the healthcare consumer (Botma *et al.*, 2014; Goudreau *et al.*, 2009). A competent clinician also has reflective thinking abilities about his or her thinking operations in order to develop meta-cognitive knowledge (Bruce & Mtshali, 2017). The development process of the preceptor-training programme was reported (Hugo & Botma, 2018), and it was explained how the learning theory of constructivism and design principles of constructive alignment, scaffolding and authenticity underpin this training programme. An expert panel validated the outcomes of the preceptor-training programme by means of a Delphi technique. The implementation of the designed programme has not yet been reported.

This article therefore provides readers with a detailed overview of the implementation of the preceptor-training programme as a pilot study and the lessons learned. The study investigated the hypothesis that well-trained preceptors would be better able to support students and promote competence of students through the development of their thinking operations than untrained preceptors. Insight into the implementation of a preceptor-training programme could guide other nurse educators regarding implementation at other sites. The article is divided into three sections that describe the procedure, which includes the method followed during the intervention. The challenges are elaborated on in the results section, and lastly a reflection on the lessons learned is presented.

Procedure for the training intervention

The implementation of the preceptor-training programme as a pilot study comprised a quantitative experimental randomised control trial with a pre-test and post-test design. Positivism as an ontology guided the researchers' belief that knowledge is scientific and that one can determine the effect on competence and support through observation and measurement (Polit & Beck, 2017).

Intervention overview

Figure 1 illustrates how the study commenced with a pre-test at both institutions, followed by the intervention at the experimental site and concluded with a post-test at both institutions. Two measurements, namely the support offered by preceptors and the competence of students, were done during the pre-and-post tests. Both of the measurement instruments used had a high Cronbach alpha value of 0.98 and 0.90 respectively (Hugo *et al.*, 2018; Piek & Botma, 2017).

Figure 1 shows that measurements one (M1) and two (M2) commenced during the pre-and post-test. These are illustrated by the vertical line on months one and five. The experimental group, displayed horizontally, shows that the intervention occurred shortly after the pre-test followed by M2 and concluded with a post-test. The comparison group, also indicated horizontally, started with a pre-test and M2, after which it continued conducted throughout months one to five of the intervention.

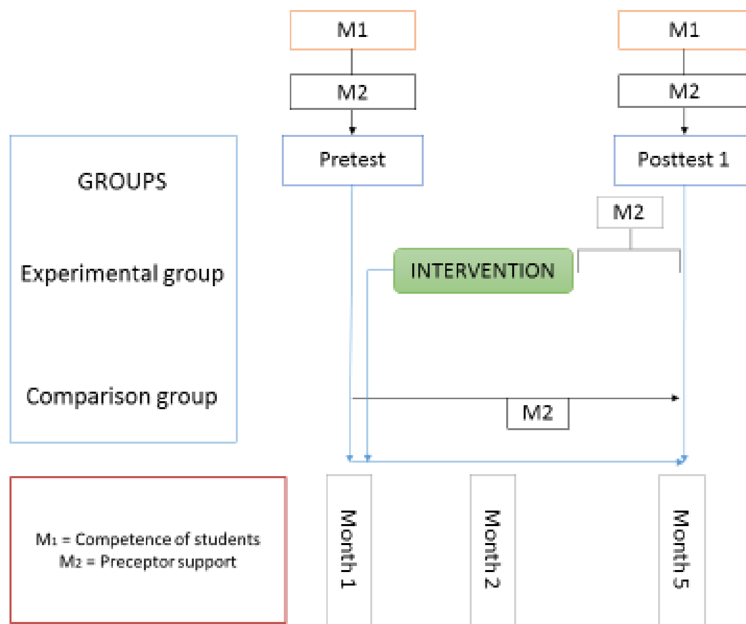

Fig 1. Overview of intervention study

Selection of the sites

From 21 nursing education institutions (NEIs), two NEIs that met the required criteria were selected through simple random selection. The NEI had to offer a four-year undergraduate bachelor's degree programme that was either outcomes- or competence-based and that employed preceptors who had not been trained as preceptors.

The primary researcher contacted the heads of the two selected NEIs who then agreed to participate in the research and to have their preceptors trained. Each head of department appointed a gatekeeper (representative of the NEI) to assist the researchers in the implementation of the intervention. The gatekeepers shared module outcomes of selected year groups with the researchers, lists of registered nursing students, schedules of students, a list of available fieldworkers, and the names of individuals who could act as standardised patients during simulation.

Measurements

The researchers had two main objectives (Table 1) for the implementation of the study, namely that preceptors should be able to offer system, cognitive and emotional support, thereby improving the competence of students. Table 1 depicts the objectives, sample, data collection method, and data analysis relating to each measurement.

Table 1
Layout of intervention measurement

Objective	Sample/ Respondents	Data collection	Data analysis
Compare the **competence** of students accompanied by trained and untrained preceptors.	Undergraduate nursing students (complete sampling of specified year groups)	Two trained assessors completed the competence instrument before and after training (pre- and post-test) by observing the students' interaction with a standardised patient.	Inferential data analysis
Compare the students' perspective of **support** offered by trained and untrained preceptors.	Undergraduate nursing students (complete sampling of specified year groups)	Students completed a self-administered preceptor support questionnaire on concluding the specific clinical placement (before and after preceptor-training).	Inferential data analysis

Competence

The target population for the study comprised second- and third-year undergraduate nursing students, registered for their practical module. Table 2 shows the census sampling numbers per selected institution. The total sample comprised 346 students.

Table 2
Census sampling numbers per selected institution

Target population	Experimental group	Control group
Second-year students	63	129
Third-year students	53	101
Total	116	230

First-year students, from both sites, were excluded, as preceptors have not accompanied them during the time of data collection. Fourth-year students were excluded, as the planned data collection period extended beyond their completion date.

Preparation

Preparation for data collection comprised developing simulation scenarios per competence measurement per site per year group. High-fidelity simulation allows students to demonstrate their competence in managing real-life clinical situations without causing any harm to patients (Botma & Bruce, 2017). Therefore, standardised patient (SP) simulation was deemed appropriate to measure the students' competence. Botma *et al.* (2014) describe four steps to create authentic assessment for the intervention. These steps are:

- Step 1: formulate the learning outcome;
- Step 2: select an authentic task that aligns with the learning outcome;
- Step 3: identify the criteria for the task; and
- Step 4: create the rubric.

Table 3
Scenarios developed per year group per test period

Year group & content	Learning outcome	Associated assessment tasks (*students must think aloud to demonstrate their thinking operations*)
PRE-TEST		
Experimental group		
Second-year undergraduate Upper abdominal pain	The student will be able to manage an adult patient with upper abdominal pain in a primary healthcare setting	Student will be able to: • take a *focused history* of an adult patient with upper abdominal pain • do a focused *physical examination* of the abdomen by using appropriate techniques • differentiate between possible diagnoses, *demonstrate clinical reasoning*, and make a working diagnosis • plan *treatment options* with the patient by means of *health dialogue* • *reflect* on his or her reasoning processes
Third-year undergraduate Reproductive healthcare – contraception	The student will be able to prescribe an appropriate contraceptive method according to the national guidelines	Student will be able to: • take a *focused history* of an adult woman request contraception • do a focused *physical examination* of the breast by using appropriate techniques • present the possible contraceptive methods to the woman, and *demonstrate clinical reasoning* by posing pros and cons of each method • consult the woman with regard to her preferred contractive method through *health dialogue* • *reflect* on his or her reasoning processes
Control group		
Second-year undergraduate Lower abdominal pain	The student will be able to manage an adult patient with acute lower abdominal pain in a primary healthcare setting	Student will be able to: • take a focused *history* of an adult patient with lower abdominal pain • do a focused *physical examination* of the abdomen by using appropriate techniques • differentiate between possible diagnoses, *demonstrate clinical reasoning*, and make a working diagnosis • plan *treatment options* with the patient by means of *health dialogue* • *reflect* on his or her reasoning processes.

Third-year undergraduate Musculo-skeletal: joint pain	The student will be able to manage an adult patient with aching joints at a primary healthcare setting	Student will be able to: • take a focused *history* of an adult patient with joint pain • do a focused *physical examination* of the range of motion and muscle strength of the affected limbs by using appropriate techniques • differentiate between possible diagnoses, *demonstrate clinical reasoning*, and make a working diagnosis • plan *treatment options* with the patient through *health dialogue* • *reflect* on his or her reasoning processes
POST-TEST		
Experimental group		
Second-year undergraduate Care of a sick child under 5 years old	The student will be able to manage a sick child according to the Integrated Management of Childhood Illnesses (IMCI) guidelines	Student will be able to: • Take a focused *history* and *assessment* of a sick child under 5 years of age • classify the child by *noticing* and *interpreting* assessment findings, *demonstrate clinical reasoning* by motivating the classification • plan *treatment options* with the caregiver by means of *health dialogue* • *reflect* on reasoning processes
Third-year undergraduate Routine ante-natal care	The student will be able to manage a pregnant women during a routine ante-natal visit according to the national standards	Student will be able to: • take a focused *history* of a 24-week gestation pregnant woman according to the national standards • do a focused *physical examination* and appropriate side-room investigations • demonstrate *clinical reasoning* by stating differential diagnoses and eliminating some of them through evidence gathered • plan treatment options with the patient by means of *health dialogue* • *reflect* on his or her reasoning processes

Control group		
Second-year undergraduate Care of a sick child under 5 years old		Replication of the SP outcome and scenario for the second-year experimental post-test
Third-year undergraduate Reproductive healthcare – contraception		Replication of the SP outcome and scenario for the third-year experimental pre-test

Module outcomes of both NEIs were used to identify a common outcome so that SP simulation scenarios could be developed to standardised competency measurements. However, the module content differed between the two NEIs per semester. The researchers developed and piloted SP scenarios per institution per measurement. Six SP simulation scenarios were developed over the course of the study. Although the main medical complaint of the SP scenarios differed, the outcomes as well as the authentic tasks were similar. Clinical competence is the ability to apply knowledge from different fields to identify the problem, think critically and reason clinically, make sound clinical judgements, plan care through engaging the patient and family in health dialogue, and reflect beyond action (Botma *et al.,* 2014). Table 3 shows the SP scenario outcomes and associated tasks per year group per measurement period.

The gatekeeper at each NEI recruited individuals, who were not affiliated with the institution, to be trained as SPs. Two more than the minimum required number of SPs were recruited and trained. The minimum required number of SPs was dependent on the availability of fieldworkers for assessment. The primary researcher, who is also a skilled simulation facilitator, trained the SPs for an hour, at least 24 hours before the simulation sessions. Training entailed discussing the appropriate behaviour of an SP with regard to acting the role, appropriate information that should be shared with students, as well as what was to be expected during the simulation. The SPs received detailed clinical scripts, which the primary researcher explained and discussed with them. They also had the opportunity to practice with each other. Rotation of the SPs allowed them frequent short breaks to minimise SP fatigue.

Fieldworkers included nurse educators from the NEI, as well as from other NEIs, registered nurses and preceptors. Prior to the simulation session, the primary researcher briefed the fieldworkers regarding the scenario, SP training and acceptable behaviour during assessment. During the training of the fieldworkers, the primary researcher focused on thinking operations, which included critical thinking, clinical reasoning, clinical judgement and metacognition. She discussed the competence assessment instrument, which focused on thinking operations with them in detail. The competence assessment instrument had an overall Cronbach alpha value of 0.90. The sequence of the competence assessment instrument includes noticing students' critical thinking during assessment, clinical reasoning based on the information gained,

making well-informed clinical judgements in collaboration with the SP, and on completion, reflecting beyond action. Fieldworkers practiced using the assessment instrument by watching recorded footage. Discussion was encouraged to identify uncertainties and to assess ability in using the instrument.

Both SPs and fieldworkers arrived an hour before commencing the simulation for re-briefing. Two fieldworkers assessed each student but could not discuss students' performance with each other in order to enhance reliability of data. The primary researcher allocated sequential numbers to each assessor, and kept a list to indicate the pairs that assessed the same student.

The gatekeepers recruited students while they were attending theory classes. They explained the purpose and details of the research, as well as the topic of the SP scenario to the students and then invited students to participate. The researchers tried to accommodate students by scheduling sessions during a time allocated for practicum or when they had an open slot while on campus. All students were briefed before they interacted with the SP and were debriefed the small group after each session to promote the importance of their participation. Two assessors completed the competence assessment instrument while second- and third-year nursing students interacted with SPs during simulation sessions to demonstrate their reasoning processes and psychomotor skills. Debriefing of the fieldworkers occurred when the sessions concluded for the day. During the debriefing sessions, the students and assessors shared insightful information regarding preceptorship, accompaniment, placements and composition of the nursing programme.

Support

The gatekeepers invited all 346 second- and third-year students from both NEIs to complete the support questionnaire after each clinical placement. Preceptors are usually linked to a specific clinical unit, and as the students rotate through these units during their clinical placements, they evaluate the preceptors at the end of each month. Table 2 displays the sample numbers per year group per institution.

Data collection

A support questionnaire, developed by Hugo *et al.* (2018), measured the support students perceived to have received from the preceptors. It measured system, cognitive and emotional support. The Cronbach alpha of the initial instrument was 0.98, and the number of items was decreased from 69 to 49 after the exploratory factor analysis.

Students registered for the practical module received a tracking number in a sealed envelope to use with the completion of the questionnaires. At the end of each clinical rotation, the gatekeeper distributed the questionnaires during class time and students completed it, and handed it back on exiting the room. Using EvaSys®, an online platform was also provided for students who wished to complete the questionnaire at their own time or in private. The first measurement occurred during the pre-test, continued on a monthly basis, and concluded with the post-test at five months after pre-test. The gatekeepers collected and stored the completed questionnaires in a locked cabinet until the primary researcher fetched it at the time of the post-test.

Ethical considerations

The relevant ethics committee per institution granted approval[1] and each participant, whether SP, student or fieldworker, gave written informed consent. Fieldworkers and SPs signed a confidentiality agreement on students' performance during the simulation. Questionnaire and assessment tools stored in locked cabinet.

Data analysis

An assistant coded and captured the data on an Excel™ spreadsheet and the primary researcher checked it for correctness and completeness. The researchers in collaboration with the biostatistician planned to do inferential comparative data analysis. However, this pilot study encountered numerous challenges that convinced the researchers that inferential statistical analysis was inappropriate and that the

[1] Ethics numbers are omitted in order not to disclose the identity of the participating NEIs.

intervention study as described was not feasible as a main study. Only descriptive analyses on the pre-test data were done. The results section of this article will clarify challenges experienced as well as information on the participation of the competency and support assessment.

Challenges of developing, implementing and measuring a training intervention

The researchers report here on challenges experienced during the preparation phase, implementation of the intervention (preceptor-training programme), as well the measurement results.

The preparation phase

Challenges were experienced during the preparation phase when the gatekeepers were slow to provide the researchers with module outcomes for the participating year groups. Reasons remain unclear to researchers. Although both institutions claimed to be outcomes-based, they offered content per body system. The content used by the two institutions also differed per semester.

Intervention

Various researchers highlight the importance of training preceptors (Chen *et al.*, 2017; Kang *et al.*, 2016). Despite the researchers' negotiation that training would be compulsory for all preceptors at the experimental site and participation in the research component voluntary; only six of the twenty-one preceptors attended. These six preceptors, included permanent nursing educators accompanying students. The training programme was scheduled as a three-day workshop at the NEI. Chang *et al.* (2015) report that current training programmes are more theoretical and need to be more practical. Therefore, undergraduate preceptors were accompanied for two hours by the primary researcher after the workshop. The preceptors were followed-up individually two months after training for support purposes. Preceptor participants had to deliver a reflection report as part of their assessment after accompanying a nursing student for a minimum period of one-month in a clinical facility. None of the preceptors completed the assignment for assessment.

Measurements

Figure 2 depicts the number of participants during the course of the study.

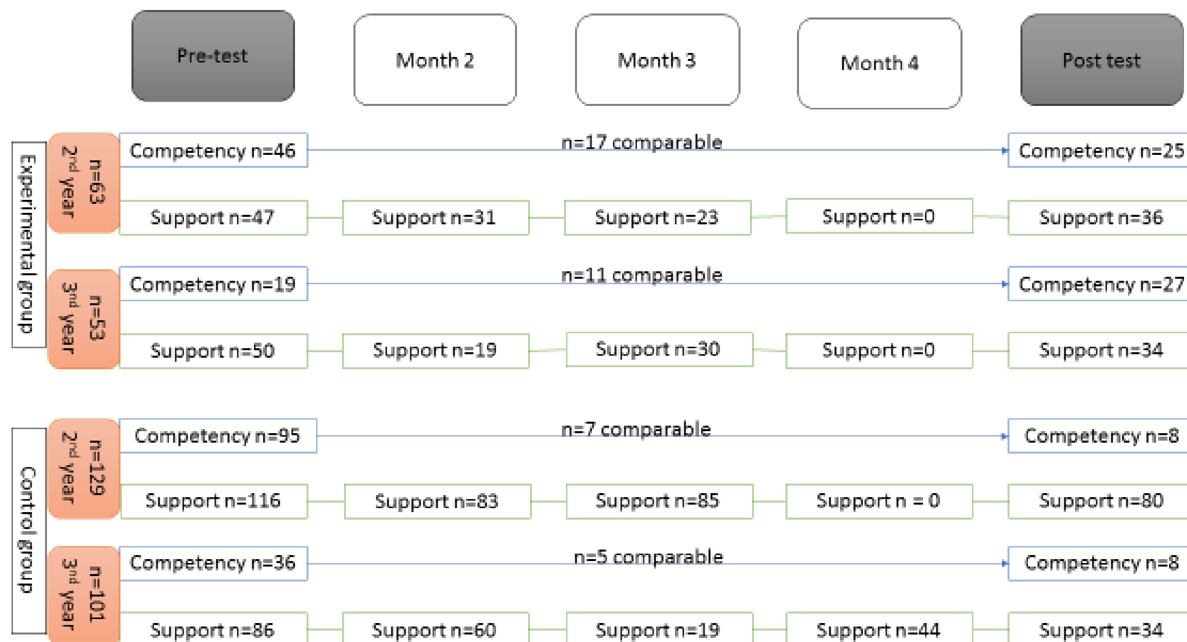

Fig 2. Participation of students during intervention

Competence assessment

Figure 2 highlights the tendency that fewer students participated towards the end phase of the study. Very few students, whose competence was assessed during the baseline study, participated in the post-test.

The number of second-year participants at the experimental site dropped by 21 from the pre-test to the post-test. The third-year experimental group increased by 8 students. The increase of students in the post-test was a result of researchers not preventing students from participating in the simulation, as it is a valuable learning opportunity. Only 17 and 11 students were comparable between the pre- and post-test for the experimental second- and third-year groups respectively.

The biggest decline in numbers, 95 to eight (8), occurred at the control site in the second-year group. At the control site, the third-year group dropped by 28 students from 36 to 8 students.

The median of the data on the overall competence of the pre-test is illustrated in Table 3. Paired fieldworkers evaluated students' competence with a rating scale of three main domains, which varied from 0 (not done) to 1 (incompetent) to 2 (competent) and 3 (exceptionally competent). Preceptors were paired to determine the interrater reliability of students' competency performance.

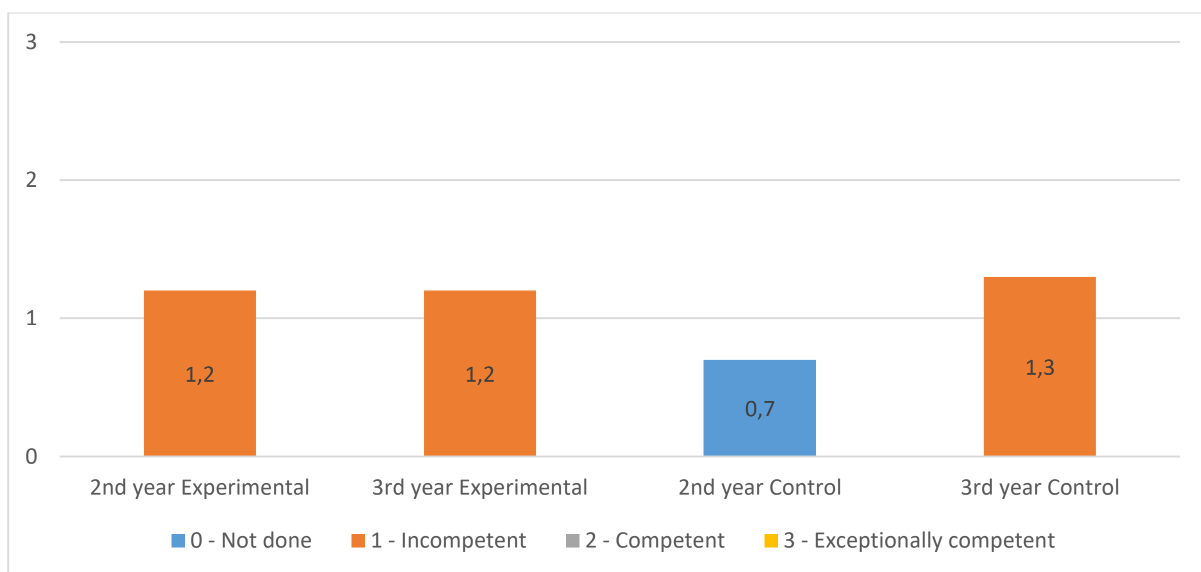

Fig 3. Pre-test competency assessment results

Figure 3 shows that students were not competent, in other words, they could not obtain relevant information, could not notice any deviations from norm, could not relate the obtained information to possible causes, could not list possible causes and eliminate some, and ultimately could not select evidence-based treatment options. Results confirm the necessity of preceptors' support to students' cognitive development in clinical facilities.

Perceived support

Students completed the support questionnaire at the end of their rotation at a specific unit. Duplicated questionnaires were included in the data set, as students might have been placed at two facilities or units in the same month.

Similar to the competence assessment, a downward trend is noticeable in Figure 2 in all four groups' responses on perceived support towards the end of the intervention study. A total of 953 questionnaires were completed over the study period.

Figure 4 shows the overall median per population of the students' perception on system, cognitive and emotional support. Students responded to a 4-point Likert-type scale with 1 indicating 'strongly disagree' to 4 indicating 'strongly agree' as depicted on the vertical axis of the figure.

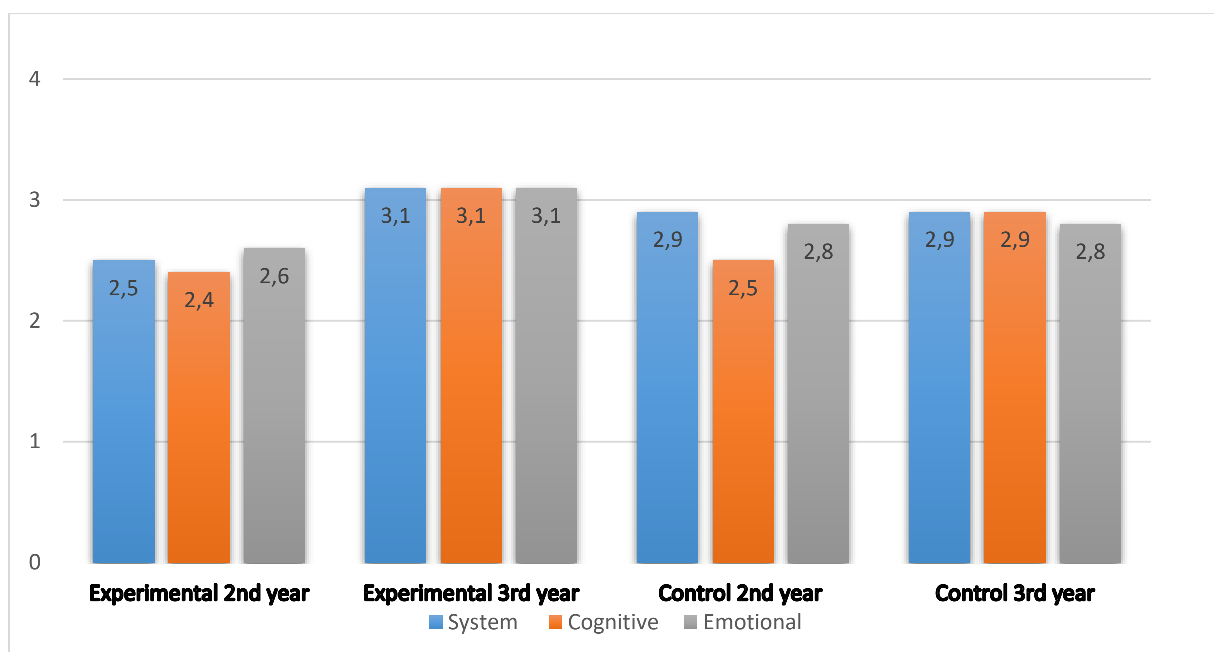

Fig 4. Students' support received from preceptors

Students from the third-year experimental and control groups agreed that preceptors provided sufficient support. Second-year students from the experimental group had the lowest ratings on all types of support.

Results from the competency questionnaire show that students were not yet competent in modules taught. Nurses should be able to perform the tasks of registered nurses on exiting the programme, and they should not need retraining. Therefore, scaffolding in the curriculum is important to allow student nurses to become competent at each year level. However, it is very difficult to build in meaningful scaffolding when offering a content-based curriculum.

The support questionnaire, however, showed that students did receive support from preceptors, including cognitive support. This discrepancy needs a deeper investigation into the underlying context and mechanisms of the intervention.

Lessons learned from the training intervention

The results of the study warrant reflection on the planning and execution of the study. Research should demonstrate legitimacy and soundness by following a rigorous process (Laher, 2016). The researchers reflected on the internal validity, external validity, reliability, sampling, instruments used, data collection methods and data analysis as these factors influence the rigour of a quantitative study (Laher, 2016).

Good internal validity refers to minimising extraneous variables that may influence the outcome (Laher, 2016; Grove *et al.*, 2012). The South African Nursing Council (SANC) stipulates that curricula should be outcomes- or competence-based (SANC, 2013). However, there are a few NEIs claiming that they offer problem-based programmes, which were subsequently excluded from the population. Two NEIs, which explicitly confirmed that their programmes were outcomes-based, were selected. However, on scrutinising the relevant modules per selected institution and per year group, it was found that both programmes were content-based. The lesson learned from this experience is that a researcher cannot rely on the quality assurance standards of outsiders or regulatory authorities. Nevertheless, the researchers made every effort to train all fieldworkers in terms of the competency instrument to minimise measurement errors. SPs were trained before the simulation session, and received a hard copy of the script so that they could give students accurate and consistent information. Simulation scenarios were authentic, because information from real clinical cases was used so that students could interpret accurate data to make sound clinical judgements.

Scenarios were piloted at the researchers' home institution and required minimal linguistic adjustments.

Constructivism, as learning theory, and design principles, such as authenticity, scaffolding and constructive alignment, underpin the preceptor-training programme that was developed by the researchers (Hugo & Botma, 2018). Twelve experts on preceptorship validated the competencies and content of the preceptor-training programme as published in another article (Hugo & Botma, 2018).

External validity includes population, ecological and time validity (Laher, 2016). Population validity was ensured by using second- and third-year undergraduate bachelor's nursing students. Preceptors from both NEIs had to have no formal preceptor-training. Qualified registered nurses were used to conduct competency assessment. Using two NEIs at different universities enhanced the ecological validity. At each NEI, the simulation session occurred at the simulation laboratory where students are trained throughout the year. Each pre- and post-test competency assessment occurred in the same timeline. Census sampling eliminated the threat of selection bias and allowed for generalising (Polit & Beck, 2017). However, attrition was a threat that demolished internal validity of this study and therefore no causality between variables could be inferred. Immersive simulation is an inestimable learning experience (Botma & Bruce, 2017); therefore, it might be compulsory for all students to participate in the simulation, as a learning experience, but consent should be obtained after completion of simulation from students to use results on their performance for research purposes.

Reliability refers to the degree in which similar results can be obtained for the same test when implemented elsewhere under the same circumstances (Grove *et al.*, 2012). The measurement instruments were reliable with high alpha Cronbach values. Psychometric analyses could not be performed to determine reliability due to attrition. Two instruments were used, and both were developed through methodological studies and tested for reliability and construct validity. The psychometric properties of the instruments are reported in two articles (Hugo *et al.*, 2018; Piek & Botma, 2017). The subscales of the competence assessment instrument comprised noticing, clinical reasoning, clinical judgement and metacognition. A four-point scale of 'not done',

‘haphazardly done’, ‘organised and thorough’, and ‘exceptionally well’ was used. Support offered by preceptors was subdivided into system, cognitive and emotional support. Cognitive support focuses on developing thinking operations as tested in the competence assessment instrument (Piek & Botma, 2017).

The development and implementation of the intervention were rigorous. Verbal agreement regarding the intervention was not enough. It is important that the heads of department at the research sites and the researchers sign a written memorandum of agreement, stipulating the responsibility of the NEIs regarding the intervention and the researchers’ expectations prior to the study. It is the moral responsibility of the NEI to capacitate its employees to fulfil their roles. Therefore, attending the preceptor-training programme should have been compulsory for all preceptors with the option to participate in the research component. This would ensure that all preceptors in the undergraduate programme participate in training.

Despite meticulous coding, cleaning of data showed many omissions. Analysis of the missing data showed omitted values. The researchers noticed that some participants completed the items in specific sequences.

Items from the Consolidate Standards of Reporting Trials (COSORT) document (Schulz *et al.*, 2010) were used to promote quality through the evaluation on the completeness and transparency of the randomised study. Although the 25-item tick list is mainly used to provide clarity on the reporting of interventions, it also helps researchers to design interventions. According to the researchers’ knowledge, the proposal for this study was well planned and followed rigorous process. Adherence to a rigorous process should have provided the researchers with an answer to their hypothesis. Due to their inexperience in terms of experimental studies, the researchers might have made obvious mistakes. Nonetheless, during the debriefing sessions of the students as well as of the fieldworkers, the researchers, became aware of other ‘powers’ that contributed to the outcomes of this study. It is evident that a well-designed programme may work in a certain context, but not in another context. The outcomes of this study demand further investigation into the contributing mechanisms.

Conclusion

Various organisations call for more, but also better-trained nurses that will be able to meet the healthcare needs of their communities. One way of improving nursing education is for NEIs to employ preceptors to accompany students in clinical practice. However, preceptors should be trained, because they need a different skillset for accompanying students than for bedside nursing to facilitate learning and critical thinking of students.

A rigorously designed intervention study was piloted to evaluate the effect of a preceptor-training programme on students' support and competence. Data collection in terms of competence occurred during a pre- and post-test. Preceptors at the experimental site were trained shortly after the pre-test data had been collected. Trained fieldworkers assessed students' competence during immersion of students in a standardised patient simulation session. Students completed self-administered support questionnaires on completion of a clinical rotation throughout the duration of the pilot study. Despite the researchers' effort to plan and implement the intervention with concise precision, low preceptor attendance and high attrition rates of students resulted in insignificant numbers for data analysis. Lessons learned during the implementation were:

- a written memorandum of agreement in terms of the intervention that stipulates that all preceptors employed by the NEI should be trained;
- all students should engage in the SP simulation as a learning opportunity with the option to make their results available for research purposes; and
- module outcomes should be studied beforehand to ensure curriculum enactment.

The value of this pilot study was that it clearly indicated the logistical as well as the design flaws. Programmes are implemented in social contexts and what may work in one context might not work in another context. Hence, it is important to determine which aspects in the context facilitate success and which ones inhibit success. A pilot study, such as the one reported on in this article, is valuable to provide these insights.

The outcome of the study and the lessons learned thus necessitate a deeper investigation into possible contributing mechanisms in the future.

Limitations

Despite a considerable effort to plan and implement a rigorous intervention study, many limitations were identified. The researchers did not foresee that so few preceptors would attend the training sessions and nullify the whole study. Despite many efforts, the attrition of the student component in the competence assessment as well as in completing the support questionnaire, was exceptionally high. The preceptor-training programme emphasises the development of students' thinking operations, which is to a certain extent incompatible with a content-based programme. Sampling of the NEIs could have been more rigorous.

Furthermore, students' performance could have been altered by the presence of fieldworkers and SPs, the level of previous exposure to simulation and improvised information provided by SPs. Fieldworker evaluation of student's competence could have been altered due to unfamiliarity of scenario or simulation. Students could have been biased in their reporting of support from 'well-liked' or 'disliked' preceptors. Students could have become exhausted to respond to the same questionnaire repeatedly after each placement. Assessment should have been done to determine preceptors' transfer of learning after training. More efforts could have been made by the researchers to follow-up reflection reports of preceptors. Possible contamination of comparison group data may have occurred, as preceptors could have learned accompanied strategies on their own through experience and previous background.

Recommendations

Two maxims come to mind, namely 'put it in writing' and 'seeing is believing'. A study that is dependent not only on the individual participant but also on the management and goodwill of the whole NEI, needs to have a memorandum of agreement in addition to the usual informed consent and permission to conduct the study. A researcher should always first see the evidence before believing a claim. Many NEIs proclaim that they have a certain educational approach and a specific type of programme, but on

closer investigation, the integrity of the programme may be compromised because the enactment thereof does not portray the tenets of the proclaimed approach. Despite lessons learned, a deeper investigation on mechanism contributing to the outcomes of this study is needed through a realist evaluation.

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CHAPTER 4

Orientation

Chapter 4 represents phase 3 of the research project. Phase 3 entails the researcher's quest to further explore and explain the outcome of the pilot study as described in Chapter 3. Through a realist evaluation, the researcher captures the challenges experienced during the intervention and describes the effect of this on a preceptor's motivation and performance. The researcher further describes and illustrates the systems in which preceptors function and the effect on their ability to fulfil their crucial role in developing competent nurses.

Chapter 4 is the third and last article of this thesis. The manuscript was already submitted to the scholarly *Evaluation and Program Planning* journal due to the lengthy review and publication process. See Addendum N2 for proof of submission to the journal. The journal was chosen as it aims to assist researchers to improve the practice of their professions. It is knowledge-based through the reports on programme development, evaluation efforts, and relevant issues discovered and what may be termed 'lessons learned'. The article is formatted according to author guidelines, as indicated in Addendum N1. The unstructured abstract limitation is a maximum of 200 words, while the word count for the manuscript is limited to 8000 words including illustrations. The abstract comprises of 200 words while the manuscript word total amounts to 7552

Ethical considerations of this chapter

Participants from the preceptor-training programme gave informed concept through self-determination, to use the deliverables as illustrated in photograph 1. See Addenda K1 and K2 for the informed consent pamphlet to use deliverables. No identifiable information of nursing education institutions, preceptors or students is revealed in the reflective field notes or artefacts. Addenda J1 and J2 include the participation consent form of students who participated in standardised patient simulation sessions, giving consent that information obtained during the SP session may be used for publishing purposes.

ARTICLE 3

Looking beneath the surface of a preceptor-training programme through a realist evaluation

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Acknowledgments

The research was funded by the PLUME FUNDISA/NRF grant (2015/001).

Abstract

The researchers generally develop and plan programmes with the best intentions of supporting an identified need. The researchers developed and implemented a preceptor-training programme and conducted research to determine the extent to which accompaniment of trained preceptors promoted support and developed competence in students in comparison to untrained preceptors. Results showed a poor outcome due to poor preceptor participation and high student attrition rates. A realist evaluation was subsequently conducted to determine an explanation for this poor outcome. The conclusion was that a preceptor-training programme alone is not the sole decisive factor to ensure preceptors' motivation to transfer their learning; a systematic approach ensuring effectiveness of the programme should be followed. Reflection on findings showed that the implementation context was a major determining factor of the training programme. Furthermore, the context influenced the preceptors' motivation to transfer their learning and their ability to be effective. A lack of support from nursing education institutions further complicated preceptors' functionality within the nursing education system. Suppositions drawn from this study may assist nursing education institutions and nurse educators to be mindful of the type

of curriculum needed, alignment of theory with practice and the importance of creating a well-structured place for preceptors within their system.

Highlights

- Training is not the sole determining factor of the success of a preceptor programme
- Implementation context is key in evaluating outcomes
- Preceptors need a structured place within nursing education institutions

Keywords: Preceptor-training programme, realist evaluation, transfer of learning, context

1. Introduction

The importance of the context in which a programme is implemented should not be underestimated. Westhorp (2014) concurs that context has a considerable influence on programme outcomes. Although programme designing and planning may be contextualised, the implementation of the programme occurs in another complex social context. The context in which a programme is implemented should therefore be conscientiously described during programme evaluation.

Preceptor-training programmes should be contextualised (Jeggels, Traut & Africa, 2013) and tailored to address the learning needs of preceptors (Chang, Lin, Chen, Kang & Chang, 2015). Furthermore, the training programme should have a sound pedagogical foundation to support students' learning (Hilli, Salmu & Jonsén, 2014; McSharry & Lathlean, 2017). The researchers of this study developed a preceptor-training programme for the South African context. The preceptor-training programme was based on the Clinical Nursing Education Model as suggested by the South African Nursing Education Stakeholders Group (2012), which was adopted by the South African Department of Health (DoH) (The Nursing Education Stakeholders Group, 2012). The model emphasises preceptors as role players in preparation of the future nursing workforce who should be employed by nursing education institutions (NEIs) to offer their undivided attention to students, as preceptors do not have a patient load.

The researchers used O'Neill's programme development process (2015) to design the preceptor-training programme. Participating experts reached consensus on outcomes and content of the preceptor-training programme via a Delphi technique (Hugo & Botma, 2018). Educational theories and design principles, such as constructivism, scaffolding, constructive alignment and authenticity, guided the development of teaching and learning activities. The researchers piloted the preceptor-training programme as an intervention study (Hugo & Botma, 2018).

The hypothesis of the intervention study was that nursing students who are accompanied by well-trained preceptors will experience more support during accompaniment and will be more competent than those who are accompanied by untrained preceptors. The preceptor-training programme was the independent variable in a quantitative, experimental randomised control trial with a pre-test and post-test design. Through simple random selection, researchers selected two NEIs, which affirmed that they offer an outcomes-based undergraduate bachelor's degree programme. The first identified NEI was the experimental group and the other the control group. Support, as perceived by students, and competence of nursing students were the dependable variables. Students completed the pre-tested support questionnaire after each clinical rotation. Paired trained fieldworkers assessed the students' competence by means of direct observation during a simulated standardised patient interaction in the pre- and post-test phases.

Census sampling included all second- and third-year students at both selected NEIs. Students completed the support questionnaire before the simulation contact session, continued completion of the support questionnaire after every clinical rotation, and filled out the last support questionnaire on completion of the post-test.

Shortly after the pre-test, the primary researcher trained the preceptors for three days at the experimental site as per the preceptor-training programme. Directly after training, the primary researcher accompanied the trained undergraduate preceptors to the clinical facilities while the preceptors accompanied and facilitated students' learning. The researcher had a followed-up session with the preceptors after two months. The intervention study concluded with re-evaluation of the students' competence during the post-test. The process of developing and piloting the preceptor-training programme is described in another article (Hugo & Botma, 2018).

Despite careful planning and meticulous implementation of the intervention, the randomised control study rendered insufficient data for inferential statistics. The researchers therefore asked the following question in realism terms as stated by (Pawson & Tilley, 2013, p.413), "what works for whom, in what context, in what respects, and how or why not" In this article, the authors report on application of a realist evaluation and the theoretical underpinnings of the programme to offer insight into the context and causal mechanisms that influenced the outcome of preceptor-training.

2. Realist evaluation

The researchers preformed a realist evaluation (RE) to explore "what works for whom, in what context, in what respects, and how or why not" (Pawson & Tilley, 2013, p.413). For the purpose of this study, the researchers applied the RE methodology in an attempt to clarify 'what is going on' and to explore contextual determinants of the outcomes.

RE builds on the philosophy of realism, and holds elements of positivism and constructivism (Wong, Westhorp, Greenhalgh, Manzano, Jagosh & Greenhalgh, 2017). This paradigm accepts that there is a reality different from the researcher that recognises that structural and institutional features exist independently from the researcher (Marchal *et al.*, 2012). Realism follows a retroductive process to offer a causal explanation of the observed patterns and to develop or refine theories by moving between theory and data (Fletcher, 2017; Wong *et al.*, 2017). The notion behind a realist evaluation is that it is not the intervention that creates change; it is

people (Pawson & Tilley, 2013). RE assists in explaining the interplay between individual and institution(s), agency and structure, and micro and macro social processes within the intervention (Pawson & Tilley, 2013); therefore, gaining scientific knowledge (theories) that offers recommendations to challenges experienced during the intervention (Fletcher, 2017).

RE methodology is set apart from other evaluation studies as it is applied to and takes into account complex and social systems of the 'real world' (Marchal *et al.*, 2012; Pawson & Tilley, 2013), which in return provides researchers with truthful information about the intervention. The results from the RE may inform thinking of policymakers, nurse educators and preceptors. RE is theory embodied as it aims to test the hypotheses of for whom and how it might work (Westhorp, 2014). Melnyk and Morrison-Beedy (2014) acknowledge the importance of having a well-developed theoretical framework in an intervention to provide an understanding of the programme objectives, the nature of the intervention and the mechanisms that influence the outcome.

In the current study, the researchers used reflective field notes to capture their critical reflections on challenges encountered during the intervention study, as it is an acknowledged method in qualitative research (Patton, 2015; Polit & Beck, 2017). Critical reflection produces a foundation for analytical writing and conceptualisation (Maharaj, 2016), which informs realism as a philosophy. Reflective field notes offer a deep and rich perspective on and an explanation of people's behaviour and actions as well as social situations. Notes were narratively organised and thematised and were used as examples to explain the outcomes of the intervention. Notes on the researchers' observations were done while in the field. The researchers also used photographed artefacts such as produced (deliverables) by participants from the preceptor-training programme to deepen data presentation.

3. Theoretical underpinning for the realist evaluation

Theories informing the programme should be discussed in order to understand the outcome of a programme better. The purpose of a realist evaluation is to test the theory that underpins the programme (Astbury & Leeuw, 2010).

A theory is a collection of acceptable evidence that attempts to provide a rational explanation or understanding of a causal connection about a group that is observed in a phenomenon (McKenna & Slevin, 2011). Blamey and Mackenzie (2007) describe that there are different synonyms for the theories used in an RE. For the study on which this article reports, the researchers used the following three types of theories namely implementation, normative and causal theories, which are described below in the section on theoretical underpinnings. Table 1 depicts the application of the theories with the associated expectations and primary sources of evidence.

TABLE 1
Theories used in this realist evaluation

Type of theory	**Theory used**	**Expectations**	**Primary Evidence**
Implementation theory Hypothesised links between programme act and outcomes	Presenting the preceptor-training programme will improve students' support and competence	Preceptors will provide cognitive, emotional and system support	Data from self-administered support questionnaire
		Students will be competent	Data from competence assessment
Normative theory Informs the design and implementation of the intervention	Learning theory and design principles: • constructivism • student-centred • scaffolding • authenticity • constructive alignment	Curricula of NEIs are designed according to the accepted standards of outcomes-based programmes	Descriptive and reflective field notes Curricula Reflective notes Artefacts of preceptor-training programme
Causal theory also known as midrange theory Understanding causal mechanisms in terms of relationships between intervention and outcome	Transfer of learning model (Fig. 4) and framework for preceptorship (Fig. 5) as depicted in iceberg	Characteristics of the preceptors	Discussions with preceptors and students
		Design of the programme in which the students, who are accompanied by the preceptors, are registered	Descriptive and reflective field notes. Discussion with students and fieldworkers
		Transfer climate for preceptors	Descriptive and reflective field notes. Discussion with

Type of theory	Theory used	Expectations	Primary Evidence
			fieldworkers and preceptors Deliverables from preceptor-training programme
		Work environment for preceptors at NEI and healthcare services	Descriptive and reflective field notes Discussions with preceptors and fieldworkers Deliverables from preceptor-training programme

3.1 Implementation theory

The first step in conducting a realist evaluation is to describe the implementation theory (Mukumbang, Van Belle, Marchal & Van Wyk, 2016), in other words to state the link between the programme activities and the expected outcomes (Blamey & Mackenzie, 2007; Marchal *et al.*, 2012).

The researchers hypothesised that students who had been accompanied by well-trained preceptors would experience support and would be more competent in the execution of nursing care than those accompanied by untrained preceptors. The preceptor-training programme focused on strategies that develop reasoning operations in students, thereby enabling them to assess a client, interpret the findings, make sound clinical judgements based on best available evidence, and reflect on their thinking operations. The ability to make sound clinical judgments equals competence in a specific context. It was anticipated that preceptors who had attended the training programme would be able to transfer their learning when they accompany students in clinical practice. Transfer of learning includes, but is not limited to developing the thinking and reasoning processes of student nurses.

3.2 Normative theory of the intervention

Normative theory underpins the design and implementation of the programme (Marchal *et al.*, 2012). The design of the preceptor-training programme embodies educational theories and principles of outcomes-based education (OBE), constructivism, constructive alignment, authenticity and scaffolding. Fig. 1 illustrates the interaction between the principles as applied in the intervention programme designed for this study.

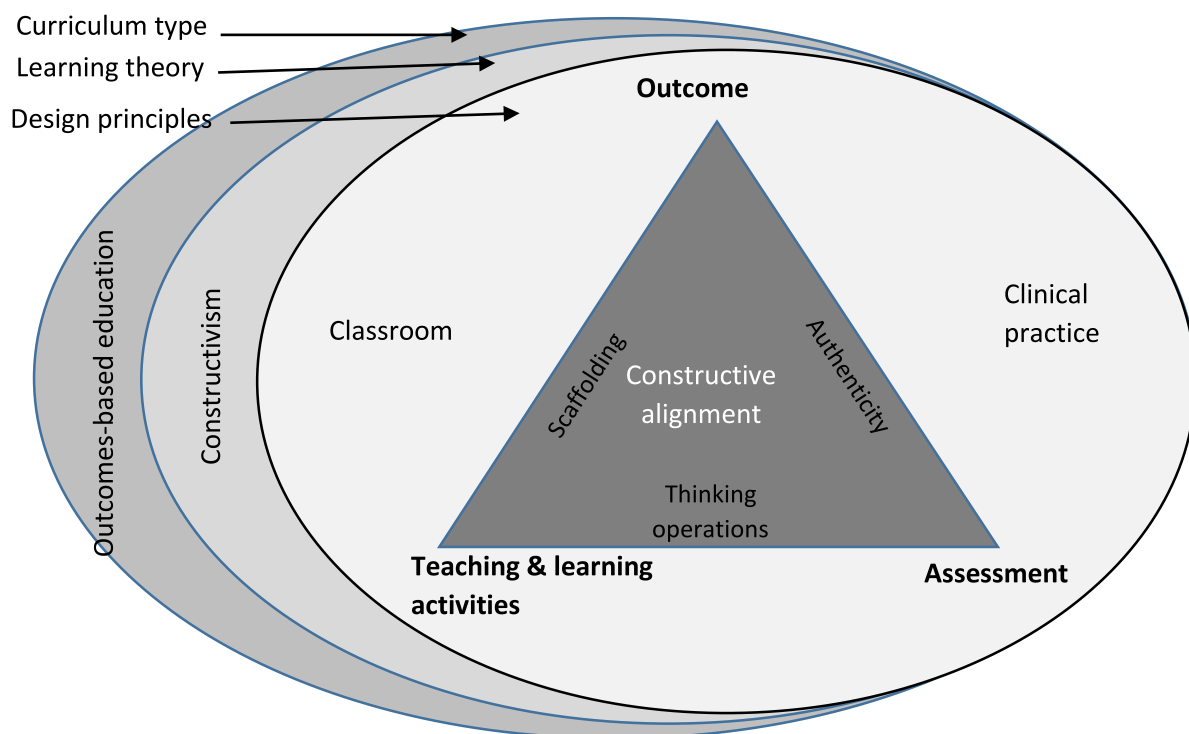

Fig 1. Framework of normative theories

The primary researcher presented the preceptor-training programme at a higher education nursing institution, which proclaimed that their graduate training programme was outcomes-based. The regulatory body in South Africa stipulates that curricula should be outcomes- or competency-based (South African Nursing Council [SANC], 2013a). OBE is an educational theory that bases the educational experience (teaching and learning activities, and assessment) where the student should achieve outcomes. One of the biggest components in OBE is constructivism (Jacobs, Vakalisa & Gawe, 2016). Chambers, Thiekötter and Chambers (2013) argue that constructivism provides

a philosophical framework where students can develop their cognitive and social competencies to meet the challenging and complex clinical environment.

Constructivism is a student-centred approach where students make meaning of an experience through active engagement with learning material and interaction with each other and the facilitator or preceptor. As illustrated in Fig. 1, it is pivotal that nurse educators align their teaching and learning activities with the outcomes and assessment tasks. Scaffolding teaching and learning activities avoids information overload and enables students to link new information with existing knowledge. Through active engagement with new information, students adapt their existing mind schemas to construct new knowledge (Chambers *et al.*, 2013). Furthermore, teaching and learning activities, as well as assessment tasks should reflect the real world. Well-designed teaching and learning activities facilitate the development and practicing of thinking operations, such as critical thinking, clinical reasoning and making sound clinical judgments (Dennick, 2016). Assessment should reflect evidence of the students' authentic skills. In conclusion, curricula with strong pedagogical principles should promote a strong foundation for learning (Botma, Brysiewicz, Chipps, Mthembu & Phillips, 2014).

The preceptor-training programme included among others, techniques to stimulate the thinking operations of students with the expectation that the students will become competent in clinical reasoning and clinical judgement. Therefore, an expected outcome was that students would become clinically competent. Paired trained fieldworkers used a reliable assessment instrument to measure individual students' competence during a standardised patient simulation experience (Piek & Botma, 2017). The researchers designed the simulation scenarios based on the outcomes provided by the NEI and piloted the simulation scenarios with students at the NEI with which they were associated. The use of real clinical cases for the development of the simulation scenarios enhanced authenticity. Despite efforts made by the researchers, outcomes still differed from the expected outcomes and stated hypotheses of the intervention study. Therefore, the causal theories need further exploration.

3.3 Causal theory

Causal theory describes the underlying mechanisms in terms of the relationship between the intervention and the outcome. The metaphor of an iceberg has been used to describe the reality of an intervention (Fletcher, 2017) and connects with the context mechanism outcome (CMO) configuration of a realist evaluation while capturing the causal mechanisms at play. The iceberg metaphor in Fig. 2 will guide the discussion while the CMO configuration will present findings through the transfer of learning model and framework for preceptorship.

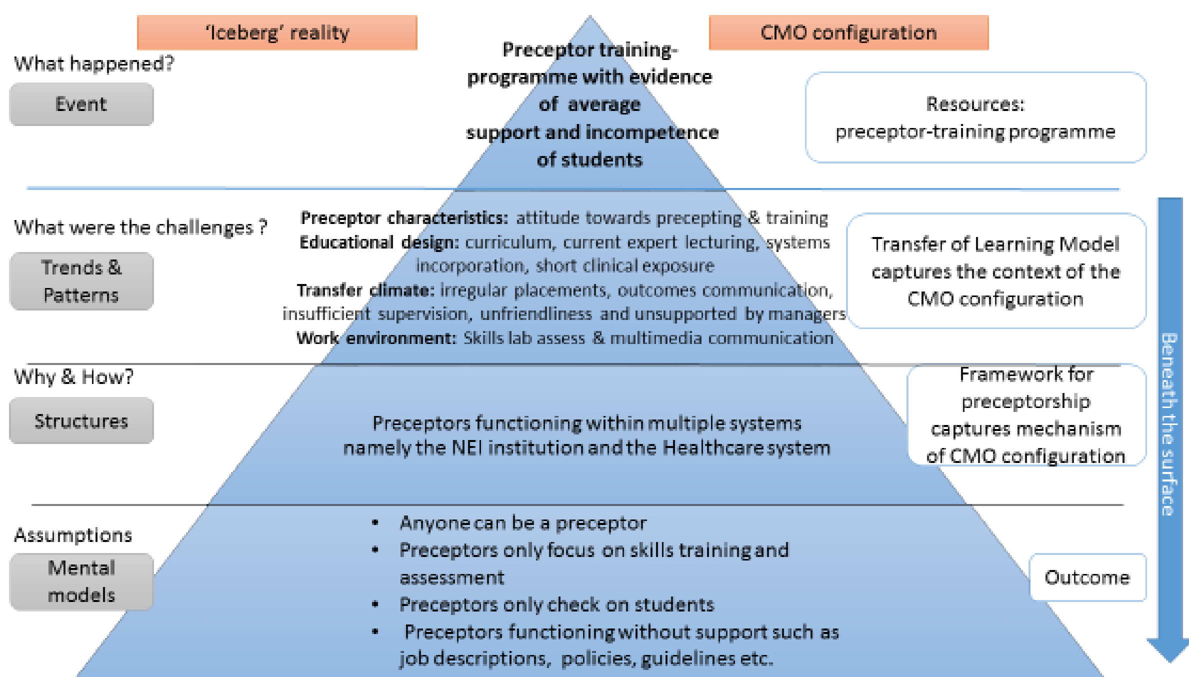

Fig 2. Iceberg metaphor explaining the causal mechanisms

3.3.1 The event

The tip of the iceberg represents the event that offers tangible evidence on what has happened during the intervention. Resources were the preceptor-training programme, students' competence and preceptor support. The researchers presented the preceptor-training programme at an NEI to determine the effect of trained preceptors on student support and competence. However, challenges experienced contributed to a poor outcome. In an attempt to explain the challenges, patterns and trends showed

critical issues in the context where the interventions were implemented, i.e. what happened beneath the surface.

In reality, programmes are designed for a specific context but implemented in a context with its own social systems and interactions that could change the expected outcomes (Pawson & Tilly, 2013). Context therefore is a pivotal aspect to describe and it reflects on the challenges experienced. The researcher was debriefed by her supervisor to highlight pertinent information that emerged from the implementation of the study. These debriefing sessions assist the researcher to code the obtained information. Reflective field notes were narratively categorised under the elements of the transfer of learning model as developed by Donovan and Darcy (2011) to describe the context and therefore the trends and patterns. Artefacts from the preceptor-training sessions were used to support reflective notes.

3.3.2 Trends and patterns identified

Context elements are the structures or factors external to the intervention that influence the outcome of the preceptor-training programme (Marchal *et al.*, 2012). The transfer of learning model (Donovan & Darcy, 2011), when applied to preceptors, captures their characteristics, the educational design of the training programme of the NEI, the preceptor-training programme, the transfer climate, and the working environment that influences their motivation and performance. Fig. 3 depicts the context findings in relation to preceptors' transfer of learning.

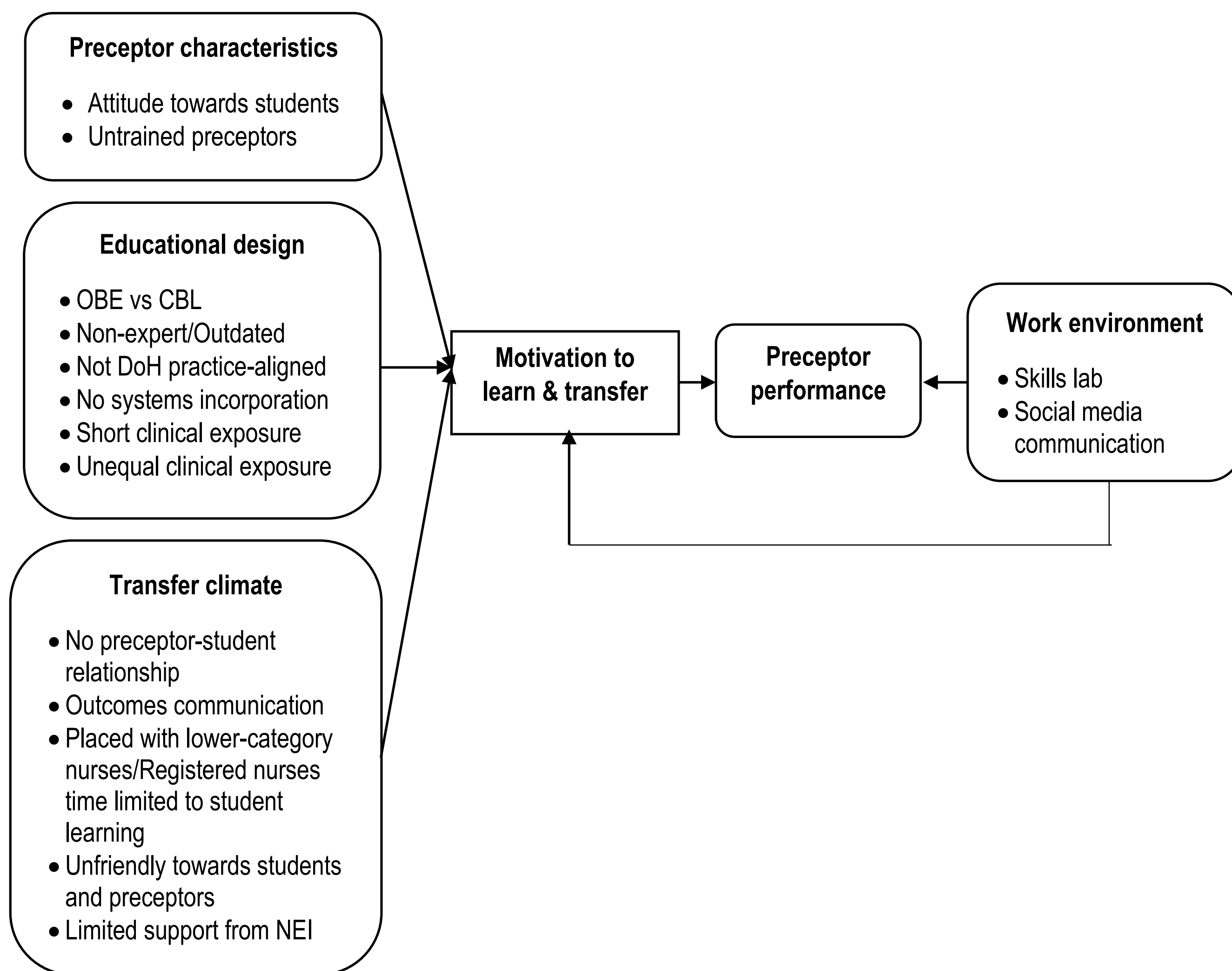

Fig 3. Transfer of learning (adapted from Donovan & Darcy, 2011)

Preceptor characteristics

Participant characteristics in the transfer of learning model, refer to the preceptor's ability, personality and motivation (Donovan & Darcy, 2011). Botma (2014) defines a preceptor as –

> [A] compassionate nurse expert who develops a one-to-one, time-limited relationship with a novice in a clinical setting, provides support, facilitates thinking operations, and assesses competence in order to promote metacognition and care that is based on the best available evidence.

Students had positive and negative views of the preceptors. Please note that all quotations below are presented verbatim and unedited.

> *Students said that they were only being 'policed' by preceptors. Preceptors would visit a facility to see if everyone was there and then leave without further instruction. On the other hand, individual preceptors were praised for their efforts and support that they received during their accompaniment.* [Reflective field notes]

NEIs should not solely take expertise of preceptors into consideration during appointment, but should also consider other characteristics (Jahangiri, McAndrew, Muzaffar & Mucciolo, 2013), such as compassion and showing commitment towards their students' learning. The nursing governing body specifies that nurse educators should be enthusiastic, caring and patient to motivate students' learning (SANC, 2014). Niederriter, Eyth and Thoman (2017) concur that passionate preceptors will create opportunities to spend time with students and facilitate their learning, which is highly valued by students. If nurse educators had these characteristics, would they not want to further their insight through continuous training to benefit students?

> *Although the NEI claimed to have a preceptorship programme without any formal training programme only six of 21 preceptors attended training as management declared voluntary attendance. None submitted the reflective assignment.* [Reflective field notes]

Referring back to Botma's (2014) definition of preceptors, the researchers would like to add 'trained' to the definition. It is pivotal for preceptors to develop skillsets that will empower them to support and promote competence in students. McSharry and Lathlean (2017) agree that preceptors need training to be effective in their precepting role. Various authors state that preceptors requested training and that the training itself improved preceptors' knowledge on clinical educational skills and self-confidence to translate their knowledge (Al-Hussami, Saleh, Darawad & Alramly, 2011; Clipper & Cherry, 2015; Hsu, Hsieh, Chiu & Chen, 2014; Lienert-Brown, Taylor, Withington & Lefebvre, 2018). It is of paramount importance that all preceptors of an NEI undergo

the same educational training to ensure uniformity and quality accompaniment of all students.

Educational design

Educational design refers to the link between the training programme activities and the actual performance required of the preceptors (Donovan & Darcy, 2011). Sound educational theories and principles underpinned the preceptor-training programme that aimed to equip preceptors with skills to support students and develop competence through theory-practice integration. However, various issues confounded the preceptors' roles and functioning, for example the enactment of the curriculum did not portray the type of curriculum that both institutions clamed to follow. These discrepancies affected both classroom and clinical practices. Classroom activities in turn influenced the preceptors' effectiveness in supporting students to apply their classroom knowledge in practice.

> *The review of curricula for simulation scenario development showed that outcomes did not describe an outcomes-based curriculum but rather content-based learning*. [Reflective field notes]

Content-based learning (CBL) is passive, textbook-focused, and lecture-centred. Studies describe CBL as ineffective, not developing skills needed to advance thinking operations, and therefore it does not address the needs of learners (Adejumo, Fakude & Linda, 2014; Botma & Bruce, 2017; Guglielmino, 2013). The integration of theory-practice requires the facilitation of students' ability to think critically, reason and judge clinically and use reflective thinking (Chan, 2013). Therefore, the preceptor-training programme was designed on a constructivist platform that promotes the development of thinking skills, which enable nurses to function in a complex and ever-changing clinical environment. Reality highlighted a misalignment between the curriculum, module content, clinical practice, and student clinical placements.

> *Students engaged in simulation on paediatric health revealed during the debriefing that they have not seen a Road to Health booklet. Every child under 5 years in South Africa has this booklet issued at birth. A non-expert in Integrated Management of Childhood Illnesses (IMCI[2]) presented the classes. On another occasion, students expressed frustration that lectures were presented by a specialist but that they felt the lecturer was outdated with what was current practice.* [Reflective field notes]

Personnel should be appropriate and qualified educators to increase the likelihood for successful implementation of a curriculum (Bruce & Daniels, 2017). However, these authors fail to mention that educators should be updated experts in their respective clinical fields, especially in the modules they present. The model for clinical nursing education and training stipulates that educators should work in their speciality area while employed by the NEI to sustain own professional development and competence (The Nursing Education Stakeholders group, 2012). Students expect correct and up-to-date information from their lecturers who should be experts (Van Dyk, Van Rensburg & Janse van Rensburg, 2016) including information regarding the national guidelines that are being implemented by the national and provincial departments of health. Students find it difficult to link theory and practice to fractional outdated theoretical information. Furthermore, students who had been exposed to 'incorrect' information and practices tend to remember the wrong actions (Botma *et al.*, 2014). Theoretical content should relate to real-life clinical experiences (Botma *et al.*, 2014), adhering to teaching principles of authenticity, to assist students in relating their knowledge to practice and helping the preceptors in supporting students to do so.

The shortage of nurses is no secret (Department of Health [DoH], 2012) and affects NEIs too. Although lecturers employed by NEIs are appropriately qualified, having a nursing education diploma and a clinical specialty qualification (SANC, 2013a), and experience in a specialty field, reality compels management to assign non-experts with outdated experience to facilitate students' classroom learning. This often-unavoidable situation may be harmful practice because Van Dyk *et al.* (2016) report that students

[2] *IMCI is the national standard treatment operation for all children under the age of 5 years in primary healthcare (see Department of Health, 2014).*

do not trust educators who are unskilled and outdated. It is difficult to rebuild a trust relationship once it has been broken. The lack of trust directly influences students' motivation to learn, as well as motivation to transfer their learning. Subsequently, their negative attitude (lack of motivation) becomes burdensome for preceptors in clinical practice.

> *Students labelled class as 'boring' and did not look forward to going to class. Student expressed that they do not want to go and work or specialised in that specific field because of the 'bad' experience in class.* [Reflective field notes]

Educators acknowledge the importance of the clinical learning environment, but seldom realise that students' experiences in theory classes affect their learning in clinical practice. Lienert-Brown *et al.* (2018) concur that students with a negative view or idea about a speciality area may prevent their transfer of learning and retention of systems taught.

> *Students could not conduct a full history taking. Students collected information haphazardly and forgot to obtain pertinent information. Different approaches in conducting an interview is taught over the four years, which never gives the students an opportunity to master the craft of history taking, therefore influencing competence.* [Reflective field notes]

A systematic approach to history taking that is enforced throughout the study years will assist students in mastering this critical skill. Meek (2015) reports that using a systematic and logic manner promotes the acquirement of new skills, techniques and approaches. Educators should try to teach uniform strategies that are easy to remember throughout the four-year programme to make it easier for students to acquire patient information that is needed to prove competence. Furthermore, reflective field notes showed that students who took part in the intervention complained about too short placements and unequal exposure in clinical practice.

There is no set rule on how long students should be placed in a specific speciality in order to get enough exposure to become competent. However, the regulatory body

prescribes a minimum of 4 000 clinical hours over the four-year training period (SANC, 1985). Educators should keep in mind that a short clinical experience influences competence. Students further mentioned that only some students had the opportunity to be placed at an 'ideal clinic' in primary healthcare clinics. The 'ideal clinic' should provide comprehensive and quality healthcare through the provision of adequate resources, infrastructure and supplies (Hunter, Chandran, Asmall, Tucker, Ravhengani & Mokgalagadi, 2017). NEIs in South Africa are required to increase their intake to counteract the current shortage of nurses (DoH, 2012). An increase in nurses requires a higher number of accredited facilities, specifically specialised areas, for work-integrated learning. Although there are several placement models, providing equal placement opportunities for all students remains problematic due to the student–placement ratio. Too short placements inhibit the development of a preceptor–student relationship and offers limited opportunities for students to become competent within that specific context.

Transfer climate

This section describes the transfer climate influence on a preceptors' performance.

As illustrated in the transfer of learning diagram (Fig. 3), the transfer climate entails the atmosphere in which a preceptor has to work together with the students and share their learning. Management linkage and training event climate affect preceptors' transfer of learning (Donovan & Darcy, 2011).

Preceptors confirmed that the placement duration of some students was too short. Although placements are considered an educational design element, it ripples down and affects the transfer climate. Too short placements and a lack of accompaniment hamper the preceptor–student relationship. McSharry and Lathlean (2017) state that, in their study, insufficient contact time with preceptors had a negative effect on students' learning. The authors assert that a good preceptor–student relationship serves as a foundation for promoting students' higher-order thinking abilities.

In addition to short placement periods, "preceptors and clinical staff were not clear on students' *outcomes*". [Reflective field notes]

Preceptors function within systems that entail different stakeholders. They need to function within these systems while supporting students. One of the types of support that preceptors provide is system support (Hugo, Botma & Raubenheimer, 2018). System support entails preceptors liaising with the NEI and the clinical facility, assisting in orientating the students, and sharing student outcomes as well as assisting students in reaching their learning outcomes during the placement. Outcomes that are not shared by NEIs hinder preceptors' effectiveness in communicating pertinent information to students and clinicians. Hanson, MacLeod and Schiller (2018) found that a lack of clarity on students' outcomes hinders the clinician-preceptor relationship. Preceptors who do not have a clear understanding of what students should achieve will not be able to contribute to students' learning.

> *Students expressed frustration being placed with lower category nurses, performing 'lower cognitive tasks' such as taking vital signs and when placed with professional nurses, they did not have time to facilitate students' learning.* [Reflective field notes]

Students are placed in clinical facilities as part of work-integrated learning (SANC, 1985). During this time, students are expected to become competent through the engagement with patient care activities (D'Souza, Karkada, Parahoo & Venkatesaperumal, 2015). The Council on Higher Education (CHE) (2013) states that students enrolled in a bachelor's degree programme requires a deeper dimension of learning and a higher cognitive demand than lower-category qualifications. Therefore, clinicians or preceptors who accompany students should have a qualification at the same level at a higher National Qualification Framework level than the enrolled qualification (CHE, 2013). Preceptors should link students with skilled clinicians to ensure continuity of their learning when preceptors are not there.

The South African governing body of nurses stipulates the facilitation of students' learning as part of a professional nurse's scope of practice (SANC, 2013b). However, a high patient load and acuity of patients spoil the nurses' ability to facilitate students' learning. This aspect confirms the importance of preceptorship. Preceptors employed by NEIs do not have a patient load, and students benefit from their undivided attention. Registered nurses are often impatient with preceptors and students due to the complexity of the clinical environment. Hence, registered nurses are perceived as unfriendly.

> *Unfriendliness of clinical staff and managers towards students and preceptors.* [Reflective field notes]

Literature (Chang *et al.*, 2015; Valizadeh, Borimnejad, Rahmani, Gholizadeh & Shahbazi, 2016) shows that preceptors and students often experience clinical staff as unfriendly and challenging. The unfavourable climate thwarts students' ability to transfer their learning and hampers preceptors from performing their supportive role. Photograph 1 (artefact from the preceptor-training programme) shows the preceptors' perception of managers, both in clinical practice and from the NEIs.

Photograph 1. Preceptors' perception on their role as leaders in students' learning

As depicted in Photograph 1, preceptors also verbally confirmed that, at the time of this research, they were not receiving support from their NEIs.

The model on clinical nursing education and training states that preceptors should be supported by their NEIs. They should have a space in the NEI with access to resources. It is the responsibility of the NEI to acknowledge the importance of preceptors and provide group supervision and training (The Nursing Education Stakeholders group, 2012). NEIs should offer preceptors the opportunity to advance their higher education qualification (The Nursing Education Stakeholders group, 2012). Policies and job description contracts should be in place when preceptors are appointed for them to be sufficient in their role. None of these aspects seemed to be in place during the time of the intervention implementation.

Work environment

The work environment entails the opportunity a preceptor has to use and practice what was learned (Donovan & Darcy, 2011). The physical working environment needs to be favourable for preceptors to be effective. The clinical model further stipulates that NEIs should involve structured clinical teaching in simulation laboratories (The Nursing Education Stakeholders group, 2012). Although preceptors participating in the current research did not have an office space at the NEI, they did have access to the skills laboratory. Here preceptors can assist students in developing psychometric skills needed to promote competence.

Emotional support entails the preceptors being approachable and available during their rotation (Hugo *et al.*, 2018). Social media as a communication platform can be used to foster a supportive professional preceptor-student relationship.

The context described outlined the challenges that preceptors face in transferring their learning. Despite all challenges mentioned, the researchers concluded that the curricular structures proved to be deficient. Critical reflection showed that the current type of curriculum does not: endorse critical thinking behaviour; link theory to DoH guidelines and practices; and align theory and practice. Descriptive results of the pre-test showed students' incompetence (Hugo & Botma, 2018). A preceptor-training

programme that aims to develop thinking operations of students, thereby promoting competence, cannot be implemented successfully in an existing social context that does not aim to do the same.

Explaining the challenges encountered in the context is not enough. Realism forces researchers to explore deeper by asking why and how, while exploring the structures involved and the interactions between them (Fletcher, 2017).

3.3.3 *Structures*

The explanation of the behaviour and interrelationships of structures and processes that are responsible for the change is known as the mechanism (Marchal *et al.*, 2012). The mechanism consists of resource(s) and reasoning, and needs to be discussed to explain an outcome.

The framework for preceptorship guided the reasoning of the mechanism. Botma, Hurter and Kotze (2013) describe the framework as a system within which the preceptor functions. Maps and models are often used to describe a theory, especially if theories are complex with many interrelationships (Davidoff *et al.*, 2015). Fig. 4 therefore illustrates the interrelationship between the different role players and their responsibilities towards students' learning, summarising the refined programme theory. The refined programme theory is illustrated and based on the framework for preceptorship (Botma et al., 2013).

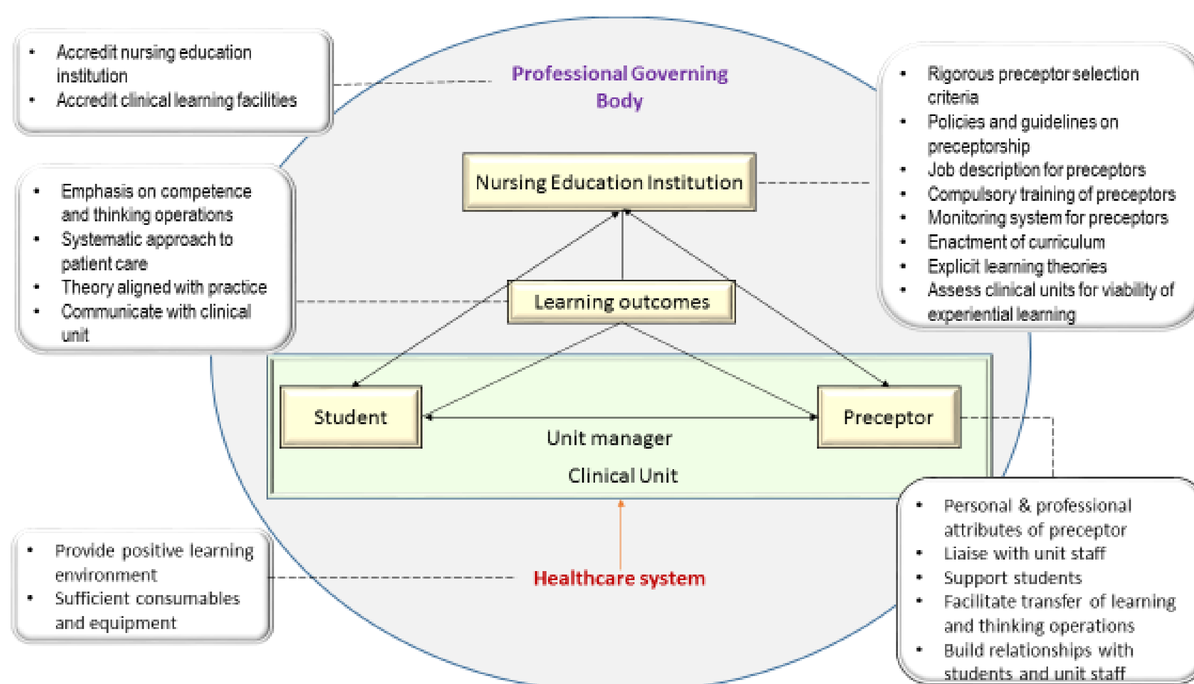

Fig 4. Refined programme theory for preceptorship

The SANC has the responsibility to accredit NEIs and to ensure that healthcare facilities that offer a positive learning environment with sufficient resources are accredited for students' work-integrated learning (SANC, 2013a). NEIs have a responsibility towards students to provide quality education so that they may become competent nurse practitioners. Educational designs need to be structured and aligned with practical components to promote competence. Curriculum and teaching and learning activities need to be structured to promote systematic approaches in patient care while developing thinking operations. NEIs should employ passionate and qualified preceptors as an innovative and valuable strategy to develop a vibrant healthcare workforce.

Furthermore, NEIs should acknowledge preceptors as respected stakeholders within nursing education. A supportive transfer climate needs to be created by providing structure through policies, training, timely meetings and availability of information and resources to function optimally. In return, preceptors' characteristics should demonstrate commitment and support to students' learning while communicating pertinent information between NEIs and clinical facilities.

The reality of the intervention led to the questioning of the commitment by NEI managements towards implementing preceptorship, as only six undergraduate preceptors attended the preceptor-training. The marginal voluntary attendance of preceptors, which included full-time educators, calls the educators' attitude and knowledge on the value of preceptorship into question. Preceptors perceived an unfriendly attitude from their NEI management as illustrated in Photograph 1, which creates an unfavourable transfer climate, which may demotivate preceptors to function effectively and transfer their learning to students.

3.3.4 Mental models

Reflecting on the findings, the researchers are of the opinion that there are certain mental models or assumptions around preceptorship that need to be addressed. These assumptions are that:

- any nurse can be a preceptor;
- preceptors only focus on psychomotor skills training and assessment;
- they only have to 'police' students; and
- preceptors function on their own without support from the systems within which they function.

Approaching preceptorship with these assumptions will provide poor accompaniment of students as shown in the intervention reported on in this article. Although students perceive some degree of support, results show that students are incompetent (Hugo & Botma, 2018). Insufficient training of preceptors and a demotivation to transfer their learning may contribute to the outcome of the intervention.

4. Conclusion

NEIs, policymakers and educators should look at preceptorship through a systems approach lens, as preceptors are actually functioning within two existing systems, namely the educational and healthcare systems. From the current investigation, it is clear that NEI managements have an important role to play in the success of a preceptor programme. The researchers were able to refine the preceptor programme

theory through the RE and were able to answer the questions posed by Pawson and Tilley (2013, p.413), namely “what works for whom, in what context, in what respects, and how or why not”;

- *What works?* – literature provides evidence that preceptor-training has a positive outcome (Chang *et al.*, 2015; Cotter & Dienemann, 2016; Kang, Chiu, Lin & Chang, 2016). Preceptor-training remains a crucial need and aspect in a preceptor programme.
- *For whom?* – preceptors should be experts in their field and be committed and passionate about students’ learning. NEIs should show value and support of preceptorship as an innovative strategy. Their preceptor-employment policies should contain a rigorous preceptor-selection criterion, focusing on both professional and personal characteristics.
- *In what context?* – a preceptor-training programme that focuses on the development of students’ competence should be presented in the curriculum of an NEI, which should also focus on theory-practice integration and students’ thinking operations. As was evident from the findings, the context is of paramount importance as it affects the preceptors’ performance.
- *In what respect?* – to ensure optimal functioning of preceptors, NEIs should have policies, guidelines, monitoring systems and job descriptions available.
- How? – preceptors can only function optimally if they become part of an NEI educational system within which preceptors can function as an entity.
- Why not? – the researchers are of the opinion that without the aspects as mentioned, preceptorship will not reach its full potential as an innovative educational strategy and will not contribute to students’ competence and the future nursing workforce.

This article therefore presents a refined programme theory as illustrated in Fig. 4, to be implemented by NEIs and tested for further refinement.

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CHAPTER 5
Conclusion, limitations and recommendations

5.1 Introduction

Preceptorship is an innovative strategy to prepare students as the future nursing workforce. The Nursing Education Stakeholder Group of South Africa (2012) proposed a clinical nursing education and training model that recommends preceptors as a role-player in nursing education. The model states that NEIs should employ preceptors to accompany Bachelor's degree nursing students during their 4000 hours' work-integrated learning (WIL) (SANC, 1985; The Nursing Summit Organising Committee and the Ministerial Task Team, 2012). Furthermore, the model stipulates that preceptors should be nurse experts with both professional and personal characteristics that are positive towards students' learning. Preceptors should receive training, including continued professional development, from their NEIs and have a space allocated at the NEI where they can access information, which includes online resources. NEIs should also provide preceptors with educational and career opportunities.

The notion behind preceptorship is to support students in the clinical facilities to transfer their classroom learning to practice and to guide them in developing thinking operations that focus on critical thinking, clinical reasoning, clinical judgement and metacognitive abilities that will promote competence. Their role is not to 'police' students, focusing on developing only psychomotor skills and skills assessment. In order to develop professional capabilities, students require system, cognitive and emotional support from their preceptors. Therefore, preceptors need to be trained to acquire the necessary skill set to be confident and effective in providing students with the necessary support to develop competence.

Although there is a definite need for contextualised preceptor-training programmes there is only one preceptor-training programme other than the one developed through this research. Furthermore, it does not follow the clinical model as proposed by the Nursing Education Stakeholders Group (2012). However, it is not enough only to develop a programme, as the validity and feasibility of the programme needs to be determined.

5.2 Overview of the study

The researcher first developed an intervention study with a randomised control group and conducted pre- and post-tests. The developed preceptor-training programme was the independent variable, and the support offered by preceptors and the competence of students were the dependent variables. The researcher hypothesised that students who were accompanied by a trained preceptor would be better supported and be more competent than those accompanied by an untrained preceptor. Although the researcher could not accept or reject the hypothesis at the end of the study, several pivotal influences were identified and highlighted on preceptorship. Chapter 1 gave the reader an overview on the study.

In Chapter two, the researcher developed the preceptor-training programme for NEIs that employ preceptors, but had not trained them. The NEI had to offer a 4-year bachelor's programme and follow an outcomes-based curriculum that focuses on the development of students' competence.

A multimethod process was followed to generate topics for the training programme. The methods comprised two nominal groups from previous research, literature overview, informal discussions with preceptors and the Delphi technique. Twelve experts validated and reached consensus on the training topics via the Delphi technique. Consensus was determined at a 70% agreement rate.

The training programme was piloted as an intervention study as described in chapter three. The researcher randomly sampled two NEIs that avowed that they offer an

outcomes-based Bachelor of Nursing programme. The first sampled NEI was the experimental site. Although twenty-one preceptors were employed at the experimental site, only six voluntary attended the preceptor-training programme. Census sampling of second- and third-year students at both NEIs comprised 346 students.

Students' competence and support were measured through valid and reliable instruments. Paired trained fieldworkers from both groups assessed students' competence during the pre- and post-test. All students completed the self-administered support questionnaire during the pre-test, after each clinical rotation and the post-test.

The researcher compiled reflective field notes and reflective notes during debriefing of the students and fieldworkers. In light of the information gained, the researcher then decided to conduct a realist evaluation to explore the mechanisms that resulted in the outcomes. Subsequently the anticipated title and the proposed research design changed.

The realist evaluation captured the 'reality' in which the programme was implemented and revealed that the social context played a significant role in the outcome of the quantitative part of the study in Chapter 4. The context revealed that there were different aspects that influenced the preceptors' motivation to transfer their learning and performance. The researcher was able to link these contextual influences to each of the elements of the transfer of learning model.

5.3 Conclusions

Several factual and conceptual conclusions were drawn based on the findings of the realist evaluation.

5.3.1 Factual conclusions

Factual conclusions are discussed by describing facts that derived from the investigation.

Seven programme-outcomes were formulated, based on the included topics generated through a multimethod process (Chapter 2). The formulated outcomes and topics were validated by means of a Delphi technique. The exit level outcomes for the preceptor-training programme are that the preceptor must be able to:

- Debate the significance of preceptors in the higher education milieu
- Demonstrate the attributes expected of preceptors
- Identify and rectify the elements of the transfer of learning model that influence the students' performance
- Appropriately support students in the clinical practice to enhance their optimal performance
- Apply research findings in clinical practice
- Assess students according to the policies and guidelines of the NEI
- Function within the system of the NEI as well as that of the health service provider

O'Neill's (2015) process of programme design were used to develop the training programme. Sound educational theories and principles such as constructivism, scaffolding, constructive alignment and authenticity underpin the programme (Chapter 2). The teaching and learning activities were designed to be active and practical in order to engage preceptors in the three-day workshop (Addendum B).

Although census sampling allowed twenty-one preceptors employed at the experimental site to participate in the study, only six attended the preceptor-training programme. Chapter 3 (article 2) furthermore describe the high attrition rate by the 346 second- and third-year students from both NEIs. The poor participation rate and high attrition rate lead to the inability to do inferential statistics.

Descriptive data that were described in Chapter 3 showed that students experienced support from preceptors, but were found to be incompetent during competence assessment.

Information gained during the debriefing of all student groups and fieldworkers alerted the researcher to the contextual reality and social interactions that influenced the outcome of the intervention which gave Chapter 4 (third article) its value.

5.3.2 Conceptual conclusions

Preceptors' professional and personal characteristics were questioned as six out of 21 preceptors employed by the NEI voluntary attended the preceptor-training programme. Chapter 4 describes the importance of preceptors' attitude towards students' learning.

Reflecting back on the transfer of learning model (Chapter 1), the educational design (enacted curriculum) is pivotal in students' performances. Chapter 4 describes how the researcher found that a content-based curriculum was followed, which did not promote the development of thinking operations. Information was either dated or lecturers were non-experts in the topic they taught. A theory-practice divide was evident because the lecturers did not incorporate national guidelines in the theoretical sessions. This theory-practice gap burdened the preceptors' functioning. Subsequently, students were unable to demonstrate a systematic approach to history taking and care planning, resulting in poor performance of students (Chapter 3).

The transfer climate is labelled as an important aspect in the transfer of learning model (Chapter 1). The researcher identified that too short and irregular placements (Chapter 4) prevent preceptors from forming a healthy preceptor-student relationship, resulting in a poor transfer climate.

The researcher describes system support as a type of support needed to effectively accompany students (Chapter 2). The researcher found during the course of the study that NEIs did not communicate pertinent information on students' outcomes to preceptors and clinical staff. Students were insufficiently supervision while in the clinical facilities. Preceptors experienced unfriendliness and a lack of support from managers at the NEIs. On this point the researcher realised that NEIs need to play a bigger role to ensure the success of a preceptor programme. The researcher did however notice (Chapter 4) that attempts are made by NEIs as they do assist

preceptors to access skills laboratories and multimedia communication. This study highlighted the ineffectiveness of the current NEIs and that the students who participated in the study were incompetent in clinical decision making on content already taught.

It was concluded that a preceptor-training programme alone does not ensure that preceptors will support students and guide their thinking operations to become competent nurses. The complex social contexts highlighted a systems approach seeing that the preceptor functions in a dual system namely the educational and the healthcare system (Chapter 4). Figure 5.1. illustrates the refined programme theory based on the framework from Botma, Hunter et al., (2013).

Clearly, preceptors function in a complex system and therefore need clear guidance on their role and responsibilities in the form of policies, guidelines, job descriptions, and also meetings as a platform to discuss issues and ongoing training (Chapter 4). NEIs play a pivotal role in the success of preceptorship and therefore the promotion of a competent nursing workforce

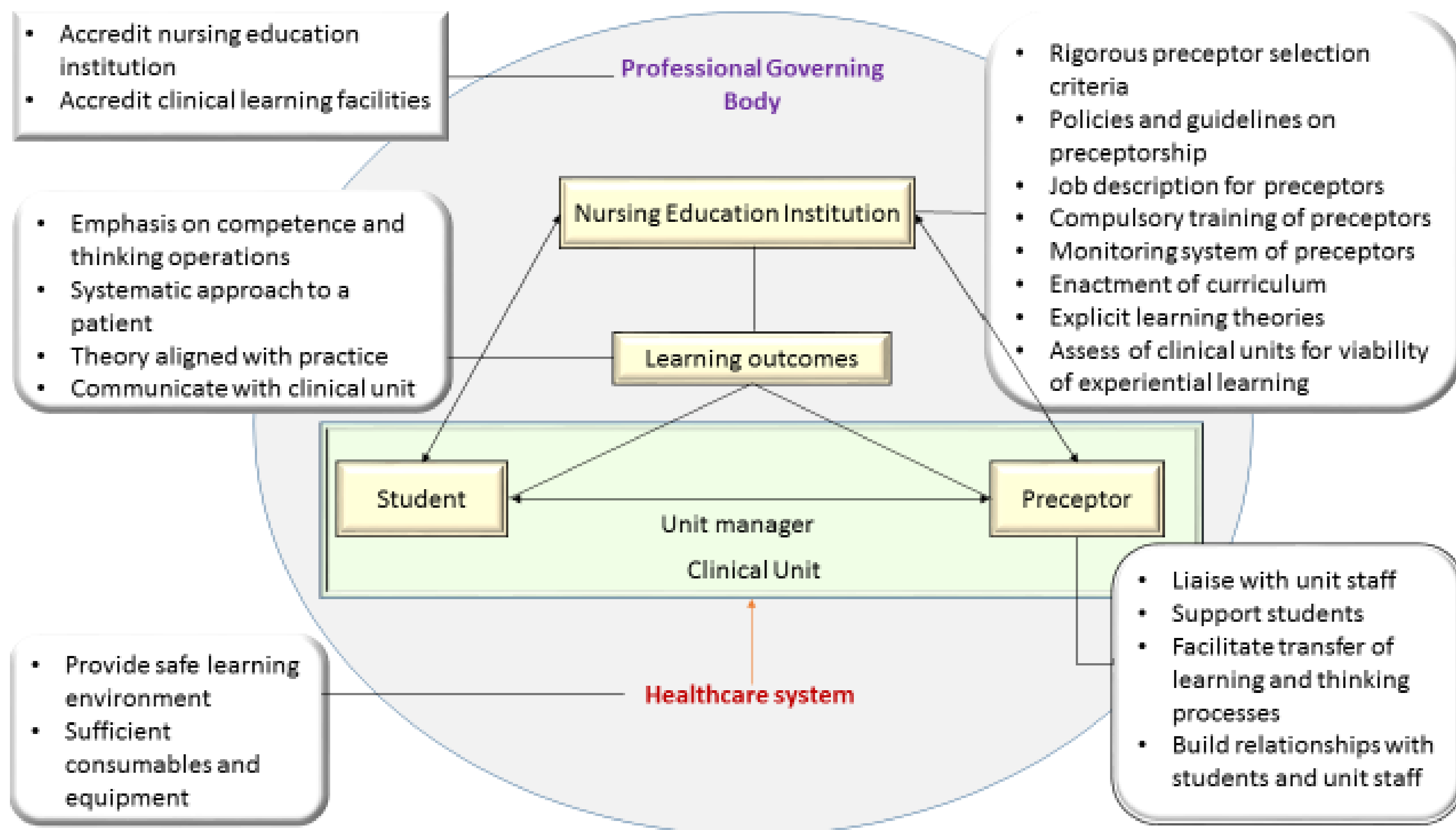

FIGURE 5.1: Refined programme theory for preceptorship[3]

[3] Figure 5.1 also appears in Article 3 as the refined programme theory of the project and the article is a separate publishable entity.

5.4 Answering the research question

In Chapter 1 the researcher asked the following question: "What is the feasibility and transferability of a university based contextualised preceptor-training programme as developed by the researcher? "

The refined programme theory in Chapter 4 highlights the essential elements for the feasibility and transferability that should be in place for a preceptor programme. In future, the research question for the pilot study may be answered through the meticulous application and implementation of the refined programme theory for preceptorship.

5.5 Value of the study

The Department of Health may benefit from well-trained preceptors who will contribute positively to the competence of newly qualified registered nurses. Preceptors may contribute to a conducive transfer climate because they could reduce the teaching load of clinical nurses. Preceptors, as the link between the education and healthcare systems, are invaluable in closing the theory-practice gap and promoting communication between the two systems.

The South African Nursing Council may consider using the refined preceptor systems model as accreditation criteria for programmes and NEIs.

Nursing education institutions can use the findings of the study to implement or strengthen preceptor programmes. NEIs that follow an outcome or competency-based curriculum may benefit from the developed preceptor-training programme. NEIs have the responsibility to support preceptors through relevant policies, procedures, job descriptions and debriefing and/or training meetings.

The preceptor-training programme may provide preceptors with the necessary skills set to accompany their students. Preceptors who received training may be more confident, feel more supported, and function effectively in an environment where NEIs

have a positive attitude towards them and where there is a place created for them within the NEIs system.

The presence of preceptors in the clinical environment may create a transfer climate where students are eager to engage in patient care in order to transfer their learning and become competent healthcare professionals. It is believed that students will become more confident and competent, and subsequently contribute to the quality of patient care.

5.6 Recommendations to stakeholders

The stakeholders in this study were the DoH, SANC, NEIs and preceptors. Students will benefit through the implementation of the recommendations as proposed by this study.

5.6.1 Department of Health

Highly qualified staff should support and facilitate students' learning because higher qualifications and competence improve patient care outcomes. Only staff with a qualification equal to or higher than the programme the student is studying should supervise or accompany the student. An underqualified nurse will not be able to facilitate the reasoning processes and meet the learning needs of the students.

The DoH should provide a safe healthcare environment, inclusive of basic infection control measures, functional equipment, and essential consumables. Healthcare facilities where basic resources are non-existent hinder learning and demotivate students and healthcare professionals from optimal performance.

5.6.2 Regulatory body

SANC should oversee implementation and adherence to regulations and true enactment of the accredited programme. This can be done by regular visits to NEIs and scrutinize of micro-curriculum to determine if theory, practical classes and placements are aligned to form a unity.

5.6.3 Nursing education institutions

According to the clinical nursing model, the preceptors are appointed by the NEIs. Therefore, the NEI has the primary responsibility towards the preceptors. Although students at higher education institutions acquire WIL in healthcare services, they remain the responsibility of the NEI. These institutions have the responsibility to execute the guidelines as stipulated in the clinical learning model, namely that preceptors should be clinical experts. Hence, preceptors must be appointed according to rigorous selection criteria based on both professional and personal attributes.

A supportive environment should be provided for preceptors with policies and procedures in place. Regular meetings should be held for preceptors to voice concerns, challenges and suggestions. NEIs should equip preceptors with the necessary skills set to guide students in attaining their clinical learning outcomes and to provide continuous professional development opportunities. A mentor programme will provide additional support for the preceptor. Preceptors are accountable to the NEI and should submit monthly reports on the progress of students they had accompanied during that month.

The NEIs should align their curricula with SANC regulations and ensure that the implementation portrays the characteristics of the type of curriculum approved by the SANC.

The micro-curriculum should align the theoretical as well as clinical learning outcomes with the teaching and learning activities and the assessment tasks. Clinical

placements should be aligned with the theoretical content in order to enhance transfer of learning. A single systematic approach to patient assessment and planning of healthcare or problem solving should be applied throughout the programme.

5.6.4 Preceptors

Preceptors work in a complex environment because they are accountable to the NEI and guide students in rendering nursing care to patients according to the standards and policies of the healthcare service provider. In addition to the aforementioned, they are responsible to oversee the students in clinical practice and to ensure that the students meet their clinical learning outcomes. Therefore, it is important that preceptors should have a description on their roles and responsibilities towards the NEI. They should furthermore have access to guidelines and policies applicable to their role fulfilment.

Accompaniment of students is about the transfer of classroom learning to practice, hence the emphasis on developing students' thinking operations and not just the assessment and monitoring of students. In order to promote the transfer of learning and thinking operations the clinical expert preceptor should be up to date with the latest developments and best practice guidelines in his/her field of specialisation.

5.7 Limitations of the study

As with every study, the researcher encountered several limitations and challenges that need to be highlighted.

The developed preceptor-training programme was specifically designed for a South African context where registered nurses are autonomous practitioners and often the sole healthcare provider in primary healthcare facilities. Other countries may not benefit from this programme as their context and scope of practice for registered nurses could vary.

The preceptor-training programme was designed for an outcome or competency-based curriculum and may not work for more traditional curricula that do not focus on the development of students' thinking operations through active engagement.

NEIs' historical background was not taken into consideration as it could have affected the teaching and learning and types of students enrolled in at a particular NEI, consequently influencing the outcome of the study.

The fact that one NEIs students were less exposed to SPs may have influenced the results of the competence data. A different NEI could have been selected as the experimental group where all students were exposed and therefore more comfortable with SPs.

Enactment of the curricula at both NEIs portrayed content-based curriculum instead of the proclaimed outcomes-based curricula. The researcher relied on oral negotiations and agreements with NEIs that influenced the collaboration of stakeholders and contributed to measurement errors.

The fact that student participation in a valuable simulated clinical learning experience was voluntary, influenced the attrition rate of students. Attendance of valuable learning experiences, especially clinical learning experiences, is usually compulsory but participation in the research component is voluntary.

Data in the support questionnaire could have been influenced by students who may have rated the preferred preceptors with "well liked" personalities higher overall than the less popular preceptors, and not individually per item.

Despite the researcher's request for field workers not to discuss students' performance during the simulation, it is possible that preceptors could have discussed performances without the researcher's knowledge, therefore influencing scores of students.

With regard to the data coding, the researcher noticed that many students did not indicate the preceptor's name on the support questionnaire, which made the tracking of preceptors difficult. Patterns in the way the respondents answered and missing data were apparent regarding the support questionnaire. Field workers who left some items of the competence instrument unmarked likewise contributed to missing data. Despite efforts to maximise full completion responses, measurement of both dependent variables were compromised.

Although standardised patients (SPs) were trained with regard to the clinical manifestation of the condition being simulated and their standard responses to questions that the students were most likely to ask, the SPs sometimes deviated from these responses. The researcher had to address individual SPs who improvised or gave incorrect information to students. Field workers were not to penalise students but to follow students' reasoning based on the information received.

Anxiety or stress could have altered students' performance and could therefore influence data, due to the presence of two field workers assessing the students.

Both NEIs had clinical laboratories areas where simulations could be conducted. It came to the researcher's attention that the control group optimised SP sessions as a learning opportunity in comparison to the experimental group. This fact could influence data as students from the control group could be more comfortable engaging with the SP as compared to the students from the experimental group with limited to no experience with SPs.

Competency scores could have been influenced by maturation as students progressed through the year and gained a deeper theoretical underpinning and clinical exposure.

Having presented the three-day course, the researcher accompanied the undergraduate preceptors for a maximum of two hours per preceptor. Allocating more time for accompaniment would be beneficial.

The transfer of learning inventory questionnaire should have been completed by the preceptors to estimate the transfer of learning that had taken placed after their training.

Unfortunately, none of the preceptors submitted the assessment assignment that was to be a reflective report of their one-month period of accompaniment of a student. This could have given the researcher an indication if learning took place. In reflection the researcher could have done more to ensure completion of the reflection report by reminding preceptor of the importance of the reflection report and sending out frequent reminders directly to the preceptors.

5.8 Recommendations for future research

The measurement instrument that were used in this study, namely the competence assessment instrument and the preceptor support questionnaire need to be further validated by means of exploratory and confirmatory factor analyses respectively.

Complementary measures should be developed for both dependent variables in order to minimise measurement errors.

The mid-range theory that derived from the realist evaluation should be tested and refined.

The randomised control trial with pre- and post-test design could be replicated in a NEI that follows an outcome or competency-based curriculum and complies with refined programme theory for preceptorship.

Preceptors' transfer of learning should be evaluated after training with the transfer of learning system inventory instrument, or an analysis of the comprehensive reflection report of their accompaniment of a student for one month.

A survey of the stance of preceptors at NEIs may provide valuable insights.

5.9 Conclusion

The researcher set out with a quest to determine if a preceptor-training programme do improve students' support and competence. Instead the researcher realised that a systems approach is needed for preceptorship to be effective as concluded. This study offers two contributions to the field of knowledge; 1) a preceptor-training programme that focuses on the facilitation of students' thinking skills, and 2) a refined programme theory on preceptorship.

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ADDENDUM A1

Informed consent for participation in the Delphi research

Dear Colleague

My name is Lizemari Hugo and I am a lecturer at the School of Nursing at the University of the Free State. I am busy with my PhD degree and in need of your assistance in the evaluation of the content of the preceptor-training programme that I have developed for a South African context. The purpose of the programme is to enable preceptors to support students' learning in the clinical facilities.

Part of the development of the preceptor-training programme is to assemble a panel of experts on clinical nursing education, including preceptorship and student support to evaluate the relevance of the content of the preceptorship programme.

I am using a consensus Delphi technique where a panel of experts have to reach consensus through multiple rounds on the relevance of the content that is included in the training programme. I would like to achieve ≥70% agreement on the content. Each round (starting with round one) of questions will be analysed and summarized and return of further expert responses.

I would like to invite you to participate in this part of my research project. It will take you less than 10 minutes to complete the form. I shall consolidate the responses and circulate the form again until we reach consensus.

Please read through the informed consent form attached in this email.

Will you be so kind to indicate by 11th of March 2017 if you will be able to participate in this process?

Thank you in advance for your participation.

Friendly regards,

Lizemari Hugo

Email: hugoL1@ufs.ac.za

INFORMED CONSENT FOR PARTICIPATION IN THE DELPHI PROCESS

RESEARCH TITLE: the influence of a training programme for undergraduate nursing preceptors on competence, support and transfer of learning.

Dear Colleague

I would like to invite you to contribute to the preceptor-training programme that I have developed as part of my PhD degree. The programme deals with the important components of preceptorship that is needed to effectively accompany students in a South African context. The purpose of the programme is to train preceptors so that they can effectively support students in the clinical facilities to become competent nursing practitioners that can make a valuable contribute to the South African workforce.

You will become part of a Delphi review panel if you consent to participate in the study. It will take you approximately 10 minutes to complete the questionnaire. A minimum of two rounds are foreseen but it may take more rounds to achieve 70% consensus on the content of the preceptor-training programme. I do not foresee any risks, except for the time that it will take you to participate in the evaluation process. Consenting to participate in the research implies that you commit to participate in all the rounds and that you will keep to the agreed on feedback dates.

The feedback document should be completed electronically provided. Indicate next to each component if it should be included, or excluded in the programme. If you are of opinion that a specific component should be excluded from the programme, please provide a reason why this component should be omitted in the space provided in the last column. There is an additional section for suggestions for content/themes to be included in the programme.

Anonymity will be maintained as the online, system de-personalise responses.

Participation is voluntary and you may withdraw at any time without any retribution. The benefit of participating in this research is that you are contributing to the training of preceptors and therefore the training of nursing students. Kindly note that there are no costs involved during this process and that there will be no remuneration for participating in this Delphi research survey. The research results will be disseminated in journal articles and conference proceedings.

Ethics approval was granted by the Health Sciences Research Ethics Committee (ECUFS NR 134/2013B) of the University of the Free State. You are also welcome to contact the Research Division at 051 401 7794 or my supervisor, Prof Yvonne Botma at 051 401 3476 (botmay@ufs.ac.za)

By completing the online feedback form, you are agreeing that you understand the terms and conditions of the research and you are giving consent to participate in this research.

Thank you for your willingness, it is greatly appreciated.

Yours sincerely

Lizemari Hugo

Email: hugoL1@ufs.ac.za
Cell phone: (+27) 82 781 2699

ADDENDUM A2

Feedback form for preceptor-training programme

Dear Colleague

Please indicate if you are of opinion that the listed content should be included or excluded from the preceptor-training programme. If you should choose to exclude one or more of the components from the programme, please supply a reason for excluding the component. An additional area is provided if you would like to add additional components to be included in the programme.

Round	No	Component included in the preceptor-training programme	Include definitely	Maybe include	Exclude from programme	Reason for excluding from programme
1	1	Significance of preceptors related to development of human resources for health **(in line with the global strategy on human resources for health: Workforce 2030)**				
	2	Significance of preceptors in preparing competent nurse in **a South African context**				
	3	**Concept clarifications:**				
	3.1	• Preceptors				
	3.2	• Supervisors				
	3.3	• Competence				
	3.4	• Evidence-based practice				
	3.5	• Self-directed learning				
	3.6	• Person/people-centredness				
	4	**Attributes** of good preceptors and those of a good student				
	5	**Ethics** in preceptorship				
	6	**Transfer of learning: Student motivation to learn:**				
	6.1	• Other (please specify)				
	7	**Transfer of learning: Student characteristics:**				
	7.1	• Learning styles				
	7.2	• Other (please specify)				

	8	**Transfer of learning: Design factors:**				
	8.1	• Constructivism				
	8.2	• Other (please specify)				
	9	**Transfer of learning: Transfer climate:**				
	9.1	• Positive learning environment				
	9.2	• Other (please specify)				
	10	**Transfer of learning: Physical environment:**				
	10.1	• Reality				
	10.2	• Challenges				
	10.3	• Possible solutions				
	10.4	• Positive learning environment				
	10.5	• Other (please specify)				
	11	**Facilitating thinking operations in nursing students:**				
	11.1	• Critical thinking				
	11.2	• Clinical reasoning				
	11.3	• Clinical judgement				
	11.4	• Metacognition (reflexivity)				
	12	**Role players** and their responsibilities				
	13	**Types of support** (system, cognitive and emotional) offered to students				
	14	**Communication tools to enhance people centeredness**				
	14.1	• Health dialogue				
	14.2	• ISBAR				
	14.3	• ICF				
	14.4	• Other (please specify)				

	15	**Facilitation techniques:**				
	15.1	• Mind mapping				
	15.2	• Thinking aloud				
	15.3	• Five-minute preceptor technique				
	15.4	• Role Modelling				
	15.5	• Debriefing				
	15.6	• Case presentation (SNAPPS)				
	15.7	• Feedback				
	15.8	• Reflection				
	15.9	• Other (please specify)				
	16	**Self-directed learning:**				
	16.1	• Process				
	16.2	• The role of the preceptor				
	16.3	• Other (please specify)				
	17	**Evidence-based practices:**				
	17.1	• Find sources				
	17.2	• Appraise best practice guidelines according to WHO AGREE II tool				
	17.3	• Knowledge translation				
	17.4	• Other (please specify)				
	18	**Assessment:**				
	18.1	• Reliability and validity of assessment				
	18.2	• Types of assessment instruments				
	18.3	• Fairness and feasibility				
	18.4	• Formative and summative assessment				

Suggestions for additional components/content to be included in the preceptor-training programme

ADDENDUM B

Developed preceptor-training programme

Preceptor Programme 2017

Y Botma & L Hugo
School of Nursing

Table of content

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Module Guide

“We learn more by looking for the answer to a question and not finding it than we do from learning the answer itself.”

Lloyd Alexander

Welcome note

Dear Colleague

Welcome to this three-day short learning programme (SLP) on preceptorship. On completion of this SLP you will be able to facilitate learning with our junior colleagues (nursing students) by looking for answers. In the process of searching for answers, a nurturing relationship will be created where learning can occur optimally. Barrows (1997) as cited by Dickson, Walker and Bourgeois (2006: 417) defines facilitation as "…*a goal oriented dynamic process in which participants work together in an atmosphere of mutual respect, in order to learn through critical reflection*". In order to become a competent facilitator, you will develop your own perception of the tasks and roles of a clinical preceptor. As a group you will devise and implement strategies on how to form and maintain partnerships and collaboration with various stakeholders. The significance of reflection in-action and on-action will become clear and you will become competent in facilitating this critical learning strategy for your colleagues.

However, students should be able to demonstrate what they have learned and how they can apply their knowledge in practice. Therefore, relevant, fair and valid assessment should occur to verify that the student is competent in caring for their patients and that they have met the outcomes as formulated in their programmes. This short learning programme will thus conclude with a section on clinical assessment that will prepare you to perform integrated valid assessments that are aligned with the students' module outcomes.

A competent person renders the best possible care that is informed by the best available evidence. It is thus your responsibility as a preceptor to support students in finding the best available evidence to incorporate into their care for the patient.

Format of the module

Table 1 depicts the outcomes of this three-day short learning programme. The module is based on the principles of constructivism and adult learning theories. Consequently, it is expected that you will generate your own knowledge through active engagement with the learning material and dialogue with your colleagues. The recommended reading material will be discussed and skills will be practiced. No lectures will be delivered.

You will gain the most if you come to class well prepared -- meaning that you had read the recommended articles and completed the activities prior to the contact session. You will find the reading material that you need to become familiar with, prior to each contact session, in the reading lists and presented in the reader. Please note that some of the articles in the reading list may be relevant to more than one activity.

It will serve you well if you summarise the answers to the activities beforehand in preparation for the discussion in class. Bring along a memory stick to class because group work will take place that will require the group to give feedback to one another.

No tests or examinations will be written. However, you have to complete the individual assignment to demonstrate your competency in facilitating students in clinical practice. You will write a reflective case study that demonstrates your understanding of the complex, dynamic process of clinical preceptorship. Full details of the assignment is given under the heading "Assessment".

Table 1: Module outline

Outcomes	Associated assessment criteria	Teaching and learning activities
The preceptor will be able to: 1 Debate the significance of precepts in the development of human resources for health.	Significance of preceptors in the development of human resources for health is debated.	Group discussions.
2 Portray attributes of a good preceptor in clinical practice.	Attributes of a good clinical preceptor are portrayed in clinical practice.	Mind maps, group discussions, individual reading and reflection.
3 Consider the elements of the transfer of learning model while facilitating learning in the clinical environment.	The principles depicted in the transfer of learning model are considered in clinical practice.	Individual reading and reflecting, group discussions, experimentation, brainstorming, mind maps, video recordings.
4 Support students in a clinical learning environment by providing system, cognitive and emotional support.	System, cognitive and emotional support is provided to students in various clinical learning environments. Various facilitation techniques are used to facilitate the development of thinking operations and metacognition. Lifelong learning is promoted through the development of self-regulation in students.	Role play, role modelling, standardised patient simulation, mind mapping, brainstorming, group discussions, audiotapes, video recordings, computer search, individual reading, reflecting.
5 Direct students to find, evaluate and implement best practice guidelines.	Students are supported to find, evaluate and implement best practice guidelines.	Group discussion, computer search.
6 Conduct valid and reliable assessment of student performance in the clinical setting.	Valid and reliable assessment of students' performance is demonstrated in the clinical setting.	Group discussion, video recordings, and individual reading, simulation, review existing assessment tools.
7 Establish the role and functions of preceptors within education and healthcare systems.	Role and function of a preceptor within the educational and healthcare system are established.	Group discussion.

Contact details

You are welcome to contact the presenter of this programme if you have any questions regarding the content of the course or the assignment. Please remember to make an appointment for a consultation. The contact details are given in Table 2.

Table 2: Contact details

Contact person	Office location	☎ Work	E-mail	☎ Cell
Lizemari Hugo (Presenter)	Idalia Loots Building, Room 25A	(051)401-9165	hugoL1@ufs.ac.za	0827812699
Yvonne Botma (Supervisor)	Idalia Loots Building, Room 18	(051)401-3476	botmay@ufs.ac.za	0845803427

Programme for the three days

Day 1
Transfer of learning

08:00 – 08:15	Welcome & orientation
08:15 – 09:50	The art of preceptorship
09:50 – 10:05	Tea
10:05 – 10:45	Ethics in preceptorship
10:45 – 11:05	Student motivation to learn
11:05 – 13:10	Student characteristics
13:10 – 13:55	Lunch
13:55 – 14:05	Transfer climate
14:05 – 14:35	Physical environment
14:35 – 14:50	Tea
14:50 – 15:40	Design factors
15:40 – 16:45	Tanner's clinical judgement model
16:45 – 17:00	Reflection and adjournment

Day 2
Competence & Facilitation techniques

08:00 – 08:15	Welcome and summary of previous session
08:15 – 09:00	Competence
09:00 – 09:40	Communication
09:40 – 09:55	Tea
09:55 – 10:35	Mind mapping
10:35 – 11:05	Think aloud
11:05 – 11:50	5 Minute Preceptor Technique
11:50 – 12:20	Role modelling
12:20 – 13:05	Lunch
13:05 – 13:45	Debriefing
13:45 – 14:45	SNAPPS and feedback
14:45 – 15:00	Tea
15:00 – 16:00	Reflection
16:00 – 16:15	PDSA cycle
16:15 - 16:30	Reflection and Adjournment

Day 3:
Evidence-based practices and Assessment

08:00 – 08:15	Welcome and summary of previous session
08:15 – 09:00	Feedback on other techniques
09:00 – 09:40	Self-directed learning
09:40 – 09:55	Tea
09:55 – 11:55	Evidence-based practices
11:55 – 12:55	Assessment
12:55 – 13:40	Lunch
13:40 – 14:40	Assessment continue
14:40 – 15:40	Leadership in preceptorship
15:40 - 16:00	Assignment and module evaluation
16:00 – 16:30	Management in preceptorship – the way forward
16:30 – 16:45	Conclusion and adjournment

1. The act of preceptorship

The outcome of this section is to emphasize the importance of your role as a clinical preceptor, as part of the education team at your nursing education institution (NEI), while preparing the next generation of nurses. We further look at the effect of your attributes and values as a professional nurse on a student's motivation and learning.

Compulsory reading

Baldwin, A., Bentley, K., Langtree, T. & Mills, J. 2014. Achieving graduate outcomes in undergraduate nursing education: following the Yellow Brick Road. *Nurse education in practice*, 14(1), 9-11.

Donovan, P. & Darcy, D.P. 2011. Learning transfer: The views of practitioners. International. Journal of Training and Development, 15 (2), 121-139.

Epstein, I. & Carlin, K. 2012. Ethical concerns in the student/preceptor relationship: A need for change. *Nurse Education Today*, 32(8), 897-902.

Botma, Y., Hurter, S. & Kotze, R. 2013. Responsibilities of nursing schools with regard to peer mentoring. *Nursing Education Today*, 33(8), 808–813.

Hugo, L., Botma, Y. & Raubenheimer, J.E. 2018. Monitoring preceptors' supportive role: A measuring instrument for increased accountability. *Nurse Education Today*, 67(1), 83-89.

The Nursing Summit Organizing Committee and the Ministerial Task team. 2012. The nursing summit of 2011. In: L.R. Uys & H.C. Klopper. Eds. *Trends in Nursing*, 1 (1), 33-48.

Williamson, G. R., Callaghan, L., Whittlesea, E. & Heath, V. 2011. Improving student support using Placement Development Teams: staff and student perceptions. *Journal of Clinical Nursing*, 20(5-6), 828–836

Additional reading

World Health Organization. 2016. Global strategy on human resources for health: Workforce 2030. Geneva: WHO Document Production Services. Available on: http://www.who.int/hrh/resources/global_strategy_workforce2030_14_print.pdf

Schenck, J. & Cruickshank, J. 2015. Evolving Kolb: Experiential education in the age of neuroscience. Journal of Experiential Education, 38(1), 73-95.

Activity 1 [2 hours 15 minutes]

1.1. Discuss the relevance of preceptorship in preparing a future nursing workforce according to the global strategy on human resources for health: Workforce 2030.

1.2. In small groups, discuss the significance of preceptorship in **a South African context**. One representative in each group gives feedback to the big group.

1.3. Read the article by Botma *et al*. (2013) and highlight the role players and responsibilities of each. In small groups, identify the role players involved in clinical learning and discuss the roles and responsibilities of each. Share the gist of the discussion with the whole group.

1.4. Read the article by Hugo *et al.* (2018) and identify the types of support a preceptor should provide to their students. From the types of support, identify the roles of a facilitator. Share with the whole group through a round robin process. Each group adds information that has not been mentioned previously.

1.5. Draw a circle in the middle of the flip chart sheet given to you. The circle is the area where you are going to write your consensus statement. Divide the periphery equally so that each group member has a space to write his/her individual definition of a preceptor. When everyone is done, the group discusses each person's definition and reach consensus on all the characteristics of a preceptor. This consensus statement is written in the circle in the middle of the paper. Share the consensus statement with the whole group. This activity is called the "placemat consensus" technique.

1.6. Individually, write on the one side of a piece of paper, the ideal characteristics that you would like in a good student(s). Rank these characteristics from one for the most important quality descending numerically to the least important. On the other side of the piece of paper, write the professional and personal characteristic that you think are important in a good preceptor. Numerically rate each characteristic from important to least important. In small groups, discuss first the characteristics of good students and then the characteristics of a good preceptor. The facilitator will invite participants from the small groups to present their findings to the bigger group.

1.7. Each group representative draws a flash card. The group discusses the ethical behaviour of the preceptor and subsequent influence on the student. Each group gives feedback to the big group.

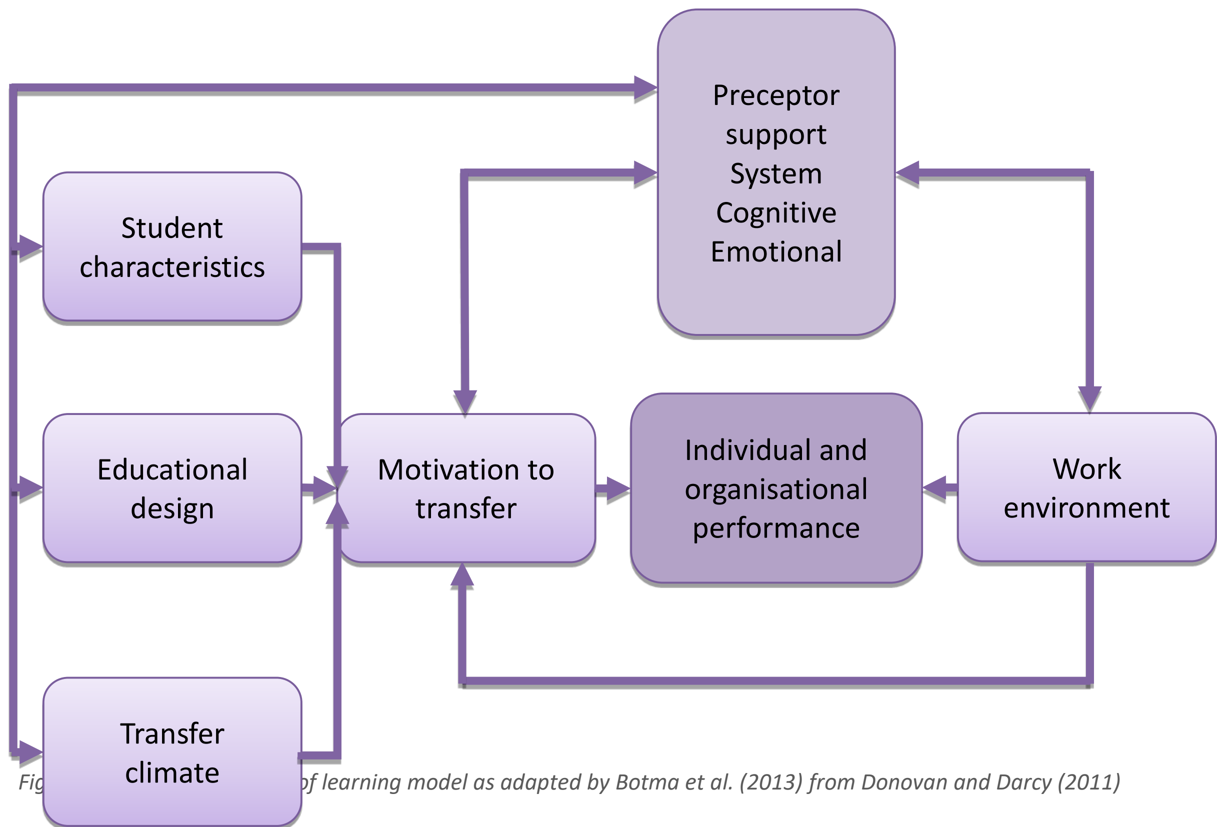
2. Transfer of learning

The outcome regarding transfer of learning is that you will be able to apply the principles depicted in the model for transfer of learning in the clinical milieu.

- Clarify the construct "transfer of learning"
- Discuss the elements that motivates a student to learn
- Take student characteristics into consideration during facilitation of clinical learning
- Accommodate the teaching and learning philosophy of the nursing education institution in your facilitation approach

- Take the learning climate of the clinical setting into consideration during facilitation of learning
- Be creative in physical learning environments that are less than optimal

Donovan, P. & Darcy, D.P. 2011. Learning transfer: The views of practitioners. International. Journal of Training and Development, 15 (2), 121-139.



Fig[illegible] of learning model as adapted by Botma et al. (2013) from Donovan and Darcy (2011)

Compulsory reading

Aktaş, Y. Y. & Karabulut, N. 2016. A Survey on Turkish nursing students' perception of clinical learning environment and its association with academic motivation and clinical decision making. *Nurse Education Today*, 36(1), 124-128.

De Jager, M. 2012. What do eye movements tell us? Available from https://www.mindmoves.co.za [July 04, 2016]

Merriam, S. B. & Leahy, B. 2005. Learning transfer: A review of the research in adult education and training. *PAACE Journal of Lifelong Learning*, 14(1), 1–24.

Msiska, G., Smith, P. & Fawcett, T. 2014. The “lifeworld” of Malawian undergraduate student nurses: The challenge of learning in resource poor clinical settings. *International Journal of Africa Nursing Sciences*, 1(1), 35-42.

Activity 1 – Student motivation for transfer of learning [20 minutes]

1.1. Read the article by Aktas and Karabulut (2016) and underline key thoughts on the influences on student's motivation to learn. Discuss in a small group how you as a preceptor can promote motivation in students in the clinical facilities. Share the main points of the discussion with the whole group.

Activity 2 – Student characteristics [20 minutes]

2.1 Read and underline in Merriam and Leahy (2005: 5-7) the student characteristics that may influence the transfer of learning. Discuss in a small group how these factors may influence your tasks as a facilitator, and share the information with the bigger group.

Developing the adult learner

Read the following section on adult learning

Preceptors should purposefully guide students to become adult learners. Knowles (1984) defined adults as being self-directed in the sense they accept responsibility for their own learning by moving from dependence to independence. Adults have a range of acquired knowledge and experiences that can be applied to procedure new knowledge. Furthermore, adults become highly motivated when they grasp the relevance of what they are learning and are able to apply their learning immediately, thus creating experience. Hence, adults should set goals and determine the steps that should be taken to reach their goals. New information should aid them in attaining their goals and must be relevant to the problem or context. They need practical hands-on experience in order to use the newly gained knowledge. Adults expect reciprocal respect in their social and professional roles with others and the environment. In other words, the preceptor becomes a facilitator of the students' learning by aligning their learning goals with the programme outcomes, guiding them towards sources that will provide relevant information, negotiate with the practitioners to provide learning opportunities that are appropriate and relevant to their set learning goals.

Not all students are adult learners, especially undergraduate students. It is the preceptor's duty to facilitate the students' learning in such a way that they will promote the development of adult learning characteristics in students.

Activity 3 - The adult learner [20 minutes]

3.1 In your small groups, discuss how the preceptor could go about to develop adult learning characteristic in their students. Feedback will be given to the entire group by a representative of smaller groups.

Student personality types

Every person has a unique and different personality, and being different is not bad, it is just different. It is also important to remember that our students have different personalities. In order to be effective facilitators we need to understand why our students behave the way they do and how they are motivated. This can be done by knowing the different personality styles.

The DISC wellness model is a good starting point to understand people. The DISC model has two perspectives that allow it to be used effectively: it is important to acknowledge that a facilitator should have a positive approach to support a student's strengths and also a positive approach to address a student's blind-spots in their personality.

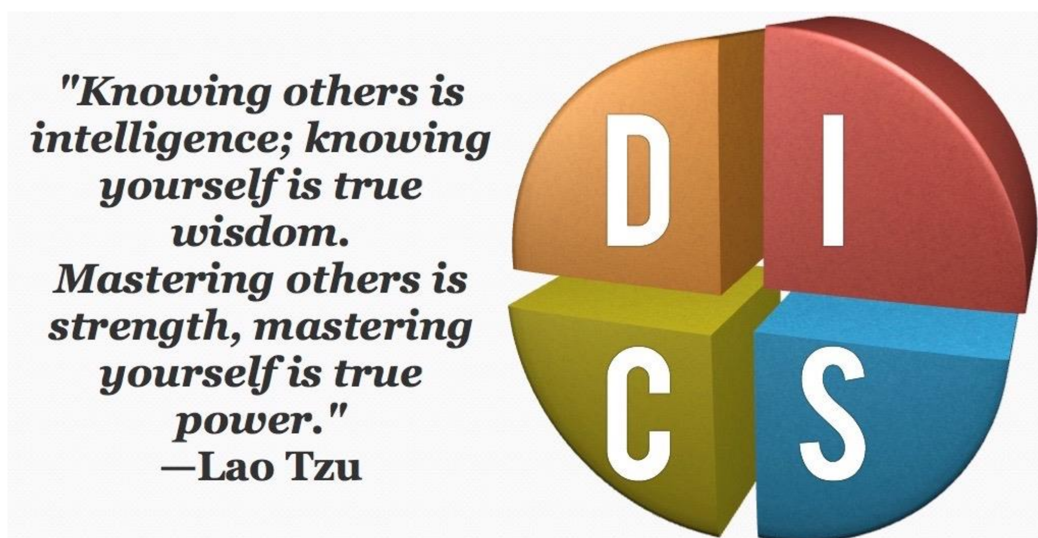


Figure 2: DISC personality types

Activity 3 – Personality types [40 minutes]

3.1 Follow the instructions and complete the DISC personality questionnaire provided in your booklet.

3.2 Divide into the four DISC groups according to your most dominant personality trait. In your groups, discuss AND list the following:

- Your preferred work environment
- What you are motivated by
- What you measure your progress by
- What you are irritated by
- What is your possible limitations/weaknesses?
- Your greatest fear

Knowledge on identifying and understanding a student's personality type, you can help you as a preceptor to manage the 'difficult' student.

3.3 In the same groups, quickly discuss how your personality type responds to conflict. Brainstorm possible solutions on how a student with the same personality trait can be managed in a conflict situation. Give feedback to big group.

Learning styles

A facilitator of learning has to be familiar with the different learning styles in order to optimise the learning of individuals. A learning style can be seen as an individual's natural or consistent pattern of acquiring and processing information in a learning environment. It is a key concept that shows individual variation from person to person in how they learn. It is recommended that facilitators assess the learning styles of their students and adapt their techniques to best fit each of the students' learning styles.

One of the most common and widely used categorisations of the various types of learning styles is known as Fleming's VARK model. The VARK model is divided into four domains:

- Visual learners
- Auditory learners
- Reading/writing preference learners
- Kinaesthetic learners/tactile learners

Fleming stated the following:

Visual learners have a preference for seeing (think in pictures; visual aids that represent ideas using methods other than words, such as graphs, charts, diagrams, symbols, etc.).

Auditory learners learn best by listening (lectures, discussions, tapes, etc.).

Reading/writing preference learners are those who prefer to make notes and read the textbook.

Tactile/kinaesthetic learners prefer to learn via experience – moving, touching, and doing (active exploration of the world; science projects; experiments, etc.).

By assessing the students' learning styles, the facilitator can prepare sessions that address each of these areas. Students can also use the model to identify their preferred learning style and maximise their educational experience by focusing on what benefits them the most.

To get the questionnaire and an evaluation of a completed VARK questionnaire, visit the following website: http://www.vark-learn.com/english/page.asp?p:questionnaire

Eye movement and learning styles

Eye movements can inform the facilitator what type of learning style an individual student prefers. Let us look at the relationship between the brain and eye movement.

The brain

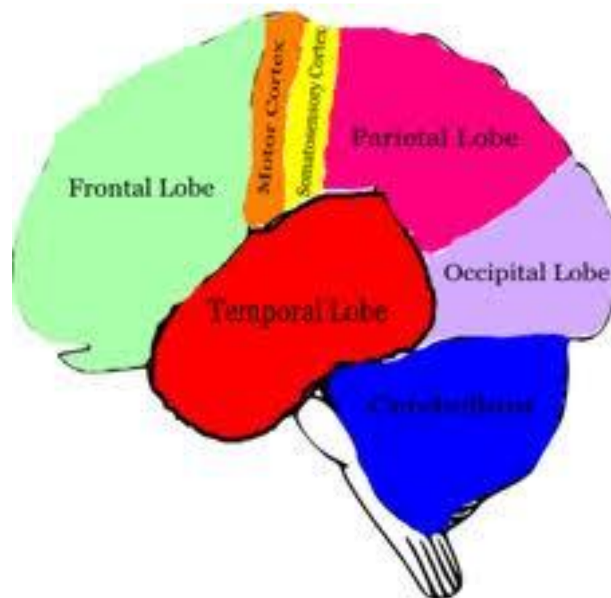


Figure 3: Association between learning style and brain structure

Touch is processed in the parental lob of the brain.

Sight is mostly processed in the occipital lob of the brain.

Hearing is processed around the temporal area of the brain.

When you ask a student a question that requires them to think about the answer, note the movement of their eyes.

Looking down

When a student's eyes look **down**, the parental lobe is used; this makes kinaesthetic learning easy.

Looking up

When a student's eyes look up, the **occipital** lobe is used; this makes visual learning easier.

Looking sideways

When a student's eyes look **sideways**, the temporal lobe is used; this makes auditory learning easier.

Activity 4 – Learning styles [25 minutes]

4.1 Determine your own learning style. In pairs, ask each other a question that requires the person to think deeply. Notice the direction of the person's eye movements. Read the section on eye movements and identify which type of learner your friend is.

4.2 Groups with similar learning styles huddle together to identify learning strategies that they prefer. Each group shares the information with the other groups.

4.3 The whole group discusses the influence of learning styles on preceptorship.

Visual learning styles

Students who are visual learners will prefer to:

- Draw things, using diagrams.
- Write down exam answers.
- Recall the pictures made by your pages.
- Practise turning your visuals back into words.

These students want the whole picture so that one must be holistic rather than reductionist in one's approach. They are usually influenced by the appearance of the slides or demonstration of the facilitator. They are attracted by colour, layout and design. They will rely on drawing pictures. You may want to use the techniques listed in Figure 4.

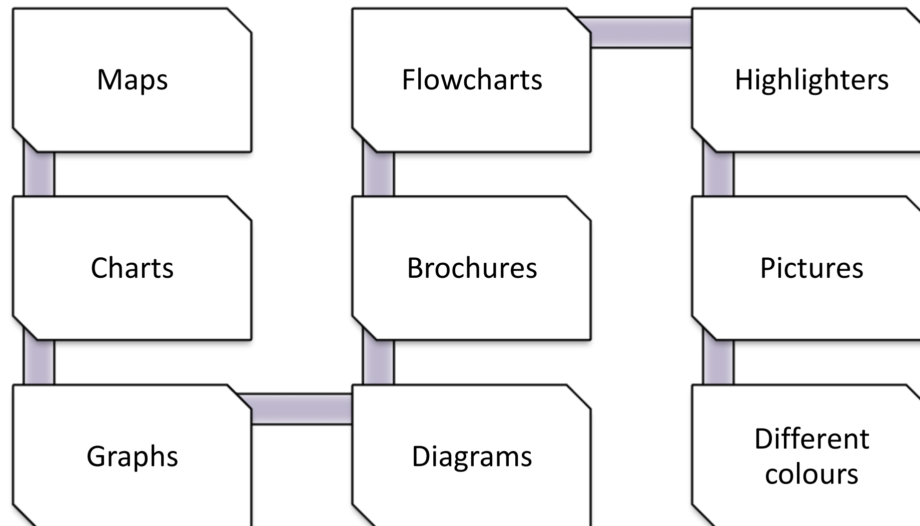


Figure 4: Tools to use for visual learners

Auditory learning styles (Aural/auditory= hearing)

Students who learn by hearing or listening may have to do the following:

- Expand their notes by talking with others and collecting notes from the textbook
- Put their summarised notes onto voice recordings and listen to them
- Ask others to 'hear' their understanding of a topic
- Read the summarised notes aloud
- Explain their notes to another 'aural' person

These students will prefer that you explain themes to them. Written words are valued when they hear it and they will most probably tell someone about it. Use the following techniques in your facilitation:

Figure 5: Techniques for aural learners

Read-and-write learning styles

Use the techniques in Figure 6 during your facilitation:

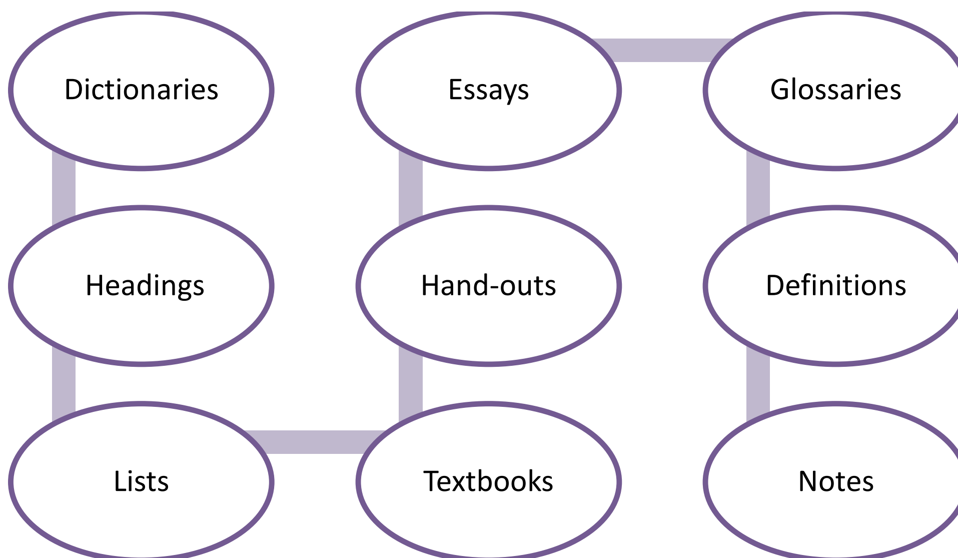


Figure 6: Techniques for read-and-write learning styles

To perform well in exams or tests the student will prefer to:

- Write out exam answers
- Practise with multiple-choice questions
- Write paragraphs, beginnings and endings
- Write the information into lists (a, b, c, d or 1, 2, 3, 4)
- Arrange the words into hierarchies and points

These students believe that the meanings are within the words and that hand-outs are better.

Kinetic learning styles

To perform well in exams or tests, the student will prefer to:

- Write practice answers, paragraphs
- Role play the exam or test situation in your own room
- Apply the question to an experience that you have had
- These students learn best when they use all their senses like touch, taste, smell and hearing. They will remember "real" things that happened

Use the techniques in Figure 7 when facilitating kinetic learners:

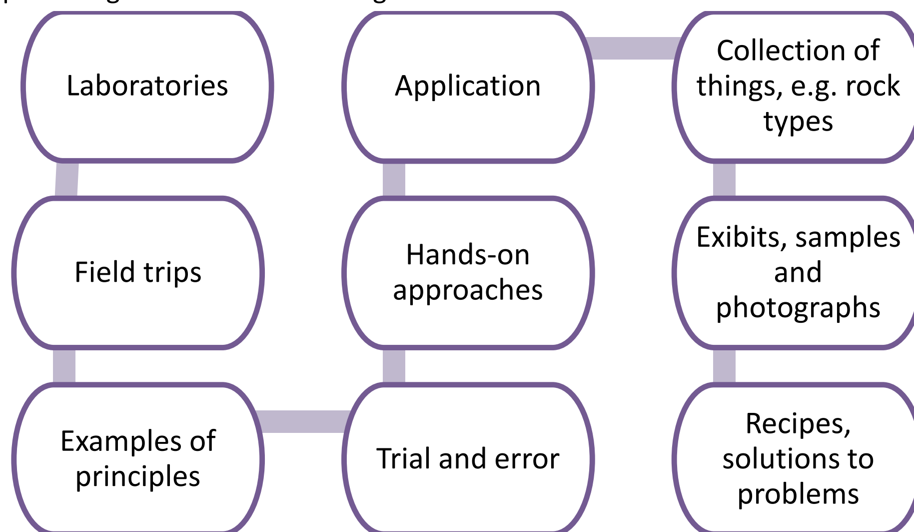


Figure 7: Techniques for kinetic learners

Activity 5 – Transfer climate [20 minutes]

5.1 Read and underline in Merriam and Leahy (2005:9) how the transfer climate influences the transfer of learning.

5.2 Discuss in a small group how you as a preceptor can create a positive transfer climate for the students. Share the main points of the discussion with the whole group.

Activity 6 – Physical environment [30 minutes]

6.1 Read the article by Msiska, Smith and Fawcett (2014) on the challenges of learning in resource poor clinical setting.

6.2 Discuss in small groups the challenges on **the physical environment** that preceptors face in the clinical facilities.

6.3 Draw two tables, in the left side table, write the challenges discussed in small groups and in the right side, write possible solutions for each of the challenges.

6.4 Each group share challenges and possible solutions with the whole group.

Activity 7 – Training design [45 minutes]

7.1 Read and underline in Merriam and Leahy (2005:7) how training design influences transfer of learning.

7.2 Discuss this in a small group and share the information with bigger group.

7.3 Read the section on constructivism and underline the key concepts.

7.4 Identify the four principles of constructivism as learning theory from the reading and verify your answer in a small group. Discuss the implications of these principles on your role and tasks as preceptor.

7.5 A volunteer will be asked to start the discussion in the whole group. It is expected that everybody will participate in the discussion.

Constructivism

Constructivism may be seen as a philosophy or a theory. Curricula at the university are based on the principles of constructivism as learning theory. Learning is different from teaching, in the sense that teaching is lecturer-centred, whereas learning is student-centred. Student-centredness means that students have a say in what they learn and how they learn. They are active in the learning process and do not sit still and wait for the lecturer to pour her knowledge into their empty brains. Their brains are filled with knowledge gained through various media and experiences that have culminated into a perceived structure or framework in their minds. During their active engagement with the learning material, they make meaning of new information and experiences by linking it to an existing framework of knowledge in their minds. To enable students to forge those links, or to change their existing frameworks, the framework needs to be roused from dormancy in the long-

term memory. Remember, the first principle of the design-down, deliver-up model is to determine the situational factors, of which existing knowledge (existing framework) is one. The student's existing frameworks may be constructed according to their perceptions of reality. The reality, as perceived by the student, might not be the scientific reality – therefore it is imperative that you as the facilitator of the learning process determine what the frameworks in their minds look like to enable you to restructure it with relevant scientific information. This occurs through social interaction with peers and experts (the preceptor). The students' knowledge frameworks are based on certain experiences and are therefore contextual. A student might know how to use the technology in a hospital setting to monitor a patient, but not necessarily know how to monitor that same patient at home or in a primary health care setting without the equipment that would be available in hospital. Learning is therefore contextual, but the definition of competency states that the student should be able to demonstrate competence in various circumstances. It is thus necessary to expose students to different contexts where they can practise how to apply their knowledge.

Scaffolding

Read the following section on scaffolding

Think about scaffolding at a construction site. The purpose of scaffolding is to support the person to complete a task at a height that he/she is unable to do without support. In education, it works exactly the same way. Scaffolding is temporary support tailored to students' needs and aimed at the transfer of responsibility from teacher to student (Van de Pol, Volman, Oort, & Beishuizen, 2014). According to Vygotsky's (1978) in Van de Pol *et al.*, (2014), sociocultural theory students should be challenged to reach their zone of proximal development. The zone of proximal development is the difference between what the students are able to do on their own and what they can achieve when supported by the facilitator. In line with Vygotsky's theory, scaffolding is thus the support that helps students reach their potential level of performance. Students often need support due to the complexity of the task or the high volume of information. By structuring the task from simple to complex students do not feel overwhelmed.

Initially students may need a lot of support, but as their knowledge and skills develop, the support diminishes over time, until the responsibility for a task has been transferred to the student (van de Pol *et al.*, 2014). The support offered should address the needs of the students. Therefore, diagnosing their learning needs through open ended questions is important. It is insufficient to ask "do you understand". Diagnostic questions always determine the student's actual understanding. The facilitators have to check their understanding of the students understanding, thus creating a shared understanding. Checking the students learning differs from diagnosing and creating shared understanding because it focuses on the student's new understanding. Checking if students are able to demonstrate their understanding of the new information is a critical part of scaffolding.

Additional reading

Van de Pol, J., Volman, M., Oort, F. & Beishuizen, J. 2014. Teacher scaffolding in small-group work: An intervention study. *Journal of the Learning Sciences,* 23(4), 600-650.

Activity 8 – Scaffolding [15 minutes]

8.1 Read the section on scaffolding and underline the key concepts.

8.2 Identify the principles of scaffolding from the reading and verify your answer in a small group. Discuss the implications of these principles on your role and tasks as preceptor.

8.3 A volunteer will be asked to start the discussion in the whole group. It is expected that everybody will participate in the discussion.

3. Good performing practices of preceptors

The outcome regarding precepting is that you will be able to facilitate higher order thinking processes through a variety of techniques in order to support the student in making sound clinical judgments and developing meta cognitive knowledge.

In order to be competent in precepting you need to be able to:

- Clarify the concept of competence
- Unpack competence as construct and identify the thinking processes with the related knowledge levels
- Discuss the role and responsibilities of a preceptor with regard to the types of support that the preceptor should offer students in the clinical setting
- Demonstrate various techniques during the facilitation of learning in the clinical setting
- Guide a student though the process of self-directed learning.

Compulsory reading

Chang, M. J., Chang, Y.J., Kuo, S.H., Yang, Y.H. & Chou, F.H. 2011. Relationships between critical thinking ability and nursing competence in clinical nurses. *Journal of Clinical Nursing*, 20(21-22), 3224–32.

Tanner, C. A. 2006. Thinking like a nurse: a research-based model of clinical judgment in nursing. *The Journal of Nursing Education,* 45(6), 204–11.

Activity 1 – Competence [1 hour]

1.1. Draw a circle in the middle of the flip chart sheet given to you. The circle is the area where you are going to write your consensus statement. Divide the periphery equally so that each group member has a space to write his/her individual definition of competence. When everyone is done, the group discusses each person's definition and reach consensus on all the elements of competence. This consensus statement is written in the circle in the middle of the paper. Share the consensus statement with the whole group. This activity is called the "placemat consensus" technique.

1.2. Individually read the section on types of knowledge and thinking processes. Underline or highlight the keywords and make side comments as needed. In small groups of four, use the keywords to develop a visual representation of the key elements of competence and the associated thinking processes. Indicate the relationship between each construct. Share the visual presentations with the group and agree on the sequence and relationships. Allow three minutes per group.

Types of Knowledge and Thinking Processes

Preceptors engage with students with the aim of enabling them to become critical thinkers that can integrate theory in practice, in other words, to become competent. Competence means that the person is able to use knowledge and skills from various disciplines and apply it in a specific situation. It is thus clear that competence requires basic knowledge from natural and social sciences. Knowing facts based on natural, social and nursing sciences is known as declarative knowledge; in other words, students can recite (declare) what they know. Other words for declarative knowledge are propositional or descriptive knowledge. At this level, students memorise facts and content without questioning or commenting on texts. Students who function at this level find it difficult to solve problems and rather use routine solutions and procedures. Extrinsic motivators such as passing a test, financial gain, and getting a qualification serve the learner. This surface approach to learning does not enable the student to use the knowledge to improve nursing practice, care or service delivery. Superficial learners are able to regurgitate facts and are therefore known to have a reproducing orientation.

Example of declarative knowledge

Students are able to explain that organisms cling to skin. When you touch an area the organisms are "rubbed" off and the object you touched will be contaminated. One way of reducing the number of organisms clinging to your hands is to wash them with soap and water or to spray an alcohol hand rub on your hands and rub them together until the alcohol has evaporated. Therefore, nurses should cleanse their hands before they touch a patient in order to prevent or reduce nosocomial infections. Hand cleansing is an infection prevention measure and contributes to your own safety as well as the safety of the patient.

When students are able to demonstrate a skill, for example, they can wash their hands aseptically, they have procedural knowledge. This means that they know how to do things. The combination of the knowledge and skills aspects is known as foundational knowledge. When the student is able to relate the different sciences and see the connections between different disciplines, critical thinking is demonstrated. This is mostly a cognitive process i.e. the student can relate the vectors and micro-organisms with infections and infection prevention measures.

However, when you add the context or the patient to the situation and the student needs to consider all relevant aspects, it becomes conditional knowledge. Conditional knowledge is also known as clinical reasoning, which occurs when students have to take the subjective (symptoms) and objective data (signs and laboratory data) into consideration. Students should be able to link the pathophysiology with the signs and symptoms and predict the progression of the condition if no treatment is implemented. Clinical reasoning leads to developing differential diagnoses. Through the process of elimination and confirmation, a final diagnosis is made.

Example of conditional knowledge

A coughing patient probably inhaled an organism that lodged in the airways and caused a disease process. Coughing distributes organisms through droplets that remain in the air and deposits on surfaces within the room. Some organisms might remain dormant for a long period. Raised temperature indicates an inflammatory process and the discoloration of sputum indicates infection. Yellow sputum indicates bacterial infection and red spots may be indicative of blood. Thus, the patient has an upper and/or lower airway infection, which might be sinusitis, cold, flu, bronchitis, pneumonia, TB, etc. If untreated, an upper airway infection might spread to the lungs. If only one lung is infected, the other might also become infected. A physical examination and perhaps culture and sensitivity should be done to determine the causative organism and treatment options.

Treatment options should be based on how it will address the pathophysiology or the cause of the condition. All the information (subjective and objective), pros and cons, best practice guidelines, and patient preferences should be considered when deciding on treatment options. As soon as the student has made a decision in collaboration with the patient and implemented comprehensive care4, clinical judgment has been demonstrated.

Example of clinical judgment

Based on the clinical manifestations and the results from the laboratory, the patient, in collaboration with the nurse, decides to commence TB treatment. The nurse explains the standard treatment protocol to the patient and initiates treatment accordingly.

Furthermore, competent nurses reflect on their thinking processes to see if there were flaws in their reasoning and to think how to avoid the same errors, as well as to formulate a better course of action. Through this process of "thinking of thinking", meta cognitive knowledge is created and new knowledge is constructed.

[4] Comprehensive refers to promotive, preventive, curative and rehabilitative care.

Example of metacognitive knowledge

During a lull in the clinic, the nurse thought about the patient with the TB and realised that although she had explained the treatment to the patient she had not checked if he had really understood it all correctly. She realised that she had omitted the checking questions while giving information to the patient. Although it will not endanger the life of the patient immediately, it might have an effect on his treatment adherence. However, she was not concerned about it because the patient was well educated and her senior by many years. On his followed-up visit, she realised from her discussion with the patient that he had some misconceptions and clarified them immediately.

Thinking back on the situation the nurse realised that she had assumed that the patient would know certain facts about TB because he was well educated and much older than she was. The nurse decided that even if she was treating the king she should always check the patient's understanding when sharing information with him/her.

Activity 1 (continued) [1 hour 30 minutes]

1.3. While reading the article by Tanner, note the various steps in the process of clinical judgment and meta cognition. Draw up a table with the steps as headings and list as many questions as possible per column that a preceptor may use to guide the student through the reasoning process.

1.4. By simulation, demonstrate the use of questioning to guide the student through the thinking processes and clinical judgment, as described by Tanner (2006).

1.5. Watch the video on simulation clip and analyse the questions that was asked and whether the assessors facilitated the thinking process/meta-cognition of the student.

1.6. Study the competence tool (Piek & Botma, 2017) and use it to assess the interaction of the student with a patient as shown in the video clip.

1.7. Base on the video, identify the missing subjective and objective assessment information.

Kolb's learning theory

Kolb's experiential learning theory (1984) is an important aspect of adult learning. Students have a concrete learning experience when preceptors actively involve them in patient care. After the experience, the preceptor guides the students to reflect critically on their experience. It is pivotal that preceptors use the opportunity to guide the student to metacognition in order to understand the reasoning behind the student's actions. Through mindful guidance the students build new

knowledge through conceptualization and should be afforded the opportunity to test their newly founded knowledge in a similar situation, thus bringing them back to a concrete experience.

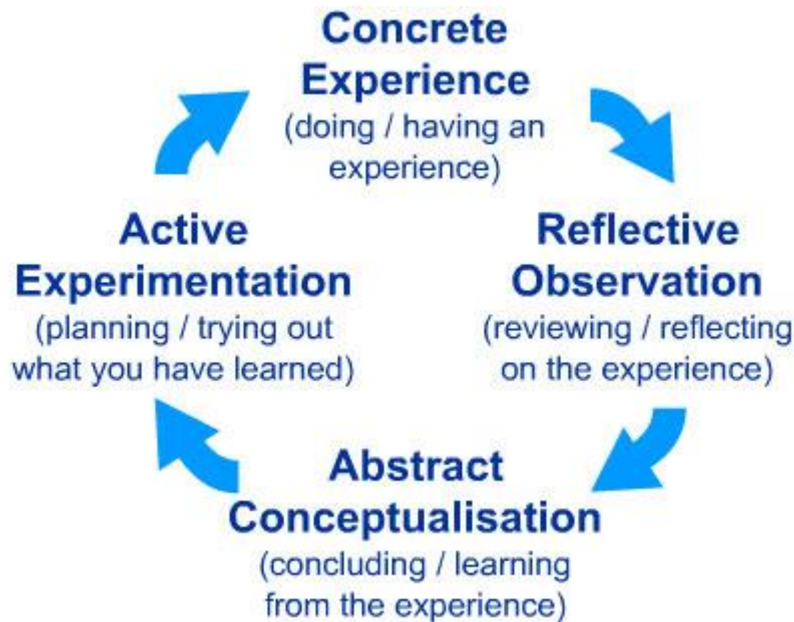


Figure 8: Kolb's experiential learning cycle

Activity 2 – Kolb's learning theory [15 minutes]

2.1 Make a visual representation that shows the interrelatedness of Kolb's experiential learning theory, Tanners model on clinical judgment, and the thinking operations.

Compulsory reading

Riesenberg, L. A., Leitzsch, J. & Little, B. W. 2009. Systematic review of handoff mnemonics literature. *American Journal of Medical Quality*, 24(3), 196-204.

Senette, L., O'Malley, M. & Hendrix, T. 2013. Passing the baton: Using simulation to develop student collaboration. *Clinical Simulation in Nursing*, 9(2), e39-e46.

Stickley, T. 2011. From SOLER to SURETY for effective non-verbal communication. *Nurse Education in Practice*, 11(6), 395-398.

Thompson, J. E., Collett, L. W., Langbart, M. J., Purcell, N. J., Boyd, S. M., Yuminaga, Y. & McCormack, A. 2011. Using the ISBAR handover tool in junior medical officer handover: a study in an Australian tertiary hospital. *Postgraduate Medical Journal*, 87(1027), 340-344.

Communication [45 minutes]

To effectively facilitate a student's learning a preceptor requires good communication skills to guide the student towards the intended outcome. On the other hand, for a student to successfully communicate their thoughts about a patient a preceptor can teach and role-model communication skills to students to support them to organize their thoughts.

Effective communication also promotes patient safety. Standardized ways of communicating are required to promote patient safety. Examples of standardised communication strategies are ISBAR and I PASS the BATON. Such strategies help individuals communicate with each other with a shared set of expectations. Staff and physicians can use standardised communication strategies to share patient information in a concise and structured format. It improves efficiency and accuracy and can be used when:

- A nurse is calling a physician
- Nurses are handing off patients to one another
- Nurses are transferring patients to other facilities or to other levels of care.

Activity 1

1.1. Read the Toolkit with specific Focus on ISBAR and I PASS the BATON.

1.2. Read the scenario and as a pair write down the message that Mary should convey by using the criteria as described in ISBAR and I PASS the BATON.

You are a third-year student nurse working in the medical ward who is allocated to a four-bed room at the beginning of your shift. Mr. Thabo, a 56-year-old man, is admitted with pneumonia. He is a known hypertensive patient. During your morning rounds, Mr. Thabo complains of a headache. You provided analgesics as prescribed by his primary physician. Before you administered the analgesics you inquired about his allergies. He states that he is allergic to penicillin. During the morning you filed his negative GeneXpert test result in his file. He received Clarithromycin 500mg and Pearinda (ACE inhibitor) 5mg as prescribed at 10:00 this morning. At lunch time you noticed that Mr. Thabo is not eating well and that he is short of breath. You provide 40% oxygen via a nasal cannula. At two o'clock you take his vital signs and record it on the form. 26

Date & time	Pulse rate /min	BP mmHg	Breaths /minute	Temp °C	Saturation and O_2	Signature	Comments
10:00	88	$^{170}/_{100}$	20	36.8	88% on room air	MLesedi $^{St}/_{N}$	Short of breath. 40% O_2 started
14:00	94	$^{180}/_{110}$	24	37	86% 0.4 O_2	MLesedi $^{St}/_{N}$	Pt is sitting upright

14:00 Mr Thabo is now using accessory muscles to breath and the chest expansion on the right side is less at 10:00. Egophony on the right mid lung is still present. The monotone crepitations heard at

10:00 changed to polyphonic crepitation on the right side of the lung and is extending to the base of the lung. Percussion is dull over the middle right lobe.
You report your findings to the registered nurse in charge.

1.3. Give feedback to the bigger group by discussing as a big group how you can incorporate effective communication strategies into preceptorship.

4. Facilitation Techniques

The learning outcome is that you will be able to demonstrate various techniques during the facilitation of learning in the clinical setting.

Compulsory reading

Beckman, T. J. & Lee, M. C. 2009. Proposal for a collaborative approach to clinical teaching. *Mayo Clinic proceedings*, 84(4), 339–44.

Botma, Y., Jeggels, J. & Uys, LR. 2012. A preparation of clinical preceptors. In: L.R. Uys & H.C. Klopper. Eds. Trends in Nursing, 1 (1), 73-84.

Burns, C., Beauchesne, M., Ryan-Krause, P. & Sawin, K. 2006. Mastering the preceptor role: challenges of clinical teaching. *Journal of Pediatric Health Care*, 20(3), 172–83.

Ness, V., Duffy, K., McCallum, J. & Price, L. 2010. Supporting and mentoring nursing students in practice. *Nursing standard (Royal College of Nursing* [Great Britain]:1987), 25(1), 41–46.

Senita, J. (2008). The use of concept maps to evaluate critical thinking in the clinical setting. *Teaching and Learning in Nursing*, *3*(1), 6-10.

Mind/concept maps as critical thinking tool

Concept mapping provides a visual presentation of meaningful relationships between concepts in the form of propositions (two or more topics linked by verbs that describe the relationship between them). Furthermore, mind maps create an avenue for expression in a creative manner and represents a person's own interpretation of ideas in a diagrammatic form, allowing the person to organise information based on knowledge, insight, understanding and experiences within a given context.

Drawing up a concept map requires critical thinking about the topic and related concepts. Questions that one should ask when reflecting in this manner are:

- What is the central issue?
- What are the assumptions in this argument?
- What is the declarative knowledge related to the topic?
- How do I classify the arguments, claims and evidence?
- What are the relationships among the elements?
- Are there missing elements or relationships?
- Are there any contradictions?
- Does it portray my current knowledge, values and beliefs?
- Critical thinking is a complex process. Figure 9 is a mind map on critical thinking.

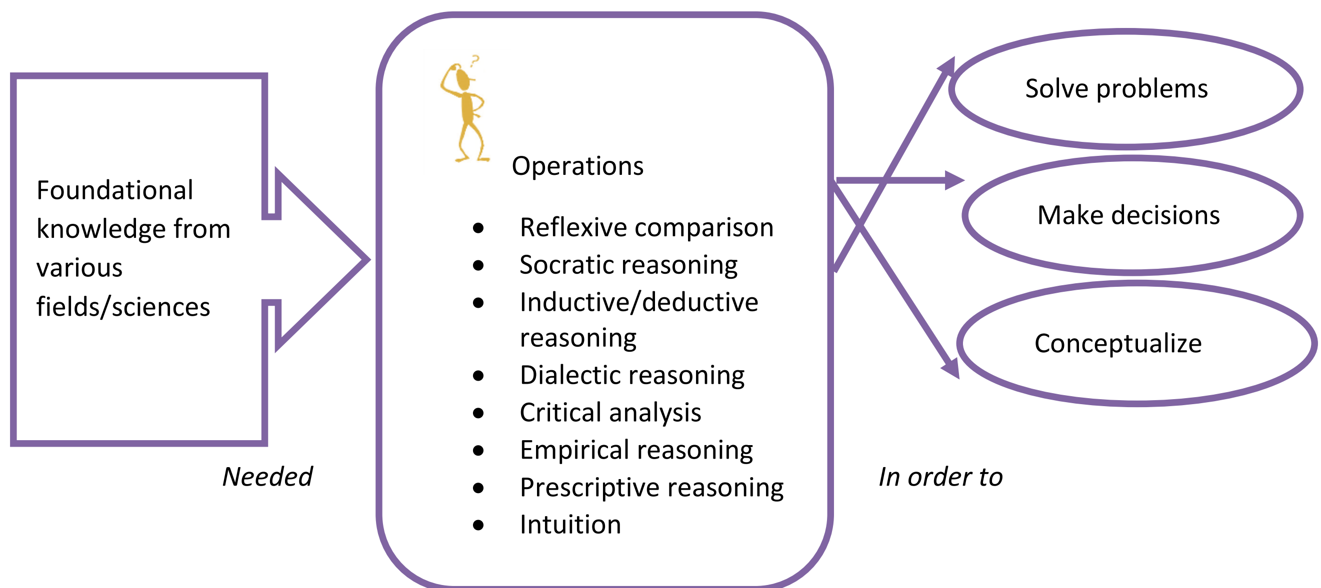


Figure 9: Mind map of critical thinking

It is evident from the mind map that a person uses foundational knowledge while thinking critically. Critical thinking is used during problem solving, making decisions and conceptualising. Certain processes or operations are used during those processes.

Reflexive comparison is when a similar situation is recalled and knowledge gained from that experience is used in the current situation.

Socratic reasoning is based on the reasoning technique used by this renowned philosopher who asked questions in order to deeply investigate a phenomenon. He investigated multiple viewpoints, the consequences of acts and omissions, and what are facts and what assumptions.

Inductive reasoning is when a theory is generated from observed patterns. Deductive reasoning is when a theory is used to search for certain manifestations which are later confirmed. Deductive reasoning is often used in the diagnosing process.

Dialectic reasoning is when a thesis and a contradictory antithesis are developed.

Critical analysis is the subjective process of making meaning.

Empirical reasoning is when numerics such as statistics are used in the reasoning process.

Prescriptive reasoning is the use of algorithms and flow diagrams. The person(s) who compiled the algorithms or flow diagrams did the primary thinking.

Intuition is not a conscious thinking process but it develops through extensive experience of reasoning in similar situations and is a characteristic of experts. Novices have to deliberately and consciously go through the reasoning steps.

Activity 2 – Mind mapping [40 minutes]

2.1 You are on a flight from Amsterdam to Cape Town and a world famous South African author dies during the flight. His wife accompanied him on the trip. She claims that he was healthy when they boarded the plane. In small groups, apply the principles of mind mapping and make a mind map to indicate your understanding of the event. Each group will give feedback on their mind map.

2.2 In small groups, select a mind map other than the one you created. List the questions you would ask a student regarding the mind map he/she had created.

2.3 Group the types of questions together and identify the purpose of the question.

2.4 Determine if the questions address the processes of critical thinking, clinical reasoning, sound clinical judgment and reflection.

2.5 List additional questions that could have been asked. Give feedback and discuss.

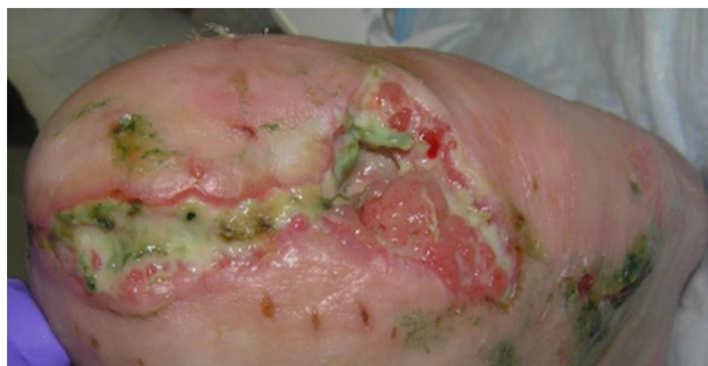
2.6 Discuss mind mapping as precepting tool.

Activity 3 – Think aloud [30 minutes]

3.1 Divide into groups of three

- Student
- Preceptor
- Recorder

The student must demonstrate and explain "think aloud" how to don sterile gloves. The preceptor should facilitate the process by asking questions if the student struggles. The recorder jots down the gist of the think aloud and types of questions being asked.



3.2 In groups of three, discuss the following and give feedback to the whole group:
- Emotions experienced by the student and preceptor
- Classifications of info given by student
- Types of questions asked by the preceptor
- What was done well?
- What could have been done better?
- What is the action plan to improve on it?

3.3 Discuss with the whole group.

***Activity 4 – Five (5) minute preceptor technique [40 minutes*]**

4.1 Read the article by Beckman *et al*. (2009:342) on the 5 step micro skills model and jot down the main steps in the process. Verify the steps by means of fist (do not agree with speaker) to five (agree with speaker).

4.2 Watch the video on the five minute precepting technique and identify the steps used.

4.3 Discuss your perceptions of the technique in the whole group.

4.4 In your small groups of 3 people decide on who is the
- Student
- Preceptor
- Recorder

The student does a **wound assessment** of the wound projected on the screen while the preceptor uses the steps in the 5-minute preceptor technique to facilitate the learning of the student. The recorder takes notes on the process.

4.5 Discuss in your small groups whether you adhered to the steps. What were the challenges and how would you go about it the next time? Prepare to share your experience with the whole group.

Activity 5 – Role modelling [30 minutes]

5.1 Get up and walk around while the music is playing. Stop walking when the music stops and pair with the person nearest to you. In pairs, discuss your understanding of role modelling and how it can be used as a precepting technique.

5.2 Read the section below on role modelling and compare your perceptions with those of the literature on role modelling. Share your understanding/misunderstanding with the whole group.

Role modelling

Role models make a conscious decision to role model performance to a student or a group. Because of it being a deliberate decision, the role model is aware of what he/she wants to portray to the student(s). Therefore, it is necessary to ask the observers to articulate their observations and how it will influence their practice. The observers should highlight two to three key messages, justifying why they selected these messages. Students should be given the opportunity to rehearse their planned performance/behaviour under supervision of the role model. People will only adopt modelled behaviour if they value the outcome of the performance as provided by the role model.

Characteristics of role models are that they are able to:

- identify the critical elements in a situation;
- share practical know-how;
- make decisions and know what should be done next;
- explain the theoretical underpinnings of their actions;
- discriminate between what can be ethically shared before patients and others;
- respect other people and objects; and
- foster the growth of others.

Activity 6 – Debriefing [40 minutes]

6.1 In groups of between five and seven, reach consensus on the purpose and process of debriefing and give feedback per group.

6.2 Listen to the audio tape on debriefing and individually identify the steps in the process.

6.3 Write down the conclusions you made of the audio recording and explain how it will influence your practice.

6.4 List two or three key messages with justification why you have selected those messages. [5 minutes]. Volunteers share their reflections with the group.

Activity 7 – SNAPPS and feedback [60 minutes]

7.1 Read about SNAPPS and feedback in Beckman and Lee. Summarise the steps of both processes, as you are going to apply them in role play. Validate the steps in SNAPPS and FIT & ABLE by means of show of hands.

Feedback

Remember, preceptors should stimulate the thinking processes of students to enable them to transfer classroom learning to the clinical practice. The thinking processes encompass the use of foundational knowledge with the associated critical thinking, conditional knowledge related to clinical reasoning and making a diagnosis, functional knowledge that relates to clinical judgment and decision-making, and meta-cognition which is making meaning of the experience through reflection. These thinking processes should also relate to Tanner's model of clinical judgment that starts with noticing, interpreting, predicting, acting (reflection-in-action), monitoring and reflection-on-action.

In addition to FIT & ABLE there is also an acronym of IMPROVE:

Identify objectives with the learner
Make a feedback-friendly environment
Prioritise what feedback to give
Respond to the learner's self-assessment
Objective observations should be made
Validate what the learner has done well and/or suggest alternative strategies
Establish a plan to implement changes (if needed) and have learners summarise feedback and plan

Activity 7 – continue

Pick a needs to play the role of the student (applying steps of SNAPPS), another one the role of the preceptor (applying principles of feedback) and the third person is the observer and debriefer. The student and preceptor read the case study and role play both SNAPPS and feedback while the observer/debriefer refreshes her memory on the steps of debriefing. While the student and preceptor act out the roles the observer makes notes on the process by referring to the steps of SNAPPS and the guidelines on feedback page from the container and find the other members of your group. One

CASE STUDY

Case 1

Joseph, 42 years of age, visits your clinic with the following complaint:

Main complaint
He has been coughing for the last 12 days. The cough is productive and he is also complaining of fever and a loss of appetite. He states that his sputum is a whitish colour ± one teaspoon per coughing bout. Cough throughout the day but less at night. Talking and laughing aggravates the couching but taking water or lozenge relieves the cough. He is taking no medicine for the cough.

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Past medical history

He had pulmonary TB two years ago. He is a known HIV patient who comes to collect his ARV's regularly. He was diagnosed with HIV four years ago. Four months ago his viral load was undetectable.

Medication
Fixed dose combination (FDC) TDF/FTC/EFV 1 tablet daily p.o.

Family history
His mother was an asthmatic patient and she died in her sleep. His father had cancer that spread to his brain.

General profile
He is married and has an eighteen–year-old son and a 10-year-old-daughter. His wife is also HIV positive, but she is not on ARV treatment. She is currently on Triphasil. They live in a four room house. He is a taxi driver and works long hours. He smokes about 15 cigarettes a day and drinks occasionally over weekends.

System review
Mouth: He has ulcers in his mouth.

Observation
General appearance
JACCOLD: L+ (neck and axilla)
Respiration 22b/min; Temperature 37,7°C; Pulse: 82b/min
Length: 1.74cm; Weight 74kg, Previous weight: 75kg

Chest examination
Inspection: NAD
Palpitation: Increased vocal fremitus on left lateral side. Equal chest expansion.
Percussion: Dull on left lateral side.
Auscultation: Bronchial sounds on left lateral side

Case 2

Elvin, a 66-year-old man, visits your clinic with the following complaint:

General History
Main complaint
Elvin complains of a throbbing pain in his left knee after bumping it against the bed. He has been struggling on and off with this knee for the last 3 years. In the last 10 days the pain in his knee has progressed and he says that his knee has become swollen. He struggles to walk due to the swelling and pain. Drinking Paracetamol and rest elevates the pain. He complains of feeling feverish at night and tiredness.

Past medical history
He is a known but well-controlled diabetic patient. He was diagnosed 8 years ago. He had a cholecystectomy about three weeks ago. The scar has healed well and no abnormalities are noted over the incision area.

Medication

He is on Diclofenac 50mg Daily p.o.
Paracetamol 1g tds p.o. PRN
Wintergreen ointment to apply BD.
Metformin 850mg BD p.o.
Glibenclamide 5mg BD p.o.

Family history
His father had a hip replacement. His mother was a diabetic. They both passed away several years ago.

Social history
He retired 4 years ago. He had been a mine worker for 38 years. His wife passed away 11 years ago. He has 4 children of which three are married. The one who still lives with him, was treated for pulmonary TB one year ago.

Examination
Vital signs
JACCOLD: L+ (groin)
BP130/89 mmHg; Pulse 93b/min; Respiratory 18 b/min; Temperature 37,8°C
Side room investigations
Random blood glucose is 11,8mml/l
Urine dipstick has glucose ++ and a trace of ketones.

Examination of the knee
Inspection: Knee appears to be red and swollen
Palpation: Hot to touch. Stress pain on movement. Restricted movement noted. Severe tenderness on palpation.

7.2 The observer/debriefer follows the steps of debriefing in your small group discussion of the experience, namely:

- Share your emotions in one sentence
- State the purpose of the activity
- Reflect on positive observations/actions and why it was positive (theoretical underpinning)
- Reflect on what could have been done better or in a different manner – what was the reason for the act performed?
- How do you plan to improve?
- Summarise the reflection and conclude with a statement on your emotions after the debriefing discussion
- Whole group discussion on the three techniques used

Activity 8 – Other techniques [45 minutes]

Pairs pick a technique from a container. Each pair must demonstrate/illustrate/facilitate the selected facilitation technique. You have 30 minutes to prepare, 5–7 minutes to demonstrate, and another 5 minutes to highlight the essence of the technique and its **value**.

Reflection

Many authors view reflection as a pivotal learning method because it is a critical analysis of one's own knowledge and experience in order to achieve deeper meaning and understanding. It is therefore paramount that preceptors should self-reflect and know how to facilitate reflection in students. A person does not necessarily learn from experience or thinking about an experience. Reflection is deliberately thinking about knowledge structures, assumptions and how to improve one's own performance in the future. Preceptors need to provide structure to students to guide them during their reflections.

Reflection need not necessarily be a solitary activity; hearing other peoples' perspectives during group reflection are often very valuable in order to gain a realistic perspective of a situation.

Deep reflection only occurs in a supportive safe environment where confidentiality is respected and self-worth protected. It is essential that performance, and not the person, be analysed. Performance should be related to standards of care and not individual preferences.

Learning through reflection is long-lasting, especially if it is associated with strong emotions. Initially people find it difficult to identify what they are feeling. It may be helpful to remind students that there are four primary emotions, namely anger, fear, sadness and joy, which may be plotted on a continuum and are described by numerous adjectives and synonyms. It is important to deal with the emotions first so that the students can focus on the learning aspects. Preceptors should realise that emotions cannot be right or wrong and that all emotive responses should be respected and valued. However, one should not spend too much time on emotional venting.

Reflective learning is also contextual because it is associated with a specific situation with specific circumstances. Students should be guided to anticipate how they will behave during similar situations in different circumstances.

Activity 9 – Reflection [1 hour]

9.1 Through a round robin, in one sentence share your feelings of how you experienced today.

9.2 Discuss why "blowing off steam" is important.

9.3 Restate the purpose of today. [1 minute]

9.4 Critically analyse the events of the day by identifying salient/outstanding/significant behaviour.

9.5 Identify the gaps, and suggest reasons for the gaps.

9.6 Close the gap by discussing the principles and skills relevant to improving your performance.

9.7 Develop a new perspective by stating what you have learned, how you would proceed, and how you plan to use the new knowledge in practice.

The Plan-Do-Study-Action cycle

The Plan-Do-Study-Act (PDSA) cycle is used in healthcare to promote quality improvement. During the 'plan' stage the preceptor assist the student to identify 'something' that needs improvement. The student implements the change during the 'do' stage to test the change and examines the success of the change (the 'study' stage). The 'act' stage identifies the adaptation and thereafter a new cycle repeats itself.

Additional reading

Taylor, M.J., McNicholas, C., Nicolay, C., Darzi, A., Bell, D. & Reed, J.E. 2013. Systematic review of the application of the plan–do–study–act method to improve quality in healthcare. *BMJ Quality & Safety*, 1(1), 1-9.

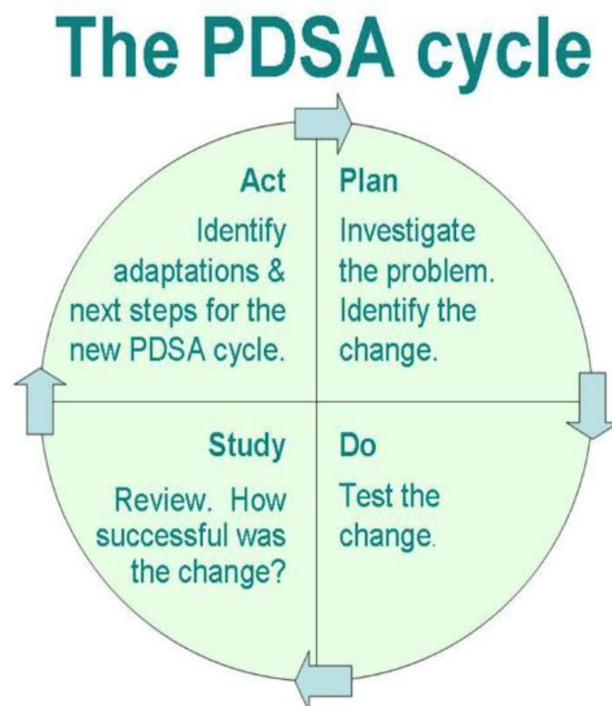

Figure 10: The PDSA cycle

Activity 10 – PDSA cycle [15 minutes]

10.1 Discuss in your small group how and examples where preceptors can use the PDSA cycle to improve students' learning.

10.2 Each group representative gives feedback to the whole group.

5. Self-directedness

Self-directed learning (SDL) is seen as a process were a student takes responsibility and action for their learning by planning, implementing and evaluating the learning process. Undergraduate nursing students especially need assistance to guide them through the process of SDL. Preceptors should assist students toward becoming life-long learners.

Additional reading

Song, L., & Hill, J. R. 2007. A conceptual model for understanding self-directed learning in online environments. *Journal of Interactive Online Learning*, *6*(1), 27-42.

***Activity 1 [40 minutes*]**

1.1 Individually read the article by Song and Hill (2007) on self-directed learning (SDL). Discuss in small groups the concept of self-directed learning and then draw a mind map to illustrate the elements thereof. Random groups will be asked to give feedback on their mind maps.

1.2 In the big group discuss how preceptors can assist students to become self-directed learners.

6. Evidence-based practice

Outcomes regarding evidence-based practice are that you will be able to:

- Assist students in finding best practice guidelines to support their nursing interventions
- Use standardised assessment criteria to evaluate the quality of the best practice guidelines
- Guide students on how to incorporate best practice guidelines in their care of patients

Compulsory reading

Melnyk, B. M., Fineout-Overholt, E. & Williamson, K. W. 2010. The Seven Steps of Evidence-Based Practice. *American Journal of Nursing*, *110*(1), 51–53.

Brouwers, M., Kho, M.E., Browman, G.P., Cluzeau. F., Feder, G., Fervers, B., Hanna, S. & Makarski, J. 2010. AGREE II: Advancing guideline development, reporting and evaluation in healthcare. Canadian Medical Association Journal 182(18), e839-e842.

Activity 1 – Best practice guidelines [2 hours]

1.1. In small groups discuss your understanding of evidence-based practice and share with the whole group. [15 minutes].

1.2. Read the article by Melnyk *et al.* (2010) and identify the main elements on which evidence-based practice is based. Whole group discussion on the topic. [20 minutes]

Evidence-based practice

Nursing care cannot be based on the findings of a single article as the quality of the research described in the article may be of low standard. It is also unreasonable to expect every nurse to conduct complex research in order to compile best practice guidelines. Luckily there are nursing researchers who develop best practice guidelines that we can use in practice. However, it is the responsibility of the preceptor to be aware of best practice guidelines pertaining to her/his field of expertise and to guide students in its implementation.

Best practices are determined through a comprehensive search for evidence in primary research articles. From these evidence the reviewers or researchers then synthesise the recommendations and compile the final guidelines. Research finding are based on the average and does not necessarily address the needs of those who fall outside the normal distribution of findings. Figure 8 illustrates that evidence-based practice is influenced by the best practice guidelines, the clinician' experience and the preferences of the patient and/or family.

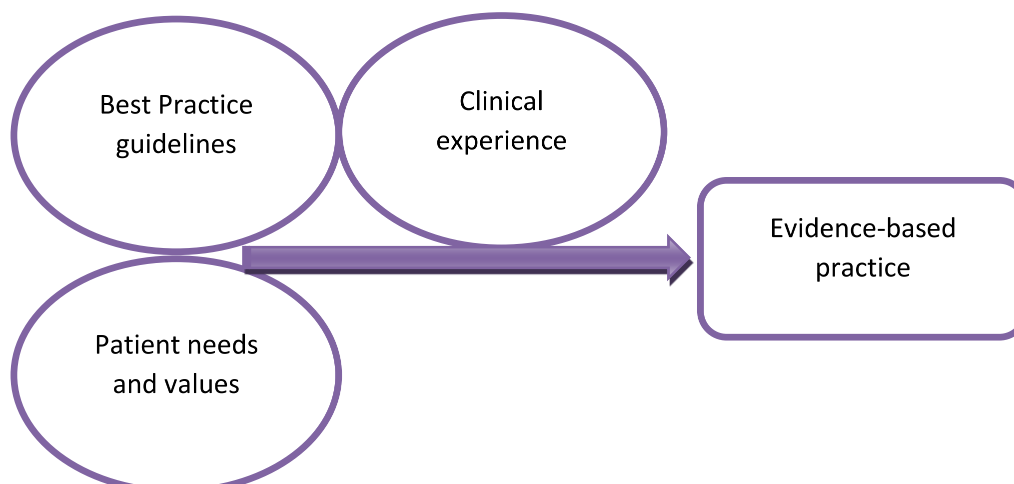

Figure 11: schematic representation of evidence-based practice

Research is classified according to the design of the study and rated accordingly. Recommendations based on randomised control trials are strongly recommended while those based on expert opinion are less valued. Quality of guidelines varies and you need to be able to evaluate a guideline before you start implementing the recommendations. Guidelines can be adopted (used as it is without any changes), contextualised (minor changes to be aligned with your context), or adapted (slightly more in-depth changes are made). Various tools to evaluate guidelines are available and we shall be using the AGREE II tool by the World Health Organization.

AGREE II guidelines (http://www.agreetrust.org/agree-ii/)

Criteria	Yes/No
Domain 1: Scope and purpose	
The overall objective(s) of the guideline is(are) specifically described	
The health question(s) covered by the guidelines is(are) specifically described	
The population (patients, public, etc.) intended by the guidelines is specifically described	
Domain 2: Stakeholder involvement	
The guideline development group includes individuals from all the relevant professional groups	
The views and preferences of the target population (patients, public, etc.) have been sought	
The target uses of the guidelines are clearly defined	
Domain 3: Rigour of development	
Systematic methods were used to search for evidence	
The criteria for selecting the evidence are clearly described	
The strengths and limitations of the body of evidence are clearly described	
The methods for formulating the recommendations are clearly described	
The health benefits, side effects, and risks have been considered in formulating the recommendations	
There is an explicit link between the recommendations and the supporting evidence – hierarchy of evidence	
The guideline has been externally reviewed by experts prior to its publication	
A procedure for updating the guideline is provided	
Clarity of presentation	
The recommendation are specific and unambiguous	
The different options for management of the condition or health issue are clearly presented	
Key recommendations are easily identifiable	
Applicability	
The guideline describes facilitators and barriers to its application	
The guideline provides advice and/or tools on how the recommendations can be put into practice	

The potential resource implications of applying the recommendations have been considered	
The guideline presents monitoring and/or auditing criteria	
Editorial independence	
The views of the funding body have not influenced the content of the guideline	
Competing interests of guideline development group members have been recorded and addressed	

Activity 1 – continue

1.3. Each group will be handed a copy of different guidelines. Please do not write on these copies as you have to hand them back after the activity. Study the AGREE II guidelines and then scan read each guideline and evaluate it by completing the AGREE II assessment tool. Prepare to give feedback on each tool. One group will give feedback on a set of guidelines while the other groups will add on. [40 minutes]

1.4. Discuss the implications of guidelines on your practice as clinician and as preceptor.

1.5. Search for a best practice guideline within your field of expertise and evaluate the guideline by applying the AGREE II tool.

7. Assessment of students in the clinical setting

After completion of this session on assessment you will be able to conduct valid and reliable assessments of student performance in the clinical setting. In order to attain this outcome, you should be able to:

- Apply the principles of assessment
- Perform integrated assessment of students
- Give constructive feedback to students after engagement with them

Assessment of students in the clinical setting

Beckman, T. J. & Lee, M. C. 2009. Proposal for a collaborative approach to clinical teaching. *Mayo Clinic proceedings*., 84(4), 339–344.

Lasater, K, 2007. Clinical judgment development: Using simulation to create an assessment rubric. *Journal of Nursing Education*, 46(11), 496-503.

Middlemas, D. A. & Hensal, C. 2009. Issues in Selecting Methods of Evaluating Clinical Competence in the Health Professions: Implications for Athletic Training Education. *Athletic Training Educational Journal*, 4(3), 109–116.

Panzarella, K. J. & Manyon, A. T. 2007. A model for integrated assessment of clinical competence. *Journal of Allied Health*, 36(3), 157–64.

Piek, N. & Botma, Y. 2017. Development and testing of a competence assessment instrument of undergraduate nursing students. University of the Free State.

Activity 1 – Assessment [2 hours]

1.1. Divide into small groups by counting 1–3. All the ones are in a group, all the twos etc.

1.2. Based on your reading of Panzarella and Manyon (2007), list the characteristics of integrated assessment. Give round robin feedback; the group participates by means of "fist to five" i.e. raise the fist if you disagree or give a high five if you agree with the speaker.

1.3. Refer back to the definition of competence and identify the elements that should be included in an assessment tool that measures competence. A volunteer group gives feedback while other groups expand on the feedback.

1.4. Copies of assessment tools from different institutions are distributed per group. For each instrument determine the following:
   - Identify the domains (main topics e.g. communication, infection control, aseptic technique etc.) that are addressed in each assessment tool [20 minutes]

1.5. Use the assessment tool provided to assess the student preparing an injection. Calculate the final mark. Determine the interrater reliability. Study the instrument and clarify any uncertainties. Repeat the exercise and compare the interrater reliability.

1.6. Discuss the factors that may influence the assessment of students and how it can be mediated. From the discussion, deduct the principles that assessments should adhere to.

8. Leadership in preceptorship

Preceptors has a powerful ability to influence students' competence to function in a complex health care environment. Leadership skills are of utmost importance to prepare the next generation nurses to function in this environment. Through the application of these skills, students can be inspired with vision and purpose to become agents of change who ensure best patient outcomes. Leadership is enforced through relationships and respect. Preceptors who have trusting relationships with their students will motivates their leaning and thinking.

Compulsory reading

Adelman-Mullally, T., Mulder, C. K., McCarter-Spalding, D. E., Hagler, D. A., Gaberson, K. B., Hanner, M. B. & Young, P. K. 2013. The clinical nurse educator as leader. Nurse Education in Practice, 13(1), 29-34.

***Activity 1 – Leadership [1 hours*]**

1.1. Draw an image connecting the preceptor as leaders in the development of the nursing workforce 2030.

Associative group analysis [5 minutes]

This activity is based on the idea that first comes into your mind. Do not ponder too much on what you write down – just write what comes first. It does not matter what it entails and how it is phrased.

- What did you learn?
- What is your knowledge skill gap?
- How to proceed from where you are?
- How am I going to use this knowledge?

9. Assignment

As stated previously you will not write tests or examinations. However, you must submit a reflective report as agreed with the coordinator, no later than one month after completion of the contact sessions. This reflective report will be assessed according to the rubric provided from p. 50 onwards.

The individual report reflects on your role and tasks as well as your own reflection in-action and on-action of being a preceptor. We recommend that you keep a reflective diary while accompanying students in the clinical field. Keep in mind the three main outcomes when facilitating the integration of theory in practice and developing the clinical reasoning skills of students.

9.1 Guidelines for the reflective report

Title page with the following information

Surname, Name

Contact details e.g. telephone number and e-mail address

Module for which you are appointed as preceptor

Name of the short learning programme

Name of the assignment

Typographical layout

Arial font size 12 point

Margins not smaller than 2 cm

Use headings and subheadings

Add a table of content

A reference list according to the abbreviated Harvard method must be attached
Content

It should not exceed 2 000 words

Review the rubric to ensure that you have addressed all the aspects required from you

Cite your sources correctly to prevent plagiarism

9.2 Reflective report on preceptorship

We recommend that you keep a daily reflective diary, bearing in mind the content that you have learned during the SLP. The reflection should focus on your preceptorship of one student over a period of one month. In this report we expect that you will reflect in-action and on-action on the following topics:

- Building a relationship with the student and co-workers
- Identification of learning needs of the student
- Support offered during the month
- Techniques to facilitate learning
- Creating awareness of best practices
- Formative or summative assessments done

Your reflective report on each topic should include the context, theoretical underpinnings, and considerations during the engagement with the student, and the knowledge you constructed. Refer to the assessment rubric.

Assessment rubric for preceptor's reflection report

1 General aspects	0	1	2	Mark
Title page correct and complete	Not done	Incomplete/incorrect	Correct and complete	
Table of content	Not done	Incomplete/incorrect	Correct and complete	
Typographical layout	Did not adhere to the criteria	Adhered to some of the technical layout criteria	Font size 12 point Margins not smaller than 2 cm Used headings and subheadings Kept to 3000 words maximum	
Introduction	Not done	Does not orientate the reader to the document	Give overview of what will follow and what reader can expect	
Language	Poor use of language	Average use of language	Formulate clearly and use the active voice – demonstrated academic writing style	

	0	1	2	3	4	Mark
2 Relationship building with the student and co-workers						
Description of context	Not done	Poorly done	Sketchy description of context	Created a good idea of context	Context well described - including learning climate and work environment	
Your considerations during engagement with student	Not done	Poorly done	Illogical thoughts or unaware of feelings and thoughts towards student	Fully aware of thoughts and emotions experienced during engagement with a student	Fully aware and in control of thoughts, emotional connotations and actions	
Theoretical basis of considerations and actions	Not linked to literature or linked to incorrect literature	Rephrasing of literature based on a single source	Some evidence of understanding with little evidence of transfer	Strong evidence of understanding of learning content with some evidence of transfer	Strong evidence of theory-practice integration	
Own knowledge construction	No evidence of learning	Superficial knowledge constructed	Superficial knowledge in some aspects and deep knowledge in others	Deep knowledge constructed	Display deep knowledge of the foundational content, original and creative thinking, and going beyond established practice	

3 Identification of learning needs of student						
Description of context	Not done	Poorly done	Sketchy description of context	Created a good idea of context	Context well described - including learning climate and work environment	
Your considerations during engagement with student	Not done	Poorly done	Illogical thoughts or unaware of feelings and thoughts towards student	Fully aware of thoughts and emotions experienced during engagement with a student	Fully aware and in control of thoughts, emotional connotations and actions	
Theoretical basis of considerations and actions	Not linked to literature or linked to incorrect literature	Rephrasing of literature based on a single source	Some evidence of understanding with little evidence of transfer	Strong evidence of understanding of learning content with some evidence of transfer	Strong evidence of theory-practice integration	
Own knowledge construction	No evidence of learning	Superficial knowledge constructed	Superficial knowledge in some aspects and deep knowledge in others	Deep knowledge constructed	Display deep knowledge of the foundational content, original and creative thinking, and going beyond established practice	
4 System support offered during the month						
Description of context	Not done	Poorly done	Sketchy description of context	Created a good idea of context	Context well described - including learning climate and work environment	
Your considerations during engagement with student	Not done	Poorly done	Illogical thoughts or unaware of feelings and thoughts towards student	Fully aware of thoughts and emotions experienced during engagement with a student	Fully aware and in control of thoughts, emotional connotations and actions	
Theoretical basis of considerations and actions	Not linked to literature or linked to incorrect literature	Rephrasing of literature based on a single source	Some evidence of understanding with little evidence of transfer	Strong evidence of understanding of learning content with some evidence of transfer	Strong evidence of theory-practice integration	

Own knowledge construction	No evidence of learning	Superficial knowledge constructed	Superficial knowledge in some aspects and deep knowledge in others	Deep knowledge constructed	Display deep knowledge of the foundational content, original and creative thinking, and going beyond established practice	
5	**Emotional support offered during the month**					
Description of context	Not done	Poorly done	Sketchy description of context	Created a good idea of context	Context well described - including learning climate and work environment	
Your considerations during engagement with student	Not done	Poorly done	Illogical thoughts or unaware of feelings and thoughts towards student	Fully aware of thoughts and emotions experienced during engagement with a student	Fully aware and in control of thoughts, emotional connotations and actions	
Theoretical basis of considerations and actions	Not linked to literature or linked to incorrect literature	Rephrasing of literature based on a single source	Some evidence of understanding with little evidence of transfer	Strong evidence of understanding of learning content with some evidence of transfer	Strong evidence of theory-practice integration	
Own knowledge construction	No evidence of learning	Superficial knowledge constructed	Superficial knowledge in some aspects and deep knowledge in others	Deep knowledge constructed	Display deep knowledge of the foundational content, original and creative thinking, and going beyond established practice	
6	**Cognitive support offered during the month**					
Description of context	Not done	Poorly done	Sketchy description of context	Created a good idea of context	Context well described - including learning climate and work environment	
Your considerations during engagement with student	Not done	Poorly done	Illogical thoughts or unaware of feelings and thoughts towards student	Fully aware of thoughts and emotions experienced during engagement with a student	Fully aware and in control of thoughts, emotional connotations and actions	

Theoretical basis of considerations and actions	Not linked to literature or linked to incorrect literature	Rephrasing of literature based on a single source	Some evidence of understanding with little evidence of transfer	Strong evidence of understanding of learning content with some evidence of transfer	Strong evidence of theory-practice integration	
Own knowledge construction	No evidence of learning	Superficial knowledge constructed	Superficial knowledge in some aspects and deep knowledge in others	Deep knowledge constructed	Display deep knowledge of the foundational content, original and creative thinking, and going beyond established practice	
7 Techniques used to facilitate learning						
Description of context	Not done	Poorly done	Sketchy description of context	Created a good idea of context	Context well described - including learning climate and work environment	
Your considerations during engagement with student	Not done	Poorly done	Illogical thoughts or unaware of feelings and thoughts towards student	Fully aware of thoughts and emotions experienced during engagement with a student	Fully aware and in control of thoughts, emotional connotations and actions	
Theoretical basis of considerations and actions	Not linked to literature or linked to incorrect literature	Rephrasing of literature based on a single source	Some evidence of understanding with little evidence of transfer	Strong evidence of understanding of learning content with some evidence of transfer	Strong evidence of theory-practice integration	
Own knowledge construction	No evidence of learning	Superficial knowledge constructed	Superficial knowledge in some aspects and deep knowledge in others	Deep knowledge constructed	Display deep knowledge of the foundational content, original and creative thinking, and going beyond established practice	
8 Self-directedness promoted in student						
Description of context	Not done	Poorly done	Sketchy description of context	Created a good idea of context	Context well described - including learning climate and work environment	

Your considerations in selecting the technique	Not described	Poorly described	Illogical thoughts or unaware of feelings and thoughts towards student	Fully aware of thoughts and emotions experienced during engagement with a student	Fully aware and in control of thoughts, emotional connotations and actions	
Theoretical basis of considerations and actions	Not linked to literature or linked to incorrect literature	Rephrasing of literature based on a single source	Some evidence of understanding with little evidence of transfer	Strong evidence of understanding of learning content with some evidence of transfer	Strong evidence of theory-practice integration	
Own knowledge construction	No evidence of learning	Superficial knowledge constructed	Superficial knowledge in some aspects and deep knowledge in others	Deep knowledge constructed	Display deep knowledge of the foundational content, original and creative thinking, and going beyond established practice	
9 Creating awareness of best practices						
Description of context	Not done	Poorly done	Sketchy description of context	Created a good idea of context	Context well described - including learning climate and work environment	
Your considerations during engagement with student	Not done	Poorly done	Illogical thoughts or unaware of feelings and thoughts towards student	Fully aware of thoughts and emotions experienced during engagement with a student	Fully aware and in control of thoughts, emotional connotations and actions	
Theoretical basis of considerations and actions	Not linked to literature or linked to incorrect literature	Rephrasing of literature based on a single source	Some evidence of understanding with little evidence of transfer	Strong evidence of understanding of learning content with some evidence of transfer	Strong evidence of theory-practice integration	
Own knowledge construction	No evidence of learning	Superficial knowledge constructed	Superficial knowledge in some aspects and deep knowledge in others	Deep knowledge constructed	Display deep knowledge of the foundational content, original and creative thinking, and going beyond established practice	

10	**Formative or summative assessment done**					
Description of context	Not done	Poorly done	Sketchy description of context	Created a good idea of context	Context well described - including learning climate and work environment	
Your considerations during engagement with student	Not done	Poorly done	Illogical thoughts or unaware of feelings and thoughts towards student	Fully aware of thoughts and emotions experienced during engagement with a student	Fully aware and in control of thoughts, emotional connotations and actions	
Theoretical basis of considerations and actions	Not linked to literature or linked to incorrect literature	Rephrasing of literature based on a single source	Some evidence of understanding with little evidence of transfer	Strong evidence of understanding of learning content with some evidence of transfer	Strong evidence of theory-practice integration	
Own knowledge construction	No evidence of learning	Superficial knowledge constructed	Superficial knowledge in some aspects and deep knowledge in others	Deep knowledge constructed	Display deep knowledge of the foundational content, original and creative thinking, and going beyond established practice	
11	**Reference list**					
		0	1-4	5-9	10	Mark
Alphabetical order Correct sequence of information Consistent sequence of information Correct punctuation Consistent punctuation Complete information per reference Citations in text are correct All citations are included in the reference list Spacing consistent and correct		None of the references are correct	Some of the references are correct	Most of the references are correct	Meet all the criteria with no mistakes	
12	Please elaborate by explaining what you have found beneficial in this preceptor-training programme.					
13	Please elaborate on additional content that you as a preceptor think should be added in this preceptor-training programme.					

ADDENDUM C

Approval letter from Health Sciences Research Ethics Committee

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

UFS·UV
HEALTH SCIENCES
GESONDHEIDSWETENSKAPPE

IRB nr 00006240
REC Reference nr 230408-011
IORG0005187
FWA00012784

28 June 2017

MS L HUGO
SCHOOL OF NURSING
IDALIA LOOTS BUILDING
UFS

Dear Ms L Hugo

ECUFS 134/2013B
PRINCIPAL INVESTIGATOR: MS L HUGO
PROJECT TITLE: THE INFLUENCE OF A TRAINING PROGRAMME FOR UNDERGRADUATE NURSING PRECEPTORS ON COMPETENCE, SUPPORT AND TRANSFER OF LEARNING

APPROVED

1. You are hereby kindly informed that the Health Sciences Research Ethics Committee (HSREC) approved this protocol after all conditions were met.

2. The Committee must be informed of any serious adverse event and/or termination of the study.

3. Any amendment, extension or other modifications to the protocol must be submitted to the HSREC for approval.

4. A progress report should be submitted within one year of approval and annually for long term studies.

5. A final report should be submitted at the completion of the study.

6. Kindly use the **ECUFS NR** as reference in correspondence to the HSREC Secretariat.

7. The HSREC functions in compliance with, but not limited to, the following documents and guidelines: The SA National Health Act. No. 61 of 2003; Ethics in Health Research: Principles, Structures and Processes (2015); SA GCP(2006); Declaration of Helsinki; The Belmont Report; The US Office of Human Research Protections 45 CFR 461 (for non-exempt research with human participants conducted or supported by the US Department of Health and Human Services-(HHS), 21 CFR 50, 21 CFR 56; CIOMS; ICH-GCP-E6 Sections 1-4; The International Conference on Harmonization and Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH Tripartite), Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines, Constitution of the HSREC of the Faculty of Health Sciences.

Yours faithfully

PROF WJ STEINBERG
VICE CHAIR: HEALTH SCIENCES RESEARCH ETHICS COMMITTEE

Health Sciences Research Ethics Committee
Office of the Dean: Health Sciences
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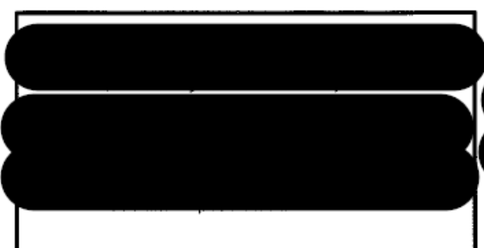
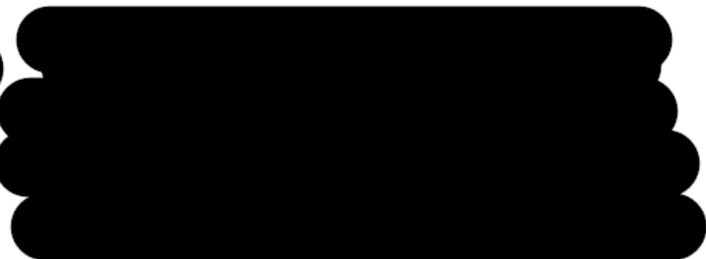
Block D, Dean's Division, Room D104 | P.O. Box/Posbus 339 (Internal Post Box G40) | Bloemfontein 9300 | South Africa
www.ufs.ac.za

ADDENDUM D

Approval letter from experimental and control sites' Ethics Committee

30/03/2017

Approval Certificate
New Application

Ethics Reference

Title: The influence of a training programme for undergraduate nursing preceptors on competence, support and transfer of learning

Dear Ms Lizemari Hugo

The **New Application** as supported by documents specified in your cover letter dated 22/03/2017 for your research received on the 22/03/2017, was approved by the Faculty of Health Sciences Research Ethics Committee on its quorate meeting of 29/03/2017.

Please note the following about your ethics approval:

- Ethics Approval is valid for 2 years
- Please remember to use your protocol number) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

Ethics approval is subject to the following:

- The ethics approval is conditional on the receipt of **6 monthly written Progress Reports**, and
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

31 May 2017

THE INFLUENCE OF A TRAINING PROGRAMME FOR UNDERGRADUATE NURSING PRECEPTORS ON COMPETENCE, SUPPORT AND TRANSFER OF LEARNING

PI: Ms L Hugo

Your above-entitled application served at Research Ethics Committee (Human) for approval.

The ethics clearance reference number is and is valid for three years. Please inform the via your faculty representative, if any changes (particularly in the methodology) occur during this time. An annual affirmation to the effect that the protocols in use are still those for which approval was granted, will be required from you. You will be reminded timeously of this responsibility, and will receive the necessary documentation well in advance of any deadline.

We wish you well with the project.

Yours sincerely

ADDENDUM E

Nursing education institution consent for participation in preceptor-training programme

CONSENT FOR PARTICIPATION IN PRECEPTOR-TRAINING PROGRAMME

RESEARCH TITLE: the influence of a training programme for undergraduate nursing preceptors on competence, support and transfer of learning.

To whom it may concern

My name is Lizemari Hugo and I am a lecturer at the School of Nursing at the University of the Free State. I am busy with my PhD degree and in need of your assistance in my preceptor-training programme.

In my study I am developing a training programme for preceptors. The aim of the programme is to train preceptors so that they can provide adequate support to students to promote clinical competence in the students' performance. The training is scheduled over three consecutive days. After the training the preceptors are required to accompany one student for a month and compile a structured reflection report on their accompaniment experience.

Please select clinical preceptors with Bachelor's degrees to participate in the training programme. It is a prerequisite for the preceptors to hold a bachelor's degree because the second phase of the study will be conducted at nursing education institutions at universities that offer these degrees.

Hereby I am requesting permission from your Nursing Education Institution to present the preceptor-training programme and to use data collected from the reflection reports to refine and improve the preceptor-training programme.

Provisional ethical clearance was granted by the University of the Free State Health Sciences Research Ethics Committee (ECUFS NR 134/2013B). You are also welcome to contact the Research Division at 051 401 7794 or my supervisor, Prof Yvonne Botma at 051 401 3476.

Please feel free to contact me if you should have any other question.

Thank you in advance for your support

Lizemari Hugo

________________________ ____________________

Signature of Head of Department Date

ADDENDUM F

Permission from nursing education institutions

Ms L Hugo

University of the Free State

Bloemfontein

Dear Ms Hugo

Regarding your research study: The influence of a training programme for undergraduate nursing preceptors on competence, support and transfer of learning.

You are hereby granted permission to conduct data collection in the [redacted] with clinical preceptors working with undergraduate Bachelor's degree students. It is acknowledged that you have ethical clearance from the University of the Free State Health Sciences Ethics committee (ECUFS NR 134/2013B).

Your data collection is commensurate with the agreement of staff in DNS to participate voluntarily in this study, and their agreement to sign consent in this regard.

Kind regards

From: Lizemari Hugo
To: Yvonne Botma
Subject: FW: Request for consent to conduct a research study at the [redacted]
Date: Tuesday, 28 March 2017 12:04:07 PM
Attachments: IMAGE.BMP

From: [redacted]
Sent: Tuesday, 28 March 2017 8:39 AM
To: Lizemari Hugo <HugoL1@ufs.ac.za>
Cc: [redacted]
Subject: Re: Request for consent to conduct a research study at the [redacted]

Dear Lizemari
I agree that you may continue with the study, as specified and approved by Ethics, at the [redacted]
I also received confirmation form [redacted] Head of the Department and Chair [redacted]
Good luck with the study.
Regards
[redacted]

[redacted]

Tel: +27 (0)12 319 2191 / 2192
Fax: +27 (0)86 518 9932
E-mail: tiaan.dejager@up.ac.za
www.up.ac.za

Faculty of Health Sciences
Room 5-21, Level 5, Deans Complex,
University of Pretoria, Private Bag X20, Hatfield, 0028, South Africa

[redacted]

>>> Lizemari Hugo <HugoL1@ufs.ac.za> 04:00 PM 2017/03/20 >>>
Dear Prof. [redacted]

Herewith is a request to train preceptors in the [redacted] and to assess the effect of the training programme on the competence of the second and third year undergraduate nursing students.

ADDENDUM G

Assessment instrument measuring competence of undergraduate nursing students

ASSESSMENT INSTRUMENT MEASURING COMPETENCE OF UNDERGRADUATE NURSING STUDENTS

Please assess the undergraduate nursing student's competence in a simulated patient scenario as seen on video footage with this assessment instrument.

For administrative use			
			1-3
		4-5	
		6-7	

Write your given assessor number and the number of the student who is being assessed:

Assessor number _______________________

Student number ________________________

Refer to the scale below to assess the student on each statement of the assessment instrument

0 = **Not done** (Student **does not demonstrate any** aspect of expected behaviour)

1 = **Incompetent** (Student demonstrates **some** aspects of excepted behaviour **haphazardly**)

2 = **Competent** (Student demonstrates **most** of the aspects of expected behaviour **orderly**)

3 = **Exceptionally competent** (Student demonstrates **all** of the aspects of expected behaviour **orderly & consistently)**

4 = **Not applicable** (**No opportunity** to demonstrate expected behaviour during simulated patient scenario)
Please read each statement and indicate with a ✓ your chosen option

Domain	0 **Not done** (Student **does not show any** of expected behavior)	1 **Incompetent** (Student demonstrates **some** aspects of excepted behaviour **haphazardly**)	2 **Competent** (Student demonstrates **most** of the aspects of expected behaviour **orderly**)	3 **Exceptionally competent** (Student demonstrates **all** of the aspects of expected behaviour **orderly and consistently**)	4 **Not applicable**	For administrative use	
Noticing/critical thinking							
The student: 1. collects applicable subjective data (history taking) holistically[5]							8
2. collects applicable objective data (observation) correctly, with the use of various techniques (observation, inspection, palpation, percussion and auscultation, side room investigations)							9
3. notices trends and/or deviations from baseline data/previous report							10
4. associates all assessment data with relevant sciences							11
5. the student's explanations of the findings to the patient/family/significant others/preceptor are scientifically correct							12
Interpretation/clinical reasoning							
The student: 6. offers relevant differential diagnoses							13
7. substantiates each differential diagnosis with evidence from the assessment data							14
8. requests more information/diagnostic tests to either confirm or nullify possible diagnoses							15
9. makes a correct final/working diagnosis based on the available data in the current clinical context							16

[5] Addresses all domains of living e.g. physical, emotional, psychosocial, social, cultural, spitirual, developmental etc.

Domain	0 Not done (Student does not show any of expected behavior)	1 Incompetent (Student demonstrates some aspects of excepted behaviour haphazardly)	2 Competent (Student demonstrates most of the aspects of expected behaviour orderly)	3 Exceptionally competent (Student demonstrates all of the aspects of expected behaviour orderly and consistently)	4 Not applicable	For administrative use	
Responding/clinical judgment							
The student: 10. ensures that the treatment plan addresses all healthcare needs (signs and symptoms)							17
11. ensures that the treatment plan is comprehensive[6] in nature with regard to all healthcare needs							18
12. ensures that nursing actions/care address the root cause(s) whenever possible and does not only offer symptomatic relief (except in palliative care)							19
13. plans nursing actions/care with regard to all healthcare needs based on best available evidence							20
14. prioritises the correct sequence in which all nursing actions/care should be implemented							21
15. executes all nursing activities that demonstrate foundational knowledge and psychomotor skill							22
16. The student's time-on-task is appropriately throughout							23
17. seeks assistance when care is beyond his/her competence level							24
18. appropriately monitors the patient's condition throughout							25
19. notices all reactions relevant to current nursing actions/care							26
20. adapts current nursing actions/care appropriately to the patient's needs							27

[6] Promotes health, prevents disease, curative and rehabilitative

Domain	0 Not done (Student does not show any of expected behavior)	1 Incompetent (Student demonstrates some aspects of excepted behaviour haphazardly)	2 Competent (Student demonstrates most of the aspects of expected behaviour orderly)	3 Exceptionally competent (Student demonstrates all of the aspects of expected behaviour orderly and consistently)	4 Not applicable	For administrative use	
Attitude							
The student: 21. was well prepared for the clinical exposure by demonstrating in-depth foundational knowledge, psychomotor competence and an acceptable attitude throughout							28
22. demonstrates interest in the patient/family/significant others throughout							29
23. demonstrates sensitivity towards the patient/family/significant others throughout							30
24. assumes primary responsibility for the care of the patient throughout							31
25. involves the patient/family/significant others in decision-making throughout							32
26. is confident throughout							33
27. is professional throughout							34

Domain	0 Not done (Student does not show any of expected behavior)	1 Incompetent (Student demonstrates some aspects of excepted behaviour haphazardly)	2 Competent (Student demonstrates most of the aspects of expected behaviour	3 Exceptionally competent (Student demonstrates all of the aspects of expected behaviour orderly and consistently)	4 Not applicable	For administrative use	
Communication							
The student: 28. expresses him/herself clearly throughout							35
29. communicates the applicability of all the aspects of the nursing care process throughout							36
30. explains relevant findings (normal and/or abnormal) with discretion to the patient/family/significant others							37
31. confirms all trends/patterns of the condition with the patient/family/significant others							38
32. communicates the root cause of the patient's condition to the patient/family/significant others (makes sense of all data gathered as described under clinical reasoning)							39
33. discusses all the patient's/family's/significant others' expectations and/or concerns with them throughout							40
34. assesses the patient's/family's/significant others' understanding of the information provided throughout (asks checking questions or uses other relevant methods)							41
35. uses SBAR to communicate with colleagues and/or inter-professional team							42
36. keeps legitimate records related to all patient care							43
Metacognition/thinking about thinking							
The student: 37. is realistic with the evaluation of own performance (limitations and/or excellences)							44
38. demonstrates realistic self-directed learning readiness by identifying limitations and/or excellences and plans on how to address learning needs							45

ADDENDUM H

Preceptor support questionnaire

PRECEPTOR SUPPORT QUESTIONNAIRE

By completing this questionnaire, you are consenting to participate in the research. Please evaluate the support that you received from your preceptor that accompanied your during this month. Your participation is voluntary and anonymous.

Write your age and year of study in numbers

1. Age ___________ years
2. Year of study | 1 | 2 | 3 | 4 |

Tick the box to indicate your ethnic group and gender

3. Ethnic group — White [1] Black [2] Coloured [3]; Indian [4] Asian [5]
4. Gender — Female [1] Male [2]

Read each statements and indicate with a X your chosen option

System support The preceptor:	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
5. enforce professional standards in practice.				
6. select meaningful education and practice opportunities to meet my learning needs.				
7. negotiated my workload with the clinicians in practice.				
8. arranged with me when he/she was available for facilitation.				
9. made sure that the relevant information/guidelines were at my disposal in the clinical facility.				
10. linked me with a skilled clinician to ensure continuity of my learning.				
11. collaborated with the inter-professional team.				
12. communicated my set objectives with the clinical supervisor				
13. established an active role for me in the clinical team.				
14. shared his/her expertise with the clinical team.				
System support The preceptor:	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
15. created a positive learning environment.				
16. organized a learning space so that I could join in patient care.				
17. made every patient encounter a learning experience.				
18. gave me a clear description of what was expected of me in the clinical practice.				
19. negotiated learning outcomes for the placement.				

Cognitive support The preceptor:	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
20. guided me in assessing the patient.				
21. guided me to notice pertinent information.				
22. guided me in interpreting the patient information.				
23. guided me to relate my knowledge with patient data.				
24. guided me to formulate differential diagnoses.				
25. guided me in making a final diagnosis.				
26. guided alternative treatment options.				
27. discussed treatment options with the patient.				
28. guided me to choose the most appropriate treatment plan in collaboration with the patient.				
29. promoted evidence-based practices.				
30. supported me to relate my theoretical knowledge to clinical practice.				
31. asked clear questions to **probe my learning.**				
32. explored my reasons for decisions.				
33. guided me in doing clinical skills.				
34. gave me constructive feedback **in preparation for my assessment.**				
35. demonstrated various approaches to patient's problems.				
Emotional support The preceptor:	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
36. stimulated me to see my strengths and limitations.				
37. assisted me in identifying personal learning needs.				
38. assisted me in meeting my learning needs by referring me to literature sources.				
39. decreased the amount of guidance in order to promote my independence.				
40. encourages me to achieve my set outcomes.				
41. was sensitive to my needs.				
42. was approachable during my clinical placement rotation.				
43. made me feel comfortable in asking questions.				
44. encourages me to participate in patient care.				
45. showed interest in me as a person.				
46. showed interest in my learning.				
47. supported me when I experienced difficulties in performing a task.				
48. gave me individual attention during my clinical rotation.				

Emotional support The preceptor:	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**
49. reduced my anxiety by preparing me for patient encounters.				
50. made me feel comfortable in discussions on patient care.				
51. knows me by name.				
52. helped me to establish rapport with other clinicians.				
53. builds my confidence.				

[7]

[7] To maintain the reliability and validity of the questionnaire it has not been translated into Afrikaans.

ADDENDUM I1

Informed consent form to complete support questionnaire

UNIVERSITY OF THE FREE STATE
FACULTY OF HEALTH SIENCES
SCHOOL OF NURSING

INFORMATION ON AND INFORMED CONSENT FORM TO PARTICIPATE IN RESEARCH AND THE COMPLETION OF A QUESTIONNAIRE.

RESEARCH TITLE: The influence of a training programme for undergraduate Nursing preceptors on competence, support and transfer of learning.

RESEARCHER: Ms L Hugo Mobile number: 082 781 2699

Dear Nursing Student

I, Lizemari Hugo, am doing research on the support that preceptors provide to their students. On completion of this research I will be able to evaluate the support that students receive from their preceptors. This research will count towards a PhD qualification. I would like to invite you to participate in this research study.

The study will follow a quantitative design where you will be asked to complete a questionnaire to evaluate your preceptor/s every month over a period of six months. The questionnaire will take about 15 minutes to complete. Bachelor's programme students in Nursing at your institution will be invited to participate in this study.

A random numerical value will be allocated to you by the researcher to enter on the questionnaire when evaluating your preceptor's support. No personal information will be required from you on the questionnaires. The researcher will supply you with a random number for the preceptor that you will be evaluating. To ensure your privacy during the evaluation process only the researcher will have access to your name and your random number. Further, you yourself will place the questionnaires in a sealed container so that no questionnaire can be linked to a specific student. All information gathered will be kept in the strictest confidential. The only impact this study will have on you is the time it will take to complete the questionnaires.

The only expectation that I have is that you will complete the questionnaire truthfully.

By completing the questionnaire, you are providing direct input on how we can improve your learning experience in the clinical setting and improve the quality of support that you receive from the preceptors.

Your participation in this research is voluntary, and you will not be penalised or lose benefits if you decline to participate or decide to terminate participation.

A time slot to complete the questionnaire will be negotiated when you are already on campus. There is no cost involved in the participation of this study. Note, also, that you will not receive any credit marks or financial compensation for participating in this study.

Data generated in this study can be used for publishing purposes. Note that reporting of such data will be in a collective manner and not individually, therefore maintaining your privacy.

Please note that by completing the questionnaire you are indicating that you understand what the study involves and that you are giving consent and voluntary agree to participate in this study.

Please contact me for any further information at 0827812699.

You are welcome to report any complaints or problems by contacting the Secretariat and Chair: University of the Free State Health Sciences Research Ethics Committee at (051) 401 7794.

ADDENDUM I2

Ingeligte toestemmingsvorm om ondersteuningsvraelys te voltooi

UNIVERSITEIT VAN DIE VRYSTAAT
FAKULTEIT GESONDHEIDSWETENSKAPPE
SKOOL VIR VERPLEEGKUNDE

INLIGTING OOR EN INGELIGTE TOESTEMMINGSVORM OM DEEL TE NEEM AAN NAVORSING EN ’N VRAELYS TE VOLTOOI

NAVORSINGSTITEL: The influence of a training programme for undergraduate Nursing preceptors on competence, support and transfer of learning.

Navorser: Me L Hugo Selfoon: 082 781 2699

Beste Verpleegkundestudent

Ek, Lizemari Hugo, doen navorsing oor die ondersteuning wat preseptore aan hul studente bied. By voltooiing van hierdie navorsing sal ek in staat wees om die ondersteuning wat studente van hul preseptore ontvang, te evalueer. Die navorsing word gedoen met die oog op ’n PhD kwalifikasie. Ek wil u graag uitnooi om deel te wees van die navorsingstudie.

Die studie volg ’n kwantitatiewe ontwerp waar u gevra sal word om ’n vraelys te voltooi om u preseptor elke maand vir die volgende twaalf maande te evalueer. Die vraelys sal sowat 15-minute neem om te voltooi. Baccalaureusprogramstudente in Verpleegkunde aan u instelling sal genooi word om deel te neem aan die studie.

‘n Numeriese lukrake waarde sal aan u toegeken word deur die navorser wat u op die vraelys moet invul wanneer die preseptor se ondersteuning evalueer. Die navorser sal u met ‘n lukrake nommer vir u preceptor voorsien wanneer u u preseptor evalueer.Om u privaatheid tydens die evaluerings proses te verseker slegs die navorser toegang hê tot u naam e die lukrake nommer. Verder sal U self die vraelys in ’n verseëlde houer plaas, sodat slegs die navorser toegang sal hê tot die vraelyste. Alle inligting wat ingesamel is, sal in die strengste vertroulikheid hanteer word. Die enigste impak wat hierdie studie op u sal hê is die tyd wat dit sal neem om die vraelyste te voltooi.

Die enigste verwagting wat ek van u het, is dat u die vraelys eerlik sal beantwoord.

Deur die vraelys te voltooi verskaf u direkte insette oor hoe ons u leerervaring in die kliniese opset, sowel as die gehalte van ondersteuning wat u van preseptore ontvang, kan verbeter.

U deelname aan die navorsing is vrywillig en u sal geensins gepenaliseer word of voordele verloor indien u weier om deel te neem of u deelname staak.

’n Tydsgleuf sal onderhandel word om die vraelys te voltooi wanneer u alreeds op kampus is. Daar is geen koste verbond aan deelname aan die studie nie. Let ook daarop dat u geen kredietpunte of finansiële vergoeding sal ontvang vir deelname aan hierdie studie nie.

Data wat bymekaar gemaak word in die studie kan gebruik word vir publikasie doeleindes. Let op dat rapporteering van die data wel op ‘n kollektiewe manier sal geskied en nie ‘n individuele manier nie wat u privaatheid behou.

Let asseblief daarop dat u deur die vraelys te voltooi, te kenne gee dat u verstaan waaroor die studie gaan en dat u toestemming verleen en vrywillig instem om deel te neem aan die studie.

Kontak my asseblief by 0827812699 vir enige verdere inligting.

U is ook welkom om enige klagtes of probleme aan te meld by die Sekretariaat en Voorsitter: Universiteit van die Vrystaat Gesondheidswetenskappe Navorsings-etiekkomitee by (051) 401 7794.

ADDENDUM J1

Informed consent form to participate in standardised patient simulation

UNIVERSITY OF THE FREE STATE
FACULTY OF HEALTH SIENCES
SCHOOL OF NURSING

INFORMATION ON AND INFORMED CONSENT FORM TO PARTICIPATE IN RESEARCH AND STANDARDISED PATIENT SIMULATOIN

RESEARCH TITLE: The influence of a training programme for undergraduate Nursing preceptors on competence, support and transfer of learning.

RESEARCHER: Ms L Hugo Mobile number: 082 781 2699

Dear Nursing Student

I, Lizemari Hugo, am doing research on the support that preceptors provide to their students. On completion of this research I will be able to evaluate the support that students receive from their preceptors. This research will count towards a PhD qualification. I would like to invite you to participate in this research study.

The study will follow a quantitative design where you will be asked to participate in a standardised patient (SP) simulation session. During the SP session, the researcher(s) or fieldworker(s) will simply observe your interaction with the SP and complete a questionnaire on your performance. No marks will be assigned to your performance and therefore this session will not have any influence on your assessment marks. The simulation session will take about 20 minutes to complete, followed by a short debriefing session.

All second and third year Bachelor's programme nursing students at your institution will be invited to participate in this study. The researcher/fieldworker will allocate a numerical value to your name in order to maintain your privacy. All information gathered will be kept in the strictest confidence.

The only expectation that I have is that you will participate to the best of your knowledge during the SP.

By participating in the SP you are providing direct input on how we can improve the support that you receive from preceptors in the clinical setting.

There is a direct need for participation in the SP session in order to identify and give feedback to your nursing education institution on gaps identified on students' performances. Your participation in this research is voluntary, and you will not be penalised or lose benefits if you decline to participate. If you decline to participate, your data will not be included in the research project.

There is no cost involved in the participation of this study. Note, also, that you will not receive any credit marks or financial compensation for participating in this study.

Data generated in this study can be used for publishing purposes. Note that reporting of such data will be in a collective manner and not individually, therefore maintaining your privacy.

Please contact me for any further information at 0827812699.

You are welcome to report any complaints or problems by contacting the Secretariat and Chair: University of the Free State Health Sciences Research Ethics Committee at (051) 401 7794.

______________________ ___________________

Signature of Participant Date

______________________ ___________________

Signature of Witness Date

ADDENDUM J2

Ingeligte toestemmingsvorm om deel te neem aan gestandardiseerde pasiënt simulasie

UNIVERSITEIT VAN DIE VRYSTAAT
FAKULTEIT GESONDHEIDSWETENSKAPPE
SKOOL VIR VERPLEEGKUNDE

INLIGTING OOR EN INGELIGTE TOESTEMMINGSVORM OM DEEL TE NEEM AAN NAVORSING EN GESTANDARDISEERDE PASIËNT SIMULASIE

Navorsingstitel: The influence of a training programme for undergraduate Nursing preceptors on competence, support and transfer of learning.

Navorser: Me L Hugo Selfoon: 082 781 2699

Beste Verpleegkundestudent

Ek, Lizemari Hugo, doen navorsing oor die ondersteuning wat preseptore aan hul studente bied. Deur die voltooiing van hierdie navorsing sal ek in staat wees om die ondersteuning wat studente van hul preseptore ontvang, te evalueer. Die navorsing word gedoen met die oog op ’n PhD kwalifikasie. Ek wil u graag uitnooi om deel te wees van die navorsingstudie.

Die studie volg ’n kwantitatiewe ontwerp waar u gevra sal word om deel te neem aan ’n gestandaardiseerde pasiënt simulasiesessie (SP). Tydens die SP sessie sal die navorser(s) of veldwerker(s) bloot u interaksie met die SP observeer en ’n vraelys oor u optrede voltooi. Geen punte sal aan u optrede toegeken word nie en derhalwe sal hierdie sessie geen invloed hê op u assesseringspunt nie. Die simulasie sessie sal omtrent 20 minute neem om the voltooi, gevolg deur ‘n kort groepsgesprek.

Alle tweede en derde jaar Baccalaureusprogramstudente in Verpleegkunde aan u instelling sal genooi word om deel te neem aan die studie. Geen persoonlike inligting van u sal vereis word nie aangesien die navorser ’n numeriese lukrake nommer aan u sal toeken; met die gevolg dat slegs die navorser u nommer met u as persoon kan verbind. Alle inligting wat ingesamel is, sal met die strengste vertroulikheid hanteer word.

Die enigste verwagting wat ek van u het, is dat u tot die beste van u kennis sal optree tydens die SP.

Deur aan die SP deel te neem verskaf u direkte insette oor hoe ons u leerervaring in die kliniese opset sowel as die gehalte van ondersteuning wat u van die preseptore ontvang, kan verbeter.

Daar is ’n direkte noodsaak vir deelname aan die SP sessie ten einde gapings wat in studente se prestasie geïdentifiseer is, aan die verpleegopleidingsinstansie deur te gee. U deelname aan die navorsing is vrywillig en u sal geensins gepenaliseer word of voordele verloor nie indien u weier om deel te neem of u deelname staak. Indien u besluit om nie deel te neem nie, sal u data nie in die navorsingsprojek ingesluit word nie.

Daar is geen koste verbond aan deelname aan die studie nie. Let ook daarop dat u geen kredietpunte of finansiële vergoeding sal ontvang vir deelname aan hierdie studie nie.

Data wat bymekaar gemaak word in die studie kan gebruik word vir publikasie doeleindes. Let op dat rapporteering van die data wel op ‘n kollektiewe manier sal geskied en nie ‘n individuele manier nie wat u privaatheid behou.

Kontak my asseblief by 0827812699 vir enige verdere inligting.

U is ook welkom om enige klagtes of probleme aan te meld by die Sekretariaat en Voorsitter: Universiteit van die Vrystaat Gesondheidswetenskappe Navorsingsetiekkomitee by (051) 401 7794.

________________________ ____________________

Handtekening van deelnemer Datum

________________________ ____________________

Handtekening van getuie Datum

ADDENDUM K1

Informed consent form for preceptor-training programme

UNIVERSITY OF THE FREE STATE
FACULTY OF HEALTH SIENCES
SCHOOL OF NURSING

INFORMATION AND INFORMED CONSENT FORM TO PARTICIPATE IN RESEARCH.

RESEARCH TITLE: The influence of a training programme for undergraduate Nursing preceptors on competence, support and transfer of learning.

RESEARCHER: Ms L Hugo Mobile number: 082 781 2699

Dear Nursing Preceptor

I, Lizemari Hugo, am developing a training programme for undergraduate nursing preceptors. On completion of this research study I aim to determine the influence of the training programme on the competence and support of undergraduate nursing students and the transfer of learning in preceptors. This research counts towards a PhD qualification.

I would like to invite you to participate in this research. To this end, I am asking your permission to use the deliverables created during and after the preceptorship programme for research purposes. The purpose of using the deliverables is to refine and improve the quality of the preceptorship programme as perceived by the participants.

Part of the deliverables, include a reflection report that you will have to hand in after one month of accompanying a student in the clinical facility. Guidelines on the reflection report are included in the preceptor workbook. Marks will be allocated to the reflection report. You will have to pass the reflection report with 50% in order to successfully complete the programme.

You may withdraw from this study at any time. After the assessment of the reflection report, the researcher will again require permission from you to use your reflection report, therefore your marks will not be influenced if you should choose to withdraw from the study.

There is no direct risk involved in this study. All the information from the reflection report and deliverables will be dealt in a confidential manner. The research team working on this project are the only people who have access to the research data. All results will be reported by group and not individual. The deliverables collected in this research may be used for publishing purposes.

Note that you will not receive any financial remuneration for participating in this study.

There is no cost involved in the participation of this study.

Please contact me for any further information at 082 781 2699.

You are welcome to report any complaints or problems by contacting the Secretariat and Chair: University of the Free State Health Sciences Research Ethics Committee at (051) 401 7794.

_______________________	_______________________
Signature of participant	Signature of witness
_______________________	_______________________
Date	Date

Final permission granted by participant.

_______________________	_______________________
Signature of participant	Signature of witness
_______________________	_______________________
Date	Date

ADDENDUM K2

Ingeligte toestemmingsvorm om deel te neem aan preceptor opleidingsprogram

UNIVERSITEIT VAN DIE VRYSTAAT
FAKULTEIT GESONDHEIDSWETENSKAPPE
SKOOL VIR VERPLEEGKUNDE

INLIGTING OOR EN INGELIGTE TOESTEMMINGSVORM OM DEEL TE NEEM AAN NAVORSING EN OBJEKTIEWE GESIMULEERDE KLINIESE EKSAMEN

Navorsingstitel: The influence of a training programme for undergraduate Nursing preceptors on competence, support and transfer of learning.

Navorser: Me L Hugo Selfoon: 082 781 2699

Beste Verpleegkundepreseptor

Ek, Lizemari Hugo, ontwikkel ’n opleidingsprogram vir voorgraadse Verpleegkunde-preseptors. By voltooiing van hierdie navorsing het ek ten doel om die invloed van die opleidingsprogram op die vaardigheid en ondersteuning van voorgraadse Verpleegkundestudente en die oordrag van leer deur preseptore te kan bepaal. Die navorsing word gedoen met die oog op ’n PhD kwalifikasie.

Ek wil u graag uitnooi om deel te wees van die navorsing. Derhalwe vra ek u toestemming om die meetbare inligting wat geskep is tydens die preseptorprogram te gebruik vir navorsing. Die doel om die meetbare inligting te gebruik is om die waarde van die preseptorprogram, soos beskou deur die deelnemers, te verfyn en te verbeter.

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Die navorsingspan wat op hierdie projek werk is die enigste persone wat toegang het tot die navorsingsdata. Die meetbare data wat in hierdie studie ingesamel word, mag gebruik word vir publikasiedoeleindes.

Kontak my asseblief by 0827812699 vir enige verdere inligting.

U is ook welkom om enige klagtes of probleme aan te meld by die Sekretariaat en Voorsitter: Universiteit van die Vrystaat Gesondheidswetenskappe Navorsingsetiekkomitee by (051) 401 7794.

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______________________	______________________
Handtekening van getuie	Datum

ADDENDUM L1

Author guidelines Nurse Education in Practice

NURSE EDUCATION IN PRACTICE

AUTHOR INFORMATION PACK

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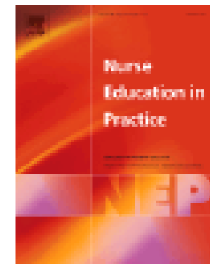

ISSN: 1471-5953

DESCRIPTION

Nurse Education in Practice enables lecturers and practitioners to both share and disseminate evidence that demonstrates the actual **practice** of **education** as it is experienced in the realities of their respective work environments, that is both in the University/faculty and clinical settings. It is supportive of new authors and is at the forefront in publishing individual and collaborative papers that demonstrate the link between education and practice.

Nursing is a discipline that is grounded in its practice origins - nurse educators utilise research-based evidence to promote good practice in education in all its fields. A strength of this journal is that it seeks to promote the development of a body of evidence to underpin the foundation of **nurse education practice**, as well as promoting and publishing education focused papers from other health care professions which have the same underpinning philosophy.

Case studies and innovative developments that demonstrate how nursing and health care educators teach and facilitate learning, together with reflection and action that seeks to transform their professional practice will be promoted.

The opportunity to stimulate debate is encouraged as is the promotion of evidence-based nursing education internationally.

New sections:
Clinical education
Papers which focus on nursing education in the clinical practice environment, from clinical staff involved in the education of student nurses in practice, as well as educators involved in the development of the workforce through post-qualifying education and training initiatives, are welcomed. It is essential that, as in other areas of nursing education, the evidence-base to education in the clinical environment is developed, where student nurses learn to become nurses; and professional caring practitioners develop and maintain their own knowledge and skills in order to transform the way they develop and deliver quality care to their patients and clients. One field that this is especially visible is known as Practice Development.

Midwifery Education
In keeping with the overall aims and scope of the journal *Nurse Education in Practice* (*NEP*), the midwifery section focuses upon education at an international level. The editorial team wish to encourage submission of papers that relate to midwifery which demonstrate:
• Innovation and development of education;

• Creativity in teaching and learning strategies;
• Advancement of practice-based education;
• Collaborative education initiatives between women and midwives;
• Delivery of education within the maternity services.

Submit your paper online at https://www.evise.com/profile/#/NEP/login. Please refer to the journal author guidelines for the specific detail of the format of papers.

From 2016 all articles published in *Nurse Education in Practice* will be immediately assigned to an issue upon acceptance, without having to wait in press. This will mean immediate publication for all authors, upon completion of post-acceptance publishing processes.

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ADDENDUM M1

Author guidelines International Journal of Nursing Studies

INTERNATIONAL JOURNAL OF NURSING STUDIES

AUTHOR INFORMATION PACK

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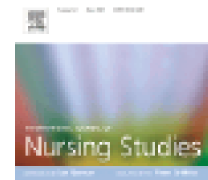

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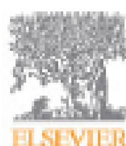

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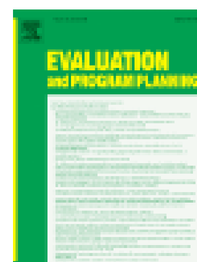
- **Guide for Authors** **p.4**



ISSN: 0149-7189

DESCRIPTION

Purpose and Intent of the Journal

Evaluation and Program Planning is based on the principle that the techniques and methods of **evaluation** and **planning** transcend the boundaries of specific fields and that relevant contributions to these areas come from people representing many different positions, intellectual traditions, and interests. In order to further the development of evaluation and planning, we publish articles from the private and public sectors in a wide range of areas: organizational development and behavior, training, planning, human resource development, health and mental, social services, mental retardation, corrections, substance abuse, and education. The primary goals of the journal are to assist evaluators and planners to improve the practice of their professions, to develop their skills and to improve their knowledge base.

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We publish articles, "special issues" (usually a section of an issue), and book reviews. Articles are of two types: 1) reports on specific evaluation or planning efforts, and 2) dicussions of issues relevant to the conduct of evaluation and planning.

Reports on individual evaluations should include presentation of the evaluation setting, design, analysis and results. Because of our focus and philosophy, however, we also want a specific section devoted to "lessons learned". This section should contain advice to other evaluators about how you would have acted differently if you could do it all over again. The advice may involve methodology, how the evaluation was implemented or conducted, evaluation utilization tactics, or any other wisdom that you think could benefit your colleagues. More general articles should provide information relevant to the evaluator/planner's work. This might include theories in evaluation, literature reviews, critiques of instruments, or discussions of fiscal, legislative, legal or ethical issues affecting evaluation or planning.

Special issues are groups of articles which cover a particular topic in depth. They are organized by "special issue editors" who are willing to conceptualize the topic, find contributors, set up a quality control process, and deliver the material. Often several editors share responsibility for these tasks. Suggestions for special issues are encouraged.

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Special issues and book reviews

Special issues are groups of articles which cover a particular topic in depth. They are organized by "special issue editors" who are willing to conceptualize the topic, find contributors, set up a quality control process, and deliver the material. Often several editors share responsibility for these tasks. Suggestions for special issues are encouraged; please email the Editor at: Jonny.Morell@newvectors.net.

New! Evaluation and Program Planning is soliciting book reviewers. People with suggestions that are within the journal's editorial scope are asked to contact Jonny Morell, EPP's editor, at Jonny.Morell@newvectors.net. Book reviews cover any area of social science or public policy which may interest evaluators and planners.

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[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T. (2015). Mortality data for Japanese oak wilt disease and surrounding forest compositions. Mendeley Data, v1. http://dx.doi.org/10.17632/xwj98nb39r.1.

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ADDENDUM N2

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Date: Tue, Jun 26, 2018 at 12:45 PM
Subject: Successfully received: submission Looking beneath the surface of a preceptor-training programme through a realist evaluation for Evaluation and Program Planning
To: hugolizemari@gmail.com

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Ref: EPP_2018_176
Title: Looking beneath the surface of a preceptor-training programme through a realist evaluation
Journal: Evaluation and Program Planning

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ADDENDUM O

Confidentiality agreement of fieldworkers and SPs

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GESONDHEIDSWETENSKAPPE

CONFIDENTIALITY AGREEMENT OF INFORMATION

During your participation in the simulation session(s) as fieldworker or standardised patient, you will likely to observe the performance of other individuals in assessing and managing healthcare events. As a participant in these activities, you are asked to maintain and hold confidential all information regarding the performance of specific individuals and the details of specific scenarios.

By signing this document, you acknowledge to having read and understood these conditions and agree to maintain strictest confidentiality about any observations you may make about the performance of individuals.

Participant role (Fieldworker or Standardised patient): ………………...

____

Print name

___________________________ ___________________________

Signature **Date**

___________________________ ___________________________

Witness Signature **Date**

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Simulation: Permission form

ADDENDUM P1

Standardise patient case scenarios

Upper abdominal pain

STANDARDISED PATIENT SIMULATION SCENARIO

SIMULATION TOPIC:	**Abdominal conditions**
Theme:	Upper abdominal pain
Coordinator:	
Programme:	nursing
Module name:	
Simulation environment:	Primary healthcare setting
Time Fieldworker briefing	1 hour
Time SP briefing	1 hour
Time student briefing	5 minutes
Estimated Time for Simulation in minutes	20 minutes
Estimated Time for Debriefing in minutes	45 minutes
Brief summary	Patient visits the clinic complaining of upper abdominal pain.
Outcomes for this simulation:	Student will be able to: • take a focused history of an adult patient with upper abdominal pain • do a focused physical examination of the abdomen by using appropriate techniques • differentiate between possible diagnoses, demonstrate clinical reasoning, and make a working diagnosis • plan treatment options with the patient by means of health dialogue • reflect on his or her reasoning processes
Patient characteristics: **age & gender**	Adult male or female patient
Date of birth	
Marital status	Recently divorced
Occupation	Lawyer
General appearance and dress / attire e.g. street cloths, gown undergarments, theatre gown	Casual loose fitting shirt and pants

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Main complaint / opening line		I have stomach pain which has become worse the last two weeks
Symptom analysis	**When did it start / onset**	Three months ago
	Duration	For the past three months but became worse the past two weeks. Sometimes wakes patient at night.
	Nature	Burning pain
	Aggravates	Not eating
	Improves	Eating
	Causing factors	None
	Quality/Intensity	5/10
	Radiation /site	Left upper abdomen and sometimes radiate to back
	Frequency	
	Associated symptoms	Nausea, Heartburns sometimes, Anorexia
Assessment findings:		
History	**Previous hospitalizations**	None
	Previous surgery	None
	Chronic illness	None
Family history:	**Mother** **Father:** **Siblings:**	Mother has hypertension
Systems	**: Neurological**	No problems
	Psychosocial	Experience stress with the divorce and at work
	Cardiovascular	No problems
	Respiratory	No problems
	Gastrointestinal	Normal bowel movements. No colour change
	Genitourinary	No problems
	Gynaecological	None. Normal menstruation periods that ended yesterday.
	Obstetrical	Two children with no problems during pregnancy.
	Musculoskeletal	No problem

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Medications	**Prescription**	None
	Over the counter drugs	Ibuprofen 2tabs taken for the last month to help with the pain
	Allergies to med	None known
	Seasonal allergies	None
	Food or other allergies	None
Psychosocial history	**Smoking**	10 cigarettes per day
	Alcohol	One glass of wine in the evenings
	Recreational drugs	None
	Sexual drugs	None
Nutritional		Poor appetite since pain started. No dietary restrictions.
Daily living Activities		None
Abdominal	**Inspection**	None
	Auscultation	Normal bowel sounds
	Percussion	Patient indicated pain when percussing over left upper quadrant
	Palpation	Light palpation: tenderness experience when palpated over left upper quadrant. Deep palpation: tenderness experienced over left upper quadrant. No rebound tenderness
Differential diagnoses		
Management		
	PLANNING	
Documents needed		1. Patient file 2. Recording document/assessment from 3. Vital signs card with side room investigations 4. Pen 5. IMCI booklet
Essential references:		Primary Clinical Manual 2012:105

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Equipment	nr	Consumables	nr	Drugs	nr	Documents	nr
Bed	**1**	**NA**		NA		NA	
Stethoscope	**1**	**NA**		NA		NA	
Basin	**1**	**Alcohol hand spray and liquid soap** **Towels**	**1**				

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PRIMARY HEALTH CARE CLINICAL RECORD

Patient Name: ___________________________________ Registration number: __________________________

DATE	TIME	ASSESSMENT AND MANAGEMENT	MEDICATION ISSUED	NAME IN PRINT	SIGNATURE

ADDENDUM P2

Standardise patient case scenarios

Sexual reproductive health

Standardised patient simulation scenario

SIMULATION TOPIC:	**Contraceptive method for a female client**
Theme:	Reproductive health
Coordinator:	
Programme:	nursing
Module name:	
Simulation environment:	Primary healthcare setting
Time Fieldworker briefing	1 hour
Time SP briefing	1 hour
Time student briefing	5 minutes
Estimated Time for Simulation in minutes	20 minutes
Estimated Time for Debriefing in minutes	45 minute
Brief summary	An unmarried female client requests a contraceptive method. Main reason: in a relationship and think to take the relationship to the next level (sexual intercourse) or afraid to fall pregnant.
Outcomes for this simulation:	Student will be able to: • take a focused history of an adult woman request contraception • do a focused physical examination of the breast by using appropriate techniques • present the possible contraceptive methods to the woman, and demonstrate clinical reasoning by posing pros and cons of each method • consult the woman with regard to her preferred contractive method through health dialogue • reflect on his or her reasoning processes
Patient characteristics: **age & gender**	Female in reproductive age (over 35 years)
Date of birth	
Relationship status	Stable relationship
Occupation	Clerk at law firm
General appearance and dress / attire e.g. street cloths, gown, undergarments, theatre gown	Casual clothes

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Main complaint / opening line		I need a contraceptive method.
Symptom analysis	When did it start / onset	NA
	Duration	NA
	Nature	NA
	Aggravates	NA
	Improves	NA
	Causing factors	NA
	Quality	NA
	Radiation /site	NA
	Frequency	NA
	Associated symptoms	NA
Assessment findings:		
	Previous hospitalizations	None
	Previous surgery	None
	Chronic illness	None
History Family history:	Mother Father Siblings	Mother has hypertension.
Systems	Neurological	No problems
	Cardiovascular	No problems
	Respiratory	No problems
	Gastrointestinal	No problems
	Genitourinary	No problems

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	Gynaecological/ Menstrual history	Had a pap smear six months ago Menarche: age ten years PMS: tender breast before menstruation and mood swings LMP (Last menstrual period): currently (Started yesterday) Menstrual interval/frequency: 29 days Menstruation period: 5 days Two to three pads per day Breast examination done every month: No lumps
	Obstetrical	No children
Medications	**Prescription**	No
	Over the counter drugs	No
	Allergies to med	Penicillin
	Seasonal allergies	No
	Food or other allergies	No
Psychosocial history	**Smoking**	Yes, 10-15 cigarettes per day
	Alcohol	Social, every weekend, two to three glasses of wine.
	Recreational drugs	No
	Sexual drugs	No
Nutritional		No dietary restriction
Activities of daily living		No routine exercise
Physical assessment	**Pulse rate**	78 beats per minute;
	Rhythm	Regular
	Breathing rate	18 /min
	Character of breathing	Normal
	Temp:	36.5°C
	BP	BP: $^{120}/_{75}$ mm Hg

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JACCOLD	**Jaundice**	NAD
	Anaemia	NAD
	Clubbing	NAD
	Cyanosis	NAD
	Oedema	NAD
	Lymph nodes	NAD
	Dyspnoea	NAD
Side room investigations		None
Laboratory investigations		None
Summary		Dialogue on duel method to protect against HIV and STI's. Suggest a mammography Options are: Injectable – Every 6 weeks Nur-Isterate Every 8 weeks Depo Provera Implants LNG Copper IUD LNG IUD
	PLANNING	
Documents needed		**6. Patient file** **7. Recording document/assessment from** **8. Vital signs card** **9. Pen** **10. National contraception guidelines/WHO Medical eligibility criteria for Contraception**
Essential references:		**Primary Clinical Care Manual, 2012:207-11** **National Contraception Guideline 2015** **WHO Medical eligibility criteria for contraception 2015/17**

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Equipment	nr	Consumables	nr	Drugs	nr	Documents	nr
Basin	**1**	**Alcohol hand spray and liquid soap** **Towels**	**1**				
Chair	**2**						
Table	**1**						

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PRIMARY HEALTH CARE CLINICAL RECORD

Patient Name: ______________________________________ Registration number: ___________________________

DATE	TIME	ASSESSMENT AND MANAGEMENT	MEDICATION ISSUED	NAME IN PRINT	SIGNATURE

ADDENDUM P3

Standardise patient case scenarios

Lower abdominal pain

Standardised patient simulation scenario

SIMULATION TOPIC:	**Abdominal conditions**
Theme:	Lower abdominal pain
Coordinator:	
Programme:	Nursing
Module name:	
Simulation environment:	Emergency room
Time fieldworker briefing	1 hour
Time SP briefing	1 hour
Time student briefing	5 min
Estimated Time for Simulation in minutes	20 min
Estimated Time for Debriefing in minutes	45 minutes
Brief summary	Patient complaints of lower abdominal pain that became worse since yesterday
Outcomes for this simulation:	Student will be able to: • take a focused history of an adult patient with lower abdominal pain • do a focused physical examination of the abdomen by using appropriate techniques • differentiate between possible diagnoses, demonstrate clinical reasoning, and make a working diagnosis • plan treatment options with the patient by means of health dialogue • reflect on his or her reasoning processes .
Patient characteristics: **age & gender**	Adult male or female patient
Date of birth	
Marital status	Married
Occupation	Clark at law firm
General appearance and dress / attire e.g. street cloths, gown, undergarments, theatre gown	Casual loose fitting shirt and pants
Main complaint / opening line	I have stomach pain which has become worse since yesterday.
Symptom analysis — **When did it start / onset**	Three days ago

	Duration	For the past three days but became worse since yesterday
	Nature	Stabbing pain
	Aggravates	By Movement
	Improves	Laying in the foetal position
	Causing factors	None
	Quality/Intensity	8/10
	Radiation /site	Localised lower abdomen. No radiation.
	Frequency	On and off periods of pain
	Associated symptoms	Nausea and vomiting Anorexia Malaise
Assessment findings:		
	Previous hospitalizations	None
	Previous surgery	None
	Chronic illness	None
History **Family history:**	**Mother:** **Father:** **Siblings:**	Mother has hypertension
Systems	**Neurological**	No problems
	Cardiovascular	No problems
	Respiratory	No problems
	Gastrointestinal	Lower abdominal pain with no feeling of heaviness in abdomen. Normal bowel movements.
	Genitourinary	No problems
	Gynaecological	None. No pain during intercourse. Normal menstruation periods.
	Obstetrical	Three children with no problems during pregnancy.
	Musco-skeletal	No problem
Medications	**Prescription**	
	Over the counter drugs	Panado's 2 tablets four hours ago with no effect.
	Allergies to med	None known
	Seasonal allergies	None
	Food or other allergies	None
Psychosocial history	**Smoking**	No
	Alcohol	Occasionally
	Recreational drugs	None

	Sexual drugs	None
Nutritional		Poor appetite since pain started. No dietary restrictions.
Daily living Activities		Difficulty in doing tasks due to severity of pain
Case specific questions		None
Physical assessment	**Pulse rate**	116 beats per minute
	Rhythm	Regular
	Breathing rate	24 breaths/min
	Character of breathing	Superficial thoracic breathing
	Temp:	38.2°C
	BP	BP: $^{148}/_{92}$ mm Hg
JACCOLD	**Jaundice**	NAD
	Anaemia	NAD
	Clubbing	NAD
	Cyanosis	NAD
	Oedema	NAD
	Lymph nodes	Tender lymph nodes in right groin
	Dyspnoea	NAD
Abdominal	**Inspection**	Noticed that patient experience pain when turning from foetal to the dorsal position. Patient appears to be guarding his abdomen
	Auscultation	Normal bowel sounds Normal vesicular sound
	Percussion	Patient indicated pain when percussing over right lower quadrant
	Palpation	Light palpation: tenderness experience when palpated over right lower quadrant. Deep palpation: Severe tenderness over McBurney's point. Positive rebound tenderness Psoas sign: Right Iliac Fossa (RIF) pain experienced with extension of right hip
Side room investigations		Urine test: Dark straw coloured urine with and aromatic smell. SG 1010 HB 12g/dl Pregnancy test negative Draw FBC for WBC count > 11 × 10^9/L

Differential diagnoses	Appendicitis (Working diagnosis) Ectopic pregnancy – can be excluded by negative pregnancy test Gastroenteritis – No diarrhoea Ovarian torsion – pain presents bilateral and radiates to the back Primary peritonitis – pain restricted to right lower abdomen Rupture of ovarian cyst – No gynaecological complaints e.g. irregular menstruation. Bloating, painful bowel movements, painful intercourse. Pain radiate to thigh. Salpingistis – No vaginal discharge UTI – Pyelonephritis – Normal urine analysis
Management	Start IV line with Dextrose 5% Keep patient NPO Suggest IV anti-emetic e.g. metoclopramide Suggest IV pain medication e.g. morfien Suggest IV anti-spasmodic e.g. Buscopan Suggest surgical consultation Do ultrasound
PLANNING	
Documents needed	11. Patient file 12. Recording document/assessment from 13. Vital signs card with side room investigations 14. Pen
Essential references:	Primary Clinical Manual 2012:105

Equipment	nr	Consumables	nr	Drugs	nr	Documents	nr
Bed	**1**	NA		NA		NA	
Stethoscope	**1**	NA		NA		NA	
Basin	**1**	**Alcohol hand spray and liquid soap**	**1**				

Equipment	nr	Consumables	nr	Drugs	nr	Documents	nr
		Towels					

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SIMULATION HOSPITAL EMERGENCY ROOM RECORD

Patient Name: ______________________________________ Registration number: __________________________

DATE	TIME	ASSESSMENT AND MANAGEMENT	MEDICATION ISSUED	NAME IN PRINT	SIGNATURE

ADDENDUM P4

Standardise patient case scenarios

Joint pain

Standardised patient simulation scenario

SIMULATION TOPIC:	Musculoskeletal condition
Theme:	Joint pain
Coordinator:	
Programme:	nursing
Module name:	
Simulation environment:	PHC setting
Time fieldworker briefing	1 hour
Time SP briefing	1 hour
Time student briefing	5 minutes
Estimated Time for Simulation in minutes	20 minutes
Estimated Time for Debriefing in minutes	45 minutes
Brief summary	Patient complaints of pain in the right knee that is becoming worse over the past month
Outcomes for this simulation:	Student will be able to: • take a focused history of an adult patient with joint pain • do a focused physical examination of the range of motion and muscle strength of the affected limbs by using appropriate techniques • differentiate between possible diagnoses, demonstrate clinical reasoning, and make a working diagnosis • plan treatment options with the patient through health dialogue • reflect on his or her reasoning processes
Patient characteristics: age & gender	Adult male or female patient 42 years
Date of birth	
Marital status	Married
Occupation	Clark at law firm
General appearance and dress / attire e.g. street cloths, gown, undergarments, theatre gown	Casual loose fitting shirt and pants that can be rolled over the knee.
Main complaint / opening line	I have a painful right knee for a while but it became becoming worse over the past month.

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Symptom analysis	**When did it start / onset**	Present for a long time. Started about 5 years ago
	Duration	On and off but constant now
	Nature	Dull pain
	Aggravates	Walking and standing for long periods
	Improves	Rest periods and pain medication
	Causing factors	Previous ligament injury while running a marathon.
	Quality/Intensity	5/10
	Radiation /site	Right knee
	Frequency	Pain periods as often when walking about. And sometimes wake the patient at night.
	Associated symptoms	Morning stiffness occurs, but lasting less than 30 minutes. Stiffness also occurs when sitting for extended periods.
Assessment findings:		
	Previous hospitalizations	None
	Previous surgery/injuries	Injured the right know 10 years ago during a running marathon.
	Chronic illness	Depression due to chronic pain
History **Family history:**	**Mother:** **Father:** **Siblings:**	Mother had hypertension
Systems	**Neurological**	No problems
	Cardiovascular	No problems
	Respiratory	No problems
	Gastrointestinal	No problems
	Genitourinary	No problems No vaginal/penile discharge
	Gynecological	No problems
	Obstetrical	If female: Three children with no problems during pregnancy.
	Musculoskeletal	Painful right knee joint
Medications	**Prescription**	Symgen 1 tab.per day (antidepressant)
	Over the counter drugs	Ibuprofen 2 tablets are taken three times per day before meals
	Allergies to med	None known
	Seasonal allergies	None
	Food or other allergies	None

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Psychosocial history	**Smoking**	No
	Alcohol	Occasionally
	Recreational drugs	None
	Sexual drugs	None
Nutritional		No dietary restrictions
Daily living Activities		Difficulty in walking and moving around due to pain.
Case specific questions		None
Physical assessment	**Pulse rate**	84 beats per minute;
	rhythm	Regular
	Breathing rate	20 breaths/min
	Character of breathing	Normal
	Temp:	36.2°C
	BP	BP: $^{127}/_{87}$ mm Hg
JACCOLD	**Jaundice**	NAD
	Anaemia	NAD
	Clubbing	NAD
	Cyanosis	NAD
	Oedema	NAD
	Lymph nodes	NAD
	Dyspnoea	NAD
Musculoskeletal examination of knee joints	**Inspection**	Left knee: NAD Right knee: May be bony enlargement, but no/little deformity of joint. May be muscle wasting
	Palpation	Left knee: NAD Right knee: No pain on movement Limitation in movement Crepitation may be felt.
Side room investigations		None

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Differential diagnoses	Bursitis – No signs of inflammation of joint Chondromalacia patella Gonorrhoea – No vaginal/penile discharge Gout – Symptoms started gradually and not acute Osteo-athiritis (working diagnosis) Osteomyelitis - Temp normal and no inflammation of joint Rheumatoid Arthritis – No systemic involvement Septic arthritis – No fever and inflammation in joint Trauma e.g. Sprain – No resent trauma to joint Tuberculosis – No TB contact or symptoms
Management	Prescribe analgesics and/or NSAID. Change Ibuprofen to 1 tab (200mg) per day. Information that NSAIDs should be taken after meals. If patient is overweight, they should be encouraged to lose weight. When exercise it should be non-weight baring exercise. Rest during acute painful episodes. Wear soft-soled shoes for waking or foam rubber inner soles.
PLANNING	
Documents needed	15. Patient file 16. Recording document/assessment from 17. Vital signs card with side room investigations 18. Pen
Essential references:	Primary Clinical Manual 2012:292

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Equipment	nr	Consumables	nr	Drugs	nr	Documents	nr
Table	**1**					NA	
Chair	**2**					NA	
Basin	**1**	**Alcohol hand spray and liquid Towels**	**1**				
Dispensing bags				**Ibuprofen Symgen**	**7**		

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PRIMARY HEALTH CARE CLINICAL RECORD

Patient Name: ____________________________________ Registration number: _________________________

DATE	TIME	ASSESSMENT AND MANAGEMENT	MEDICATION ISSUED	NAME IN PRINT	SIGNATURE

ADDENDUM P5

Standardise patient case scenarios

Child healthcare

FULL FINAL LABORATORY REPORT

Lab nr. 0149394554

Patient:

Lisa Presley

28/02/1982 (35yrs) Sex F	Collected: 09/08/17
	Received: 09/08/17

Patient location: MUCPP: ARV clinic

FOR ENQUIRIES AND FOLLOWED-UP TEST, PLEASE QUOTE PATIENT'S MRN NUMBER MRN132435

VIROLOGY

Tests requested:	HIV Viral Load @
HIV Moleculr investigations:	
HIV Viral Load:	
HIV Viral Load	Lower than detectable limit
Input Volume	0.200 Ml
Methodology	Abbott RealTime HIV-1 Test

Comment:

Based on the sample volume tested, the lower limit of detection is 150 RNA copies/ml. The linear range of this assay is 150 – 10, 000, 000 RN copies/Ml (2.16 – 7 LOG COPIES/ml.

The result should be interpreted in conjunction with CD4 counts and the patient's clinical status.

A result of lower than detectable limit cannot be presumed to be negative for HIV – 1 RNA.

@ HIV Viral Load performed at Simulation Academic Laboratory

**End of Laboratory Report **

Standardised patient simulation scenario

SIMULATION TOPIC:	Child healthcare
Theme:	Child healthcare
Coordinator:	
Programme:	Nursing
Module name:	
Simulation environment:	Primary healthcare
Time fieldworker briefing	1 hour
Time SP briefing	1 hour
Time student briefing	5 minutes
Estimated Time for Simulation in minutes	20 minutes
Estimated Time for Debriefing in minutes	3 minutes
Brief summary	Mother brings child for 6-month immunization. Child is coughing for 5 days.
Outcomes for this simulation:	Student will be able to: • Take a focused history and assessment of a sick child under 5 years of age • classify the child by noticing and interpreting assessment findings, demonstrate clinical reasoning by motivating the classification • plan treatment options with the caregiver by means of health dialogue • reflect on reasoning processes
Mother characteristics: age & gender	Adult male or female patient
Date of birth	35 years
Marital status	Married
Occupation	Clark at law firm
General appearance and dress / attire e.g. street cloths, gown, undergarments, theatre gown	Casual loose fitting shirt and pants
Assessment findings:	
Current conditions	HIV positive
Previous hospitalizations	None
Previous surgery	None
Chronic illness	None

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History Family history:	**Mother:** **Father:** **Siblings:**	None
Systems	**Neurological**	No problems
	Cardiovascular	No problems
	Respiratory	No TB contact
	Gastrointestinal	No problems
	Genitourinary	No problems
	Gynaecological	
	Obstetrical	Only have one child. Normal vaginal delivery with no problems during pregnancy.
	Musco-skeletal	No problem
Medications	**Prescription**	Antiretroviral drugs. Fixed dose therapy
	Over the counter drugs	None
	Allergies to med	None known
	Seasonal allergies	None
	Food or other allergies	None
Psychosocial history	**Smoking**	No
	Alcohol	Occasionally
	Recreational drugs	None
	Sexual drugs	None
Nutritional		No dietary restrictions.
Daily living Activities		No complaints

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Characteristics of Baby		
	Age	6 months
Main complaint / opening line		Baby for 6-month immunization and he has a cough.
When did it start / onset		Cough started 5 days ago
Duration		Coughing is on and off
Nature		Dry cough
Associated symptoms		Baby is not feeding well
Assessment findings:		
	Current conditions	Coughing but otherwise **healthy**
History **Family history:**	**Mother:** **Father:** **Siblings:**	HIV positive
Systems	**Neurological**	No problems
	ENT	No problems
	Cardiovascular	No problems
	Respiratory	**No TB contact**
	Gastrointestinal	No problems
	Genitourinary	No problems
	Gynaecological	No problems
	Obstetrical	No problems
	Musco-skeletal	No problems
Medications	**Prescription**	Cotrimoxazole (400/80mg/5ml) 5ml Dly p.o
	Over the counter drugs	None
	Allergies to med	None known
	Seasonal allergies	None
	Food or other allergies	None
Psychosocial history	**Living arrangements**	Lives with mother and father Brick hours with 4 rooms and has water and electricity. Lives with granny during the day when mother works.
Nutritional		Only breastfeeding; no additional food given Baby feeds 6-7 times per day
Milestone development		Baby recognises familiar faces Child turns head to look for sounds Child holds a toy in each hand

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Calibri	**Breathing rate**	55 breaths/min
	Character of breathing	No chest indrawing No wheezing No stridor No extra muscles are used during breathing
	Temp:	37.8°C
	Weight	7.7 kg
	Length	66 cm
	MUAC	13.5 cm
JACCOLD	**Jaundice**	NAD
	Anaemia	NAD
	Clubbing	NAD
	Cyanosis	NAD
	Oedema	NAD
	Lymph nodes	NAD
	Dyspnoea	NAD
Side room investigations		Do PCR Do TST Milestone development - normal
Differential diagnoses		Pneumonia (Working diagnosis) ? TB (not growing well may indicate TB, although no TB contact, do TST to confirm negative) Croup (no stridor) Asthma (no wheezing) Bronchiolitis (No runny/stuffy nose, no wheezing) Symptomatic HIV (PCR negative) PCP (unlikely – child on Co-trimoxazole) Malnutrition (MUAC and Z-score normal)

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Management	Diagnose Pneumonia (fast breathing) Give Amoxicillin (250mg/5ml) 5ml tds p.o. for 5 days Immunization: Vit A and Measles Continue Co-trimoxazole (200/40mg/5ml) 5ml Daily p.o. Give information regarding measles vaccine Council on breastfeeding – start introducing family foods. To come back: 2 days for follow-up visit and to check TST
PLANNING	
Documents needed	**19. Patient file** **20. Recording document/assessment from** **21. Road to Health booklet** **22. Vital signs card with side room investigations** **23. Pen**
Essential references:	**IMCI guideline, 2014**

Equipment	nr	Consumables	nr	Drugs	nr	Documents	nr
Chairs	**1**			**Container with Vit A**	**7**	NA	
Table	**2**			**Fix dose therapy dispensing bag**	**7**	NA	
Basin	**1**	**Alcohol hand Spray and liquid Soap Towels**	**1**	**Bottle with Nevirapine**	**7**		

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ROAD TO HEALTH BOOKLET RECORDING FORM

Patient Name: ____________________________________ Registration number: ____________________

DATE	TIME	ASSESSMENT AND MANAGEMENT	MEDICATION ISSUED	NAME IN PRINT	SIGNATURE

ADDENDUM P6

Standardise patient case scenarios

Maternity

FULL FINAL LABORATORY REPORT

Lab nr. 0149394554

Patient:

Emma BLOEM

03/07/1980 (37yrs) Sex F   Collected: 09/08/17

Received: 09/08/17

Patient location: MUCPP: ARV clinic

FOR ENQUIRIES AND FOLLOW-UP TEST, PLEASE QUOTE PATIENT'S MRN NUMBER MRN132435

CHEMICAL PATHOLOGY

Specimen received: Clotted blood

Test required: Creat, Indices

Creatinine and estimated GFR:

Creatinine:	63	umol/L	49 - 90
eGFR (MDRD formula)	>60	Ml/MIN/1.73 M^2	

Indices:

Indices in serum:

Heamoglobin index	1 +
Billirubin index	Not detected
Lipaemia index	Trace

Authorised by: C Botha (Medical Technologist) Creat Indices

**End of Laboratory Report **

FULL FINAL LABORATORY REPORT

Lab nr. 0149394554

Patient:

Emma BLOEM

03/07/1980 (37yrs) Sex F   Collected: 09/08/17

Received: 09/08/17

Patient location: MUCPP: ARV clinic

FOR ENQUIRIES AND FOLLOW-UP TEST, PLEASE QUOTE PATIENT'S MRN NUMBER MRN132435

VIROLOGY

Tests requested: HIV Viral Load @

HIV Moleculr investigations:

HIV Viral Load:

HIV Viral Load	Lower than detectable limit
Input Volume	0.200 Ml
Methodology	Abbott RealTime HIV-1 Test

Comment:

Based on the sample volume tested, the lower limit of detection is 150 RNA copies/ml. The linear range of this assay is 150 – 10, 000, 000 RN copies/Ml (2.16 – 7 LOG COPIES/ml.

The result should be interpreted in conjunction with CD4 counts and the patient's clinical status.

A result of lower than detectable limit cannot be presumed to be negative for HIV – 1 RNA.

@ HIV Viral Load performed at Simulation Academic Laboratory

**End of Laboratory Report **

Standardised patient simulation scenario

SIMULATION TOPIC:	Preeclampsia
Theme:	Maternity
Coordinator:	
Programme:	Nursing
Module name:	
Simulation environment:	Primary healthcare setting
Time fieldworker briefing	1 hour
Time SP briefing	1 hour
Time student briefing	5 minutes
Estimated Time for Simulation in minutes	20 minutes
Estimated Time for Debriefing in minutes	45 minutes
Brief summary	Mother came for antenatal follow-up visit on 24wk gestation.
Outcomes for this simulation:	Student will be able to: • take a focused history of a 24-week gestation pregnant woman according to the national standards • do a focused physical examination and appropriate side-room investigations • demonstrate clinical reasoning by stating differential diagnoses and eliminating some of them through evidence gathered • plan treatment options with the patient by means of health dialogue • reflect on his or her reasoning processes
Patient characteristics: age & gender	 Adult female patient
Date of birth	37 year old
Marital status	Married
Occupation	Clark
General appearance and dress / attire e.g. street cloths, gown, undergarments, theatre gown	Loose clothing with small pregnant belly.
Main complaint / opening line	ANC follow-up visit

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Assessment findings:		
	Previous hospitalizations	None
	Previous surgery	None
	Chronic illness	High blood pressure HIV positive
History **Family history:**	**Mother:** **Father:** **Siblings:**	High blood pressure Twin sister
Systems	**Neurological**	None
	Cardiovascular	None
	Psychosocial	None
	Respiratory	None, No TB contacts
	Gastrointestinal	None
	Genitourinary	None
	Gynaecological	None
	Obstetrical	First pregnancy. Good foetal movements.
	Musculoskeletal	None
Medications	**Prescription**	TDF 200mg/FTC 300mg/EFV 600mg daily Aldomet 250mg BD Folic Acid 5mg daily Ferrous sulphate compound 170mg daily Calcium carbonate 500mg BD
	Over the counter drugs	None
	Allergies to med	None
	Seasonal allergies	None
	Food or other allergies	No
Psychosocial history	**Smoking**	No
	Alcohol	No
	Recreational drugs	No
	Sexual drugs	No
Nutritional		No restrictions
Daily living Activities		Lives in brick house with husband
Case specific questions		None

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Physical assessment	**Pulse rate**	88 b/min
	Rhythm	Regular
	Breathing rate	20 b/min
	Temp:	36.2°C
	BP	BP: $^{150}/_{96}$ mm Hg (laying down) BP: $^{152}/_{98}$ mm Hg (sitting up)
JACCOLD	**Jaundice**	NAD
	Anaemia	NAD
	Clubbing	NAD
	Cyanosis	NAD
	Oedema	Slightly on feet (+)
	Lymph nodes	NAD
	Dyspnoea	NAD
Physical assessment of abdomen	**SF**	26 cm
	Foetal Doppler	114 b/min
	Foetal movements	Present
Side room investigations		Blood: eGFR and creatinine Take viral load Take CD4 count Urine dipstick Hb test
Differential diagnoses		Mild preeclampsia (working diagnosis) Severe preeclampsia (diastolic < 110mmHg only 2+ proteinuria) Imminent eclampsia (no headache, visual disturbance) Gestational hypertension (proteinuria) Renal disease (eGFR and Creat is normal) Tenofovir side effect (eGFR and Creat is normal) Tumour on adrenal glance

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Management		1g loading dose Methyldopa p.o Tetanus Toxoid 0.5 ml IMI TDF 200mg/FTC 300mg/EFV 600mg daily Aldomet 250mg BD Folic Acid 5mg daily Ferrous sulphate compound 170mg daily Calcium carbonate 500mg BD Call for referral Same day referral to hospital
	PLANNING	
Documents needed	**24.** **25.** **26.** **27.** **28.** **29.** **30.**	**Patient file** **Recording document/assessment from** **Vital signs card with side room investigations information** **Pen** **H10 chart** **BANC checklist** **Referral letter**
Essential references:	**Maternal guidelines of South Africa, 2015: 83-7**	

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Equipment	nr	Consumables	nr	Drugs	nr	Documents	nr
Dispersion bags	**5**	NA		TDF 200mg/FTC 300mg/EFV 600mg daily Aldomet 250mg BD Folic Acid 5mg daily Ferrous sulphate compound 170mg daily Calcium carbonate 500mg BD		NA	
Bed	**1**	NA		NA		NA	
Stethoscope	**1**	NA		NA		NA	
Basin	**1**	Alcohol hand spray and liquid soap Towels	**1**				

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VOORSKRIF/PRESCRIPTION

HOSPITAL/ CLINIC: ____________________ SECTION: ______________________

NAME: __________________________ SEX: _________ AGE: _____________________

I.D. ______________________________________

DATE	RX	PHARMACIST

PRIMARY HEALTH CARE CLINICAL RECORD

Patient Name: ______________________________________ Registration number: __________________________

DATE	TIME	ASSESSMENT AND MANAGEMENT	MEDICATION ISSUED	NAME IN PRINT	SIGNATURE

ADDENDUM Q

Approval letter for methodology and title amendment

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

UFS·UV
HEALTH SCIENCES
GESONDHEIDSWETENSKAPPE

IRB nr 00006240
REC Reference nr 230408-011
IORG0005187
FWA00012784

18 June 2018

HUGO LIZEMARI
SCHOOL OF NURSING
IDALIA LOOTS BUILDING
UFS

Dear Hugo Lizemari

ECUFS 134/2013B
PROJECT TITLE: DEVELOPMENT AND PILOTING OF A TRAINING PROGRAMME FOR PRECEPTORS: A REALIST EVALUATION

APPROVED

This letter replaces the letter dated 04 May 2018, and is therefore the first and only official approval letter.

1. You are hereby kindly informed that the Health Sciences Research Ethics Committee (HSREC) approved the following at the meeting held on 24 April 2018:

   - *Major Amendment:*
     - *Limiting phase 2 to only post-test 1,*
     - *Replacing the 2nd post-test with a realist evaluation*
     - *Changing the methodology from a quantitative experimental interrupted time series design with delayed intervention (wait list) comparison group to an explanatory sequential mix method design.*
     - *Changing the title to: Development And Piloting Of A Training Programme For Preceptors: A Realist Evaluation*

2. Kindly use the **ECUFS NR** as reference in correspondence to HSREC Administration.

3. The HSREC functions in compliance with, but not limited to, the following documents and guidelines: The SA National Health Act. No. 61 of 2003; Ethics in Health Research: Principles, Structures and Processes (2015); SA GCP(2006); Declaration of Helsinki; The Belmont Report; The US Office of Human Research Protections 45 CFR 461 (for non-exempt research with human participants conducted or supported by the US Department of Health and Human Services- (HHS), 21 CFR 50, 21 CFR 56; CIOMS; ICH-GCP-E6 Sections 1-4; The International Conference on Harmonization and Technical Requirements for Registration of Pharmaceuticals for Human Use (ICH Tripartite), Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines, Constitution of the Ethics Committee of the Faculty of Health Sciences.

Yours faithfully

MS MGE MARAIS
HEAD: HEALTH SCIENCES RESEARCH ETHICS COMMITTEE ADMINISTRATION

Health Sciences Research Ethics Committee
Office of the Dean: Health Sciences
T: +27 (0)51 401 7795/7794 | E: ethicsfhs@ufs.ac.za
Block D, Dean's Division, Room D104 | P.O. Box/Posbus 339 (Internal Post Box G40) | Bloemfontein 9300 | South Africa
www.ufs.ac.za

ADDENDUM R1

Termination letters to Ethics Committees

Idalia Loots Building

Room 25B

Telephone: 051 401 9165

01/06/2018

E-mail: HugoL1@ufs.ac.za

[redacted] ECUFS NR 134/2013B
PhD candidate: L. HUGO
SUPERVISOR: PROF. Y BOTMA
[redacted]
SCHOOL OF NURSING
PROJECT TITLE: THE INFLUENCE OF A TRAINING PROGRAMME FOR UNDERGRADUATE NURSING PRECEPTORS ON COMPETENCE, SUPPORT AND TRANSFER OF LEARNING.

RE: Feedback on progress of L. Hugo

Dear Chair and members of the ethics committee

I would like to thank you for the opportunity to have conducted my research at your institution.

The following objectives have been obtained:

- Baseline and post-test data was collected.

Due to poor attendance of the undergraduate preceptors from the experimental group, and a high attrition rate of students from both experimental and control group, no interferential statistical analyses could be drawn from data on competence and support. I will therefore discontinue data collection on support and post-test 2 at your institution.

As part of my ethical obligation, preceptor-training on the programme are schedule for the 01st and 06th of August 2018 with your Nursing Department.

It has been a pleasure doing research at your institution.

Kind Regards.

[signature]

205 Nelson Mandela Drive/Rylaan
Park West/Parkwes
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HEALTH SCIENCES
GESONDHEIDSWETENSKAPPE

Idalia Loots Building
Room 25B
Telephone: 051 401 9165
01/06/2018
E-mail: HugoL1@ufs.ac.za

ECUFS NR 134/2013B
PhD candidate: L. HUGO
SUPERVISOR: PROF. Y BOTMA
SCHOOL OF NURSING
PROJECT TITLE: THE INFLUENCE OF A TRAINING PROGRAMME FOR UNDERGRADUATE NURSING PRECEPTORS ON COMPETENCE, SUPPORT AND TRANSFER OF LEARNING.

RE: Feedback on progress of L. Hugo

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- Baseline and post-test data was collected.

Due to poor attendance of the undergraduate preceptors from the experimental group, and a high attrition rate of students from both experimental and control group, no interferential statistical analyses could be drawn from data on competence and support. I will therefore discontinue data collection on support and post-test 2 at your institution.

It has been a pleasure doing research at your institution.

Kind Regards.

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ADDENDUM R2

Termination letters to nursing education institutions

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UFS·UV
HEALTH SCIENCES
GESONDHEIDSWETENSKAPPE

Idalia Loots Building

Room 25B

Telephone: 051 401 9165

25/05/2018

E-mail: HugoL1@ufs.ac.za

RE: Preceptorship research

Thank you for allowing me to present the preceptor training programme at your department and to collect data on the competence of the students and preceptors. Due to poor attendance of the preceptors accompanying undergraduate students and a high attrition rate of students, no statistical significance could be drawn from the data analysis on the competence and support of preceptors. A realist evaluation replaced the latter part of the study. I will therefore discontinue data collection on support and post-test 2.

I will inform the ethics committee of your university as well.

Thank you once again for the opportunity.

Friendly regards,

Lizemari

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

Lizemari Hugo
Lecturer: School of Nursing
Lektor: Skool vir Verpleegkunde
Faculty / Fakulteit: Health Sciences / Gesondheidswetenskappe
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Idalia Loots Building

Room 25B

Telephone: 051 401 9165

25/05/2018

E-mail: HugoL1@ufs.ac.za

RE: Preceptorship research

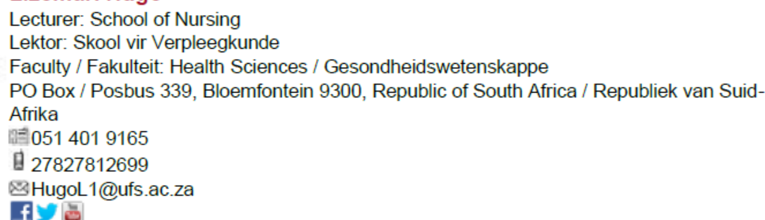
Thank you for allowing me to conduct my research at your institution. Due to poor attendance of the preceptors accompanying undergraduate students and a high attrition rate of students, no statistical significance could be drawn from the data analysis on the competence and support of preceptors. A realist evaluation replaced the latter part of the study. I will therefore discontinue data collection on support and post-test 2.

I will however still present the preceptor-training programme at your institution as part of my ethical obligation.

Thank you once again for the opportunity.

Friendly regards,

Lizemari



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YUNIVESITHI YA FREISTATA

Lizemari Hugo
Lecturer: School of Nursing
Lektor: Skool vir Verpleegkunde
Faculty / Fakulteit: Health Sciences / Gesondheidswetenskappe
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ADDENDUM S

Proof of registration for Doctor of Philosophy

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

Telephone: +2751 401 9666
Enquiries: Student Academic Services
Our reference: 2008085819
E-mail: studentadmin@ufs.ac.za
21 June 2018

PROOF OF REGISTRATION
IT IS HEREBY CERTIFIED THAT
L Hugo
Campus ID: 2008085819
National ID: 8202280025085

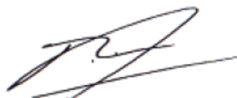
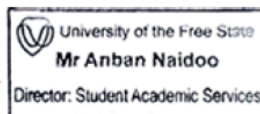
Is a full-time registered student at the University of the Free State for 2018. The student is registered for the following qualification and modules:

2940-Doctor of Philosophy					
Module	**Class**	**Term**	**Description**	**Campus: Location**	**Status**
NVRT9100	10939	2018 Sem 1	Thesis in Nursing	MAIN : BFN	Enrolled

It is your responsibility as student to ensure that the information on this document is correct.

Last date for cancellation of modules:

- 01 March 2018: First Semester and Year Modules
- 15 August 2018: Second Semester Modules

DIRECTOR: STUDENT ACADEMIC SERVICES

1/1

ADDENDUM T

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DEVELOPMENT AND PILOTING OF A TRAINING PROGRA... By Bennie Botha

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DEVELOPMENT AND PILOTING OF A TRAINING PROGRAMME FOR PRECEPTORS: A REALIST EVALUATION By Lizemari Hugo Submitted in fulfilment of the requirements in respect of the Doctoral Degree qualification in Nursing in the School of Nursing in the Faculty of Health Sciences at the University of the Free State 29 June 2018 Supervisor: Professor Yvonne Botma The financial assistance of the National Research Foundation (NRF) towards this research is hereby gratefully acknowledged. Opinions expressed and conclusion arrived at, are those of the author and not necessarily to be attributed to the NRF. Declaration 1. I, Lizemari Hugo, declare that the publishable manuscripts that I herewith submit for the Doctoral Degree in Nursing at the University of the Free State is my independent work, and that I have not previously submitted it for a qualification at another institution of higher education. 2. I, Lizemari Hugo, hereby declare that I am aware that the copyright is vested in the University of the Free State. 3. I, Lizemari Hugo, hereby declare that all royalties as regards intellectual property, that was developed during the course of and connection with the study at the University of the Free State will accrue to the University. 4. I, Lizemari Hugo, hereby declare that I am aware that the research may only be published with the dean's approval. Signed Date Acknowledgements The people that I am going to mention is the crucial to this PhD. Many people have told me that the PhD road is a lonely one. Upon reflection I would say yes it is in a sense, especially with regard to the discovery of new knowledge venturing on the road no one has wandered before as every PhD is unique. I have in retrospect also never felt so supported and cared for in my career as a nurse. In my personal opinion I feel that journey of conducting a PhD project is empty without love and support from loved ones, colleagues and everyone that wants to see you succeed. Firstly, I would like to give all the glory and honour to Father God. "Thank you Lord for the privilege and guidance during this journey. Without you I could not have done this." The love of my life, Jaco van Dyk, "You came in and swept me of my feet and every day you still take my breath away. Thank you for being my support during this time. I love you always." Mom and Dad: "Thank you for everything that you have done and for all that you have sacrificed in the past 36 years. "I love you." Jean-Pierre, thank you for your support and all the calls bouncing thoughts and ideas off each other. It is a privilege to have finish our Master's degree and now our PhD's together. Esme, Kristen and William thank you for keeping up with us when all we could talk about was "PhD"'. My mentor and role-model, Prof Yvonne Botma: "thank you for walking this road with me. I know I can be a drama queen sometimes, especially during feedback. I will never forget the day after writing the methodology amendment, sitting across you, mad, because I had to read up on yet a new methodology. I have learned so much from you and am excited to learn even more". Thank you to Tannie Elna en Oom Gerrie van Dyk for your support and encouragement during this time. "Thank you for receiving me as a child in your house and loving me as your own. To Hymne and Ig: "Love you guys." To a very special person, Mari Prinsloo, you have come in beside me and just lifted my wings, especially during the past year. Words cannot express how thankful I am toward your support at work. My team of preceptors, Ingrid Lombard, Danelle Haumann, Theresa de Wies, Reinde Hatting, Vanessa Booysen, Annette Furter and Magriette Mogadi, thank you for all your support. I couldn't have asked for a better team than you. I am thankful for you. My cup flows over." The 'dapper drawwers': "Thank you for all the stress relieve therapy; from wine tasting to running marathons. I love the way we just operate as a group." My colleagues at the School of Nursing: "Thank you for all your support." I would like to mention a few colleagues on who I could always relay on whatever the need; Mandie Jacobs, Bennie Botha, Carien Beckman, Suzette Geringer, Delene Botha, Cynthia Spies, Marisa Wilke and Winnie Mogolometsi. Christina Botha: "thank you for your friendship my friend, even when I was absent due to studies and work. I love you." The head of departments at the data collection sites: "Thank you for allowing me to conduct the research at your NEIs". To my colleagues at the data collection sites; you know who you are. Thank you for standing by me, helping me with this very difficult data collection method, you were the light in a very dark tunnel. For those who became close friends: "I love you dearly and hope that we can collaborate on other projects as well." All the students that participated at the data collection sites: "Thank you for your time during your busy schedules." Support staff of the ethics committee, particular Mariè Marais: "Thank you for all your kindness and support." All my undergraduate students at the School of Nursing, thank you for keeping up with me, especially the past few months. Training you is my passion and an honour. To the student assistants who helped me with the data clearance and capturing. Prof Gina Joubert: "Thank you for all Prof's guidance and assistance on the data as my biostatistician." To Ruth Albertyn, Jackie Viljoen and Annemie Grobler, thank you for your valuable input. Abstract In an ever changing world, nursing practitioners needs to be competent and able to address the healthcare needs of communities. Nursing education institutions need to be innovative to support students to become competent practitioners. The South African Department of Health accepted a clinical nursing education and training model that promotes preceptorship as an innovative strategy. The