DEVELOPMENT AND TESTING OF A TOOL TO MEASURE THE SUPPORTIVE ROLE OF NURSING PRECEPTORS

by
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"Live as if you

were to die tomorrow.

Learn as if you

were to live forever."

• *Mahatma Gandhi*

Declaration

1. I, Lizemari Hugo, declare that the Master's Degree research dissertation that I herewith submit for the Master's Degree qualification 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.

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Abstract

South Africa needs competent nursing practitioners who are able to apply their minds in order to meet the high patient care demands. Nurse educators must support nursing students, our future nurse practitioners, in the clinical facility because they experience various unfamiliar and even traumatic situations. Effective system, tangible, cognitive and emotional support offered by preceptors enable students to transfer their classroom learning into practice and become competent nurse practitioners who are able to think critically, reason clinically and demonstrate sound clinical judgment. For effective precepting to take place, preceptors should consider a number of factors such as the student characteristics, educational outcomes, transfer climate as well as the physical environment and adapt their precepting style and technique according to the circumstances and students' learning needs. At present, there is no measurement instrument to evaluate the all four types of support that preceptors offer to students in the clinical practice.

A quantitative methodological study was done to standardise the newly developed instrument by determining its reliability and validity. Forty-two existing questionnaires on student support by preceptors were accessed and analysed. Consequently, sixty-nine relevant items were included in a draft questionnaire. Face and content validity were enhanced before testing the draft questionnaire. One hundred and ninety-two nursing students in an undergraduate programme were asked to evaluate their preceptors over two consecutive months. Reliability was determined by Cronbach's alpha test and validity was determined by an exploratory factor analysis.

A 0.98 Cronbach alpha value indicates a high reliability. The factor analysis identified three factors, namely system, cognitive and emotional support. Twenty-four items were evaluated by comparing cut-off values of ≥ 0.4 and ≥ 0.5. Twelve items were eliminated based on the cut-off values, leaving fifty-seven items to be included in the final questionnaire.

Students need support to develop their thinking operations and to transfer classroom learning to clinical practice. The value of this research is that the developed tool provides an assessment or diagnostic instrument to determine the quality of precepting as experienced by nursing students. Lack of competence in a specific facet or domain may be diagnosed and training should be offered in order to improve the quality of precepting.

It is recommended that further research, such as a confirmatory factor analysis, be executed in order to confirm the value of the tool in assessing and diagnosing the quality of preceptorship in South Africa.

Key terms: preceptor, support, nursing students, measuring instrument, validity, reliability, transfer of learning, thinking processes

Opsomming

Suid-Afrika benodig bevoegde verpleegkundiges wat in staat is om innoverend op te tree om die ernstige behoefte aan pasiëntsorg aan te spreek. Verpleegkunde opvoeders moet verpleegkundestudente - ons toekomstige verpleegkundiges - help in die kliniese omgewing omdat hulle verskeie onbekende en selfs traumatiese situasies ervaar. Effektiewe stelsel, tasbare, kognitiewe en emosionele ondersteuning wat preseptors aan studente bied stel die student in staat om hulle klaskamerleer na die praktyk oor te dra en om vaardige verpleegkundiges te word wat in staat is om krities te dink, klinies te redeneer en gesonde kliniese oordeel aan die dag te lê. Preseptors moet ʼn aantal faktore in ag neem soos studentkenmerke, opvoedkundige uitkomste, oordragomgewing en die fisiese omgesing om effektiewe preseptering te laat plaasvind, en hulle preseptering styl en tegniek in ooreenstemming met die omstandighede en die studente se leerbehoeftes aanpas. Tans is geen metingsinstrument beskikbaar om die vaardighede van preseptors in die ondersteuning van studente in die kliniese praktyk te evalueer nie.

ʼn Kwantitatiewe metodologiese studie is uitgevoer om die nuut-ontwikkelde instrument te standardiseer deur sy betroubaarheid en geldigheid te bepaal. Twee en veertig bestaande vraelyste oor studente-ondersteuning deur preseptors is ontsluit en ontleed. Gevolglik is nege en sestig relevante items ingesluit in die konsepvraelys. Sig- en inhoudelike geldigheid is verbeter voordat die konsepvraelys aan ʼn proeflopie onderwerp is. Een honderd twee en negentig verpleegkundestudente in ʼn voorgraadse program is gevra om hulle preseptors oor ʼn tydperk van twee aaneenlopende maande te evalueer. Betroubaarheid is bepaal deur Cronbach se alfatoets en geldigheid is bepaal deur ʼn ondersoekende faktoranalise.

ʼn Cronbach alfawaarde van 0.98 dui op hoë betroubaarheid. Die faktoranalise het drie faktore geïdentifiseer, naamlik stelsel-, kognitiewe en emosionele ondersteuning. Vier en twintig items is geëvalueer deur die afsnywaardes van ≥ 0.4

en ≥ 0.5 te vergelyk. Twaalf items is geëlimineer op grond van die afsnywaardes wat sewe en vyftig items vir insluiting in die finale vraelys gelaat het.

Studente benodig steun om hulle denkprosesse te ontwikkel en om klaskamerleer oor te dra na die kliniese praktyk. Die waarde van hierdie navorsing is dat die nuutontwikkelde assesserings- en diagnostiese instrument dit moontlik maak om die gehalte van preseptering soos ervaar deur verpleegkundestudente te bepaal. Gebrek aan bevoegdheid ten opsigte van ʼn spesifieke faset of domein kan geïdentifiseer word en opleiding aangebied word om die gehalte van preseptering te verbeter.

Dit word verder aanbeveel dat voortgesette navorsing, byvoorbeeld ʼn bevestigende faktoranalise uitgevoer word ten einde die waarde van die instrument te bevestig in die assessering en diagnosering van die gehalte van preseptorskap in Suid-Afrika.

Sleutelterme: preseptor, ondersteuning, verpleegkundestudente, metingsinstrument, geldigheid, betroubaarheid, oordrag van leer, denkprosesse

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Chapter 1 Introduction

1.1 Introduction

The term preceptor describes the person who introduces a student to his/her new role, function and responsibilities. Preceptors guide students in the fundamentals of the workplace and support them in such a way that the student evolves as a competent nurse who can function in their new role and as a team member within a given healthcare system (Swihart, 2012:4; Flynn and Stack, 2006:4).

In South Africa the term preceptor refers to a person, employed by a higher education institution (HEI), who is a competent and experienced registered nurse with an area of expertise who serves as a clinical facilitator in the clinical setting. The comprehensive definition for a preceptor formulated by Botma (2014) is used in this study. She defined 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 processes, and assesses competence in order to promote meta-cognition and care that is based on the best available evidence". A preceptor should portray a positive image to the nursing profession, to his/her students and in the clinical setting (Nursing Education Stakeholders (NES) Group, 2012:51; Sedgwick and Harris, 2012:1; Brink, 1989:63).

In essence the preceptor is a registered nurse who *supports* or 'carries' a student in the clinical setting, through the process of advising and training until that person can fulfil his/her new function or role in the clinical setting where he/she is placed. Walker *et al.* (2013:534) found that students overwhelmingly felt that the quality of support that they received was most important to them and that their clinical experience enabled them to develop their identity as a nurse. In order to adhere to the comprehensive definition of a preceptor as proposed by Botma (2014), a preceptor should conform to certain roles and functions.

The function and responsibilities of the preceptor may be described as a registered nurse who facilitates students in the clinical setting, supervises, and evaluates learning. A preceptor is someone who functions as a facilitator, a person with resources and acts as role model in the clinical setting. Other responsibilities include assisting in establishment of outcomes, activities and priorities, evaluating, as well as communicating with the HEI regarding the progress of the students (Swihart, 2012:8; Ullrich and Haffer, 2009:4; Brink, 1989:34).

Williamson *et al.* (2011:828) explored the experience of student support prior to the implementation of a new structure for supporting students. The authors identified three main areas for supportive behaviour of the staff/preceptors, namely tangible, cognitive and emotional support. The researcher's focus was to enhance the training of preceptors by adopting and adapting the supportive behaviours identified by Williamson *et al.* (2011:831) into the following four types of support, namely 1) system, 2) tangible, 3) cognitive, and 4) emotional support. System support was added, based on a study done by Botma, Hunter and Kotze (2012:812) which revealed that there should be a stronger system supportive link between the HEI and the clinical facilities. The suggestions are categorised accordingly.

- *System support* occurs when a preceptor acts as link between the clinical coordinator of the HEI and the staff in the clinical facilities where the students are placed. The preceptor relays student information between these stakeholders (Nursing Education Stakeholders (NES) Group, 2012:51; Drennan, 2002:75).

- *Tangible support* occurs when a preceptor orientates the student in terms of the layout, procedures and guidelines specific to the clinical setting. The preceptor will show the student where to find the essential equipment and to complete the facility's documentation including patient records. The preceptor and the student will discuss and negotiate learning outcomes to complete during his/her placement.

- *Cognitive support* occurs through the facilitation of the student's thinking processes in the clinical setting. These thinking processes include critical thinking, clinical reasoning, clinical judgment and metacognition. The preceptor applies various facilitation techniques in order to cognitively support students in transferring their learning to the clinical practice.

- *Emotional support* occurs when a preceptor is accessible to listen to a student when he/she has a challenge and guides him/her in resolving these challenges (Gibbons, Dempster and Moutray, 2011:621; Gibbons, 2010:1299).

1.2 Background of the study

The 2011 Nursing Summit of South Africa called for a National Nursing Workforce Strategy to provide a framework to strengthen the development and educationally prepare a sustainable nursing and midwifery workforce that can meet the healthcare needs of the population of South Africa. One of the key focuses of this summit was the need to mentor and equip the next generation of nurses.

During the summit a model was proposed by Mulder and Uys (2012:60) building on a baseline assessment that determines the ratio of preceptors to students. The norm for the proposed ratio of preceptors to students was between 1:9 and 1:20. The result of the survey, however, indicated a range of between 1:6 and 1:53 at different universities – indicative of a poor preceptor-student ratio (Mulder and Uys, 2012:64).

In July 2011, Dr Aaron Motsoaledi, Minister of Health, appointed a special ministerial task team to compile the Nursing Education and Training Strategic Plan 2012/13 – 2016/17. This plan lists education and training as the first strategic priority. One of the listed recommendations is to develop and incorporate a new model for clinical nursing education and training into the current South African Nursing Council (SANC) regulations. The other priority is to re-establish clinical teaching departments at all national educational institutions (NEI) or hospitals, supported by a coordinated

system of preceptors and clinical supervisors (Nursing Summit Organising Committee: Ministerial Task Team, 2012:39).

An effective system of preceptors in all clinical practices will ensure the professional development of students by facilitating their transfer of learning, leading to theory and practice integration. Preceptors bridge the gap between the student and staff, minimising the disruption in the clinical team's routine and providing the student with a sense of belonging. Furthermore, the preceptor creates an optimal learning environment for the student and promotes the transfer of learning and the development of sound clinical judgment (Sedgwick and Harris, 2012:1; Sedgwick and Yonge, 2008:2; Myrick and Yonge, 2005:6).

1.3 Problem statement

According to Botma *et al.* (2010:93), a term closely corresponding with a 'problem statement' is the 'purpose of the study'. The purpose is a summary of the overall hope of the study, a strategic statement of what the researcher would like to accomplish if no constraints exist.

Students in healthcare often complain about the limited support and teaching they receive while they are placed in the clinical practice (Mabuda, Potgieter and Alberts, 2008:25). The Council on Higher Education (CHE) focuses on the enhancement of student learning by addressing work integrated learning (WIL) where theoretical knowledge is integrated and linked to practice in the clinical environment through clinical teaching and learning (Council on Higher Education, 2011:4). Poor support of students in the clinical workplace will lead to a shortfall in the student's WIL, resulting in a gap between their theoretical and practical knowledge (MacKenzie, 2010:235). One of the most important requirements of a preceptor is the ability to facilitate a process where the student will apply classroom knowledge to a real-life situation (Burns *et al.*, 2006:172).

Two studies support the need of clinical accompaniment during students' clinical placements. A Kwazulu-Natal study done by Cassimjee and Bhengu (2006:47)

identified that students received very little clinical teaching and that students were dissatisfied with their clinical facilitation. A study done by MacKenzie (2010:134) at the Free State School of Nursing identified that students were dissatisfied with the support that they received during their clinical placement. MacKenzie also noted the increasing need for nursing institutions to provide support where the clinical personnel failed to support and facilitate students' learning.

Magobe, Beukes and Müller (2010:184) also indicated that preceptors have a need for adequate and updated clinical knowledge and skills to guide the students. They also stated that preceptors would not improve students' clinical competencies if the preceptors themselves did not possess the required qualification.

Therefore, it is the nursing institution's responsibility to train and support preceptors in order to meet the supportive needs of their students in return (Botma, Jeggels and Uys, 2012:48; Williamson *et al.*, 2010:834; MacKenzie, 2010:134; Jowett and McMullan, 2007:266). Currently in South Africa, only limited preceptor training programmes have been developed to train and give support to nursing preceptors. Although educational institutions attempt to educate and train better equipped nursing preceptors, no comprehensive instrument is available to evaluate the quality of the support that preceptors provide to their students.

Fluit *et al.* (2010:1337) conducted a systemic review by evaluating 54 papers on 32 instruments. Their aim was to see if there was an instrument that could evaluate clinical teachers. Although the instruments contained aspects of teaching strategies, supporter role, role modelling and feedback, they found that none of the instruments covered all the relevant aspects of comprehensive clinical facilitation. A valid and reliable tool is therefore needed to evaluate the quality of support preceptors offer students in the practical setting.

1.4 Research question

Jansen (2012:3) defines the research question as a guiding light that directs the researcher to suitable literary sources and that focuses the data collection.

The research question for this study can be phrased as follows: “How can the supporting role of a preceptor best be measured?”

1.5 The aim and objectives

The aim describes what a researcher plans to achieve by conducting research. Fouché and De Vos (2011:94) explain the aim and the objectives as follows: “The aim is the “dream” and the objectives are the steps one has to take to attain the dream.”

The aim of this study is to develop a valid and reliable instrument that measures the four types of support that preceptors should offer to undergraduate nursing students.

The objectives are also statements within the purpose of the study. They are specific achievements the researcher hopes to realise by conducting the study. Objectives also specify what will be known by the end of the research that was not known at the beginning and had been revealed by the research; in other words, the evidence generated (Botma *et al.*, 2010:93).

The research objectives for this study are the following:

- Compile a comprehensive questionnaire based on a critical analysis of existing tools.
- Describe the validity of the questionnaire.
- Describe the reliability of the questionnaire.

1.6 Conceptual framework

A conceptual framework provides the researcher with a structure and a map that displays the conceptual underpinnings of a study (Polit and Beck, 2012:128; LoBiondo-Wood and Hober, 2010:575). The conceptual framework in Figure 1.1

represents the model of transfer of learning as adapted by Botma *et al.* (2013b:39) from Donovan and Darcy (2011:121) and shows the relationship between clinical preceptors' support and the process of the transfer of learning.

Supportive preceptors will be able to motivate students to learn and transfer their learning into clinical practice. For this reason it is important for the researcher to develop an instrument that is able to measure the support of preceptors. Subsequently, students will be able to demonstrate competence through their performance in practice. However, preceptors need to consider the characteristics of the individual student, the educational approach of the HEI and learning outcomes, as well as the transfer climate of the clinical environment. Sometimes the preceptor has to be creative in accommodating the clinical environment.

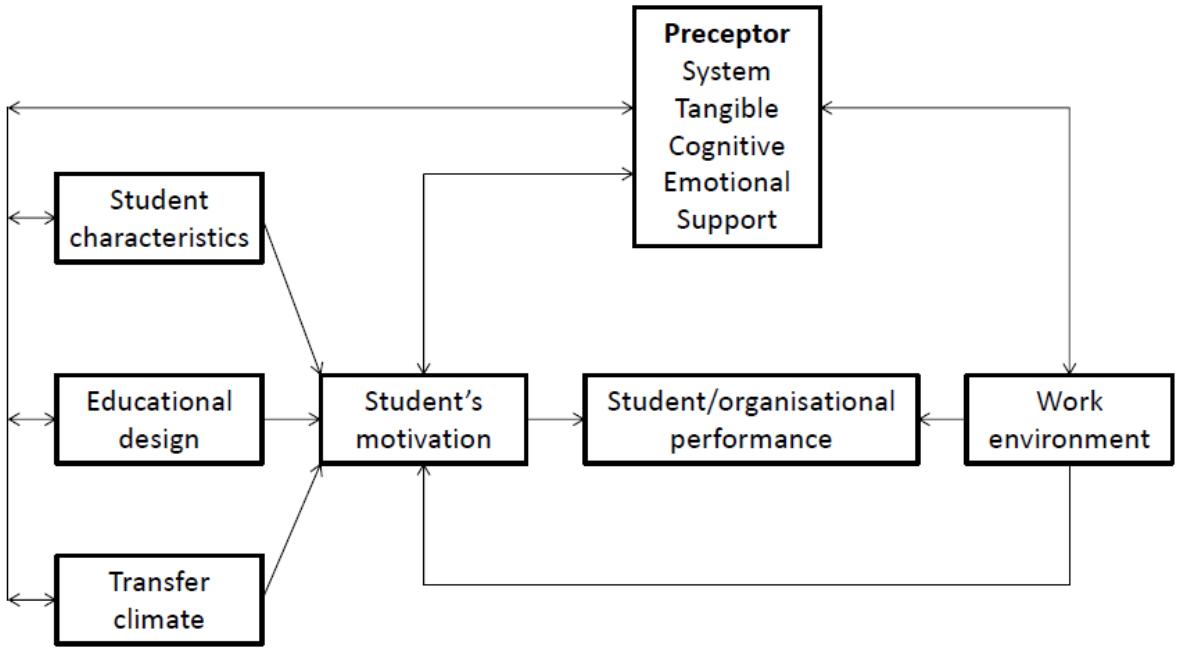

Figure 1.1 The relationship between the support by the clinical preceptor and the transfer of learning as adapted by Botma et al. (2013b:39) from Donovan and Darcy (2011:121).

1.7 Concept clarification

Grove, Burns and Gray (2013:116) describe a concept as a term that describes and names an object or a phenomenon as an abstract idea, thus providing it with a separate identity or idea. The relevant concepts are listed alphabetically. Botma *et al.* (2010:103) define an operational definition as a process to gather and measure the data; this will be provided where appropriate.

Measure means to assess or determine the importance or value of what is expected from a person or a situation (Stevenson and Waite, 2011:886).

Nursing student is a person that is registered with the SANC as a learner nurse and who follows an education or training programme in basic nursing (Department of Health, 2008:5; South Africa, 2006:36).

Preceptor: The definition of Botma (2014) will be adopted for this study that states that a 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 processes, and assesses competence in order to promote metacognition and care that is based on the best available evidence"

Reliability refers to the consistency of the instrument or tool being measured. An instrument/tool is reliable when it presents the same results under different circumstances or to the extent that measurement errors are absent from obtained scores (Grove, Burns and Gray, 2013:707; Polit and Beck, 2012:331; Botma, *et al.*, 2010:177).

Support means "to bear the weight of, or hold upright or to give help, or approval to" (Pharos Dictionaries, 2011:716). For the purpose of this study, support will refer to the four types of support namely cognitive, tangible and emotional as described by Williamson *et al.* (2010:828) and system support as described by Botma, Hunter and Kotze (2012:812). Support will be measured by the compiled questionnaire.

Transfer of learning refers to the process where previously gained classroom knowledge or skills are demonstrated through performance by a learner in a clinical environment. The student will be able to apply the knowledge and skills effectively and continuously in the clinical environment (Botma *et al.*, 2013b:39; Kirwan and Birchall, 2006:252).

The *validity* of an instrument or tool determines the extent to which it actually reflects or measures the construct being examined (Polit and Beck, 2012:745; Botma *et al.*, 2010:175).

1.8 Research design

A research design is a plan outlining how observations will be made and how the researcher will carry out the project (Monette, Sullivan and De Jong, 2008:9).

In order for the researcher to measure preceptor support it was necessary to select a measurement instrument. For this study, a questionnaire was chosen as a measurement instrument. Before an instrument may be used to measure a construct (support), it first needs to be standardised by determining the reliability and validity of the instrument. For this purpose the researcher selected a quantitative methodological design.

A methodological design addresses the development and evaluation of research instruments by determining the validity and reliability of an instrument so that it can be used by others (Polit and Beck, 2012:268; LoBiondo-Wood and Hober, 2010:207; Marczyk, DeMatteo and Festinger, 2005:4; Mouton, 2001:173). The researcher will follow the steps identified by LoBiondo-Wood and Hober (2010:208) that include defining the concept being measured, formulating the items for an instrument and ascertaining that the validity and reliability renders the instrument useful for institutions. The researcher had to decide which tests to use in determining the reliability and validity of the questionnaire. This aspect will be discussed in chapter 3.

1.9 Instrument construction

The researcher chose a self-administered questionnaire to measure the preceptor's support and to collect data. The researcher critically analysed twenty-seven of the thirty-two existing instruments, as identified by Fluit *et al.* (2010:1340) in their systematic review, in order to compile a list of items for the new questionnaire.

An extensive literature review of the roles and support provided by preceptors aided the researcher in two ways: The first was to identify fifteen additional instruments that had not been included by Fluit *et al.* (2010:1340). The questionnaires were from different health professions, but conformed to the inclusion criteria where students evaluated their preceptors. Secondly, the researcher was able to identify the underlying types of support. This is discussed in detail in chapter 2.

All the items from the forty-two questionnaires were organised under the constructs identified in the literature review in order to produce a draft instrument. Items in a questionnaire should portray valid and reliable measurements. In order to aid the validity of the newly compiled questionnaire the researcher should subject the questionnaire to a process that strengthens the validity. The first steps of validity testing are to establish the questionnaire's face and content validity. The selection of the validity tests is discussed in chapter 3.

1.9.1 Face and content validity of draft questionnaire

Validity is reflected in an instrument when it measures what it is supposed to measure (Delport and Roestenburg, 2012:173; Pietersen and Maree, 2012:216). A high validity shows that the instrument that is being measured reflects the real meaning of the concept under consideration. Face and content validity were determined before the pretest of the study was done.

The newly developed questionnaire was evaluated by experts working in the field of preceptorship, student support and/or instrument development. Eight experts were invited to evaluate the readability and to examine the items to determine if it really

relates to the constructs that were being measured. Five experts responded to the request to evaluate the questionnaire. See Addendum C for an example of the expert feedback form.

1.9.2 Pretest study

Polit and Beck (2012:738) defines a pretest as “a trail administration of a newly developed instrument to identify problems or assess time requirements.” Eight second-year nursing students from the Medi-Clinic Hospital group in Bloemfontein were asked to participate in the pretest study. The students completed the draft questionnaire and were then interviewed (as a group) to determine the clarity of the instructions. The researcher focused on the clarity of the questionnaire; language difficulty and the time (15-20 minutes) it took to complete the questionnaire during the interview. The reliability of the study was increased by eliminating items or instructions that were unclear. The data of the pretest study were not included in the main study.

1.10 Population

The term ‘population’ sets boundaries on the study units. It refers to individuals in the universe who possess specific characteristics (Strydom, 2012:223). The population group for this study consisted of second-, third- and fourth-year undergraduate nursing students from the School of Nursing at the University of the Free State. First-year students were excluded from the study because this group had not yet received clinical accompaniment at the time of the data collection phase. A total of 192 students were invited to participate in the study for a period of two consecutive months.

1.10.1 Sample and sample size

A convenience sampling was done because the researcher had easy access to the nursing students. All nursing students excluding the first years in the undergraduate

programme in the School of Nursing at the University of the Free State were requested to complete the questionnaire.

1.11 Data collection

To proceed to the data collection process, the researcher obtained approval from the Ethics Committee of the Faculty of Health Sciences (ECUFS nr 50/2014). Permission to request data from nursing students of the University of the Free State had to be obtained. The researcher obtained permission from the Vice-Rector (Academic); the Dean of the Faculty of Health Sciences and the Head of the School of Nursing.

The researcher distributed an information sheet explaining the respondents' rights and responsibilities so that they could consider their participation prior to consenting to participation. The researcher explained the purpose of the research to the students during a contact session. Students were invited to participate by completing the questionnaire at the end of their clinical placement for the month. This was done over two consecutive months. After the researcher explained the purpose and details of the research to the students, she left the room. A fellow lecturer facilitated the questionnaire collection process. To adhere to anonymity, the completed questionnaires were placed in a box as respondents exited the room.

A total of 303 questionnaires were completed by the 192 students who participated over the two consecutive months. Data were coded by a student assistant by assigning an identification number on the questionnaire. The same student assistant then captured the data electronically on a spread sheet. Another student assistant verified the data captured on the spread sheet before sending it to the biostatisticians for analysis.

1.12 Data analysis

The data analysis included the determination of the reliability and validity of the questionnaire in order to standardise the questionnaire for further use in measuring

the supportive roles of preceptors. Reliability was determined by the Cronbach alpha coefficient test. Construct validity was effected by means of an exploratory factor analysis (Pietersen and Maree, 2012:217).

1.13 Ethical considerations

The Belmont Report (1976) includes three principles to consider in the ethical approach of a research study. These principles are respect for people, beneficence, and justice (Polit and Beck, 2012:152; Botma *et al.*, 2010:17). Chapter 3 provides a full discussion of the application of each of these principles.

1.13.1 Respect for people/Autonomy

Autonomy can be defined as the power or the right of the respondent to self-determination after the researcher had presented all the facts concerning the research (Strydom, 2012:119; Botma *et al.*, 2010:13). The researcher gave the respondents a full description of what the study entails. This was done by providing the student with a leaflet that had been compiled according the Ethics Committee's criteria and by the researcher verbally explaining the details of the study.

Self-determination was implemented by allowing the respondents' time to consider if they wanted to participate. Participation was voluntary and power-coercion was minimised as the researcher was not present.

1.13.2 Beneficence/ Non-maleficence

Beneficence concerns with the right of the respondents to be sheltered from any harm and discomfort while benefits should be maximised. In determining the beneficence, the risk/benefit ratio is taken into consideration. It is important that the benefits must always outweigh the risks in any research study (Strydom, 2012:116; Polit and Beck, 2012:152; Botma *et al.*, 2010:10).

The researcher determined that there was no direct harm to the students. Possible discomfort that the respondents of this study could experience was a time consuming commitment. The research study was conducted over a two month period. Any traveling costs were eliminated by scheduling the data collection in a timeframe when the students were already present on campus.

Although students would not benefit directly, their participation may benefit future students by addressing student support in the clinical setting.

1.13.3 Justice

Justice entails that all respondents have equal distribution of the benefits and an equal opportunity to participate in the research study (Polit and Beck, 2012:155; Botma *et al.*, 2010:19). An equal opportunity was given to all second-, third- and fourth-year undergraduate nursing students to participate in the study.

There were no direct benefits to the students, but indirectly the students' responses will contribute to the future training of preceptors in order to improve the quality of preceptor support in the clinical setting.

In conclusion, this chapter gave a brief overview of the research process that will follow. The next chapter of the study provides a detailed theoretical overview of preceptorship. The literature review takes the reader on a journey of discovery by discussing the different dimensions of preceptorship.

Chapter 2 Literature review

2.1 Introduction

A review of literature allows the researcher to gain in-depth knowledge, understanding into the situation and to detect any gaps that may exists within existing literature. A literature review can be done by critically evaluating the existing and relevant knowledge by reading broadly about the topic at hand. Background literature enables the researcher to build on the work of other researchers. In essence a literature review should support that the research being done is contributing to the knowledge and understanding of the field of the profession (Grove, Burns and Gray, 2013:40; Botma *et al.*, 2010:64).

The literature review for this study looks at a preceptor as an irreplaceable asset in clinical education and explores the attributes that a preceptor must have to support meaningful learning in their students. The researcher takes an in-depth look at the role and function of preceptors in the clinical workplace as well as the four types of support that may be provided by the preceptor. The pillars of support include system, tangible, emotional and cognitive support. Furthermore, the importance of student support by preceptors in order to send competent practitioners into the nursing profession is explained.

2.2 Clinical education in South Africa

The clinical environment is complex and challenging. A lack of basic equipment, medicine and appointed staff all influence the effectiveness of the clinical environment. Medical information and technology are continuously changing and require the adjustment of nursing care on a regular basis. A compassionate and competent educational workforce is needed to support novice nurses to overcome the challenges ahead and become competent professional practitioners. Clinical

facilitation is seen as a valued vehicle to develop skills (Shepard, 2014:74) as well as essential thinking processes in nursing students. Liu *et al.* (2010:804) and Warren and Denham (2010:4) state that clinical facilitation is seen as the essence of nursing education.

In 2010, the South African Nursing Education stakeholders identified clinical facilitation as a priority area that needed strengthening (Mulder and Uys, 2012:60). As a result, the Department of Health convened the Nursing Summit Organizing Committee and the Ministerial Task Team to meet in 2011. The mission of the group was to discuss strategies to ensure the development of a suitable nursing workforce, qualified and ready to face the challenges of the South African population and health care system (The Nursing Summit Organisation Committee, 2012:33). One strategy was to focus on clinical nursing educators and to prepare them to act as pioneers to support novice nurses in achieving a higher order of thinking processes in the clinical setting.

Synonyms for the pioneers that drive the clinical nursing educational workforce are preceptors, clinical teachers, clinical facilitators, clinical instructors, clinical guides, and mentors. For the purpose of this study the term ‘preceptor’ will be used. A preceptor is a person that has a multitude of roles that he/she is often required to apply simultaneously. The multidimensional concept of a preceptor will be reviewed to gain an in-depth understanding of the roles and functions of a preceptor.

For this study, the definition of Botma (2014) for a preceptor is adopted and 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”.

The preceptor should have certain attributes, which include being a compassionate nurse. Compassion is evident in the way a preceptor delivers patient-centred care, approaches his/her their daily tasks in the unit, and treats the students allocated to him/her. Preceptors should be experts in their respective field so that they can

facilitate deep learning in their students and promote care based on the best available evidence. The ability of students to transfer learning and skills is directly linked to the support that is offered by the preceptor in the clinical setting. Although preceptors can support their students in various ways, the most important support type that a preceptor should facilitate is the novice's thinking processes in order to develop critical thinking, clinical reasoning, clinical judgment and metacognition during patient care. Preceptors can effectively develop and stimulate these thinking processes by taking into account the factors that influence the transfer of learning.

2.3 Transfer of learning

Learning occurs when a student is able to replicate the new task, while transfer refers to the ability that a student develops to apply the newly learned task to different situations in real life (Botma *et al.*, 2013b:32). Transfer of learning can be regarded as the continuous application of theoretical knowledge, skills, behaviours and attitudes to maintain and improve a student's performance in real life situations over time (Botma *et al.*, 2013a:1; Botma *et al.*, 2013b:41; Kirwan and Birchall, 2006:253). The integration of theory and practice is a synonymous with the transfer of learning. Learning is transferred when the student applies his/her theory to a situation in practice. Transfer of learning is needed to ensure competent practitioners through the development of their cognitive abilities.

Clinical competence depends on the nurse's ability to integrate theoretical knowledge with practice. Botma *et al.* (2014:124) define competence in a nurse as being able to "recognise a deviation from the expected norm and to apply knowledge from relevant disciplines to identify and explain the problem." The underpinning fundamentals of competence lie in the nurse's ability to critically think, identify and solve problems simultaneously in order to perform effectively in different clinical environments (Chang *et al.*, 2011:3225; Moeti, van Niekerk and van Velden, 2004:72; Hewson and Jensen, 1990:524). Novice nurses need to develop critical thinking skills through transfer of learning in order to become competent. Kirwan and Birchall (2006:300) identified four main factors that influence a student's transfer of learning. They include the trainee's characteristics, training design, training transfer

climate and working environment. Figure 2.1 provides an illustration of these factors. Each of these factors (student characteristics, training design, training transfer and work environment) will be discussed to show their influence on a student's transfer of learning.

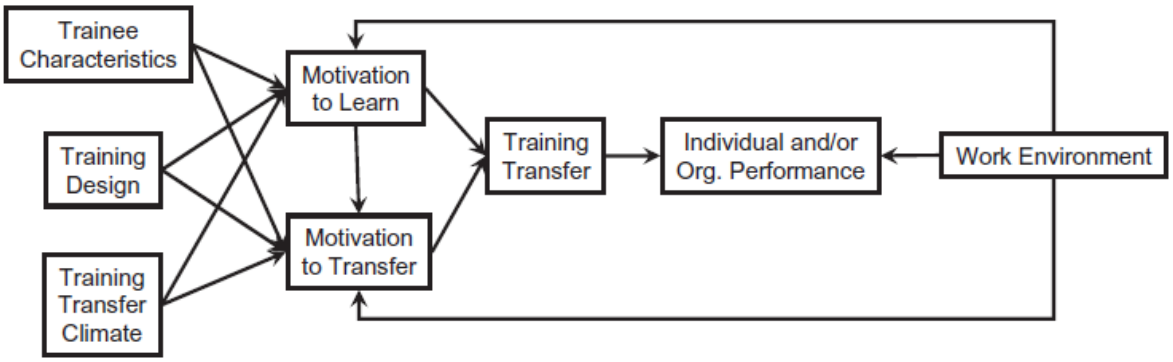

Figure 2.1 Systematic model of transfer of learning by Donovan and Darcy (2011)

2.3.1 Student characteristics

Individual student qualities such as motivation, ability and behaviour play a vital role in the transfer of learning (Donovan and Darcy, 2011:123; Merriam and Leahy, 2005:7). Students should have a strong motivation to learn in order to develop and apply their learning in the clinical environment (Rust, 2002:146). For example, a student who voluntarily chooses a career in nursing, is motivated and keen to learn the tricks of the trade. This is seen as the pre-training motivation of a student. If a student is 'forced' to study nursing, or choose nursing as a 'last' resort, he/she will most likely be less motivated to learn.

Students can feel unmotivated when they experience that they do not have input in what they learn. Merriam and Leahy (2005:6) note that students have a need to give input in learning outcomes. Preceptors should include students when deciding on the outcomes for their clinical placement. By setting outcomes, students should know that they are working towards a goal and they are motivated if they feel that 'there is a result' after the learning activity was completed (Ahn and Kim, 2015:707).

Students who feel motivated and involved in their learning will be likely to participate and learn more. By giving the student a 'say' in their learning, a preceptor is creating a student-centred approach. A student-centred approach is followed when a student is engaged in learning activities. Successfully participation in outcome activities create self-efficacy and confidence in students.

Self-efficacy, or the belief in one's ability, has an influence on a student's transfer of learning. If a student does not believe that he/she has the ability to perform a task, he/she will most probably not be able to successfully complete the task. Self-efficacy and confidence goes hand-in-hand with the transfer of learning (Merriam and Leahy, 2005:6). Students who have self-efficacy in completing tasks will gain more confidence. Students with confidence will want to learn more to increase their capacity in knowledge and skills.

A student's attitude also influences his/her transfer of learning. Attitudes such as a resistance to change will reject the transfer of learning (Botma *et al.*, 2013b:41; Kirwan and Birchall, 2006:252). The resistance to change can either be because of an insecurity regarding the ability to perform a task, or because of an attitude problem. It is not just the student alone who influences the transfer of his/her learning; training design as an external factor also influence the transfer of learning process.

2.3.2 Training design

Training design influences the transfer of learning (Kirwan and Birchall, 2006:254). Nursing education institutions should take note of the factors that influence the transfer of learning when compiling training programmes. Evidence of a training programme is established by the outcomes that students are expected to achieve. Outcomes should be based on, and linked to competencies and not content (Botma *et al.*, 2013a:3; Botma *et al.*, 2013b:41). Outcomes direct effective facilitation to promote the transfer of learning because both student and preceptor are working towards a common learning goal.

A preceptor needs to link the outcomes that the student is expected to achieve in the clinical setting to activities that have been planned to achieve the intended outcomes as well as to the assessment activity that proves that the outcomes were achieved (Ahn and Kim, 2015:707). This is described by Biggs (1999:58) as constructive alignment and is illustrated by Figure 2.2.

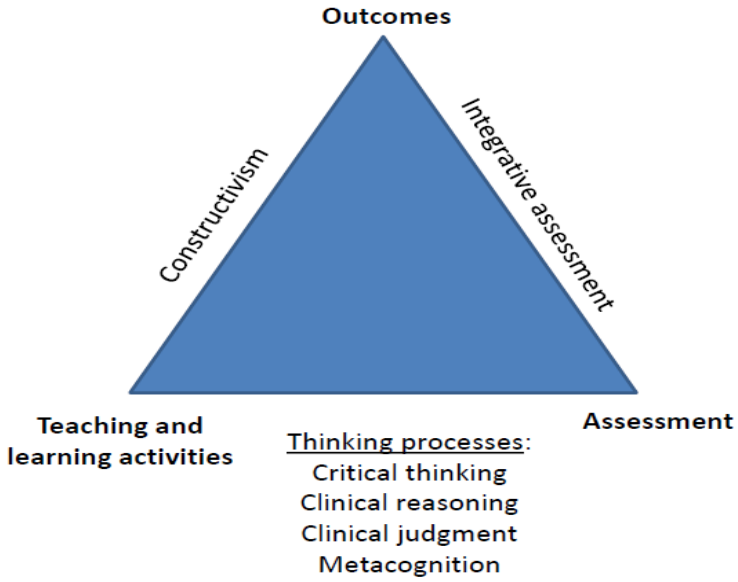

Figure 2.2 Constructive alignment triangle

For this study the researcher focuses on constructivism as a learning theory for preceptorship. Constructivism requires the preceptor to have a student-centred approach where students are actively involved in the learning process so that the student can have a meaningful learning experience while achieving the intended outcome. Activities should promote social interaction so that students can verify their knowledge while knowledge should be gained through their own reality (Botma *et al.*, 2014:16; Biggs and Tang, 2011:22). A student constructs his/her own knowledge when engaging with a learning activity in a specific context. In other words, learning is contextualised.

Activities should develop the student's thinking processes such as critical thinking, clinical reasoning, clinical judgment and metacognition. The assessment should be

aligned with the activities and should test the student's thinking processes. Integrated assessment provides evidence that the outcomes had been achieved by the student and that learning has occurred (Biggs and Tang, 2011:130).

Learning requires the construction of new knowledge with each patient encounter through after-encounter-reflection. This is of great value so that the students can think about the new knowledge or skills and how to apply it in future in order to prevent a relapse into the old patterns (Merriam and Leahy, 2005:8). It is important that preceptors should allow sufficient time for reflection in the form of reflective writing or debriefing session.

Reflection may be applied as a technique when a student's learning is facilitated. Effective facilitation techniques and strategies will promote metacognition that has an enduring effect on learning (Kirwan and Birchall, 2006:254). Preceptors should be trained in facilitation techniques to support students in transferring their learning.

Therefore, training programmes should budget for quality preceptor support during the facilitation of cognitive skills such as metacognition. Merriam and Leahy (2015:9) indicated that one-to-one facilitation, such as a preceptor-student relationship, has an optimal impact on the transfer of learning. Preceptors should be made aware of the influence that the learning climate and the learning environment have on their students.

2.3.3 Training transfer climate

Motivation to transfer is influenced by the climate in which students are placed for their experiential learning (Kirwan and Birchall, 2006:255; Merriam and Leahy, 2005:10). A supportive learning environment is established when the student experiences support from their preceptors, including staff, and peers (Kirwan and Birchall, 2006:255). Students regard an unsupportive environment as one with no supervision, no feedback on performance and no opportunities to engage in a new task (Merriam and Leahy, 2005:11). An unsupportive environment inhibits learning in students (Houghton, 2014:2). The extent of support that a student receives in the clinical environment will determine the climate or atmosphere. When a student

experiences a positive atmosphere in their work environment, he/she will learn more and engage in patient care activities. Preceptors are seen as the key in creating a positive atmosphere for students in the work environment.

2.3.4 Work environment

A preceptor can create a favourable working environment to ensure the transfer of learning. A working environment is regarded as favourable when the student has functional equipment, adequate medicine available and a preceptor that can support them in all four domains (Botma *et al.*, 2013b:41). However, in some cases a student may be confronted with an unfavourable environment. A preceptor should be flexible and resourceful to overcome challenges experienced in the clinical setting in order to assist his/her students. The impact of the working environment on precepting and the student will be discussed in the 'clinical arena' section of the chapter.

A preceptor needs specific attributes in order to relate to students, and to support students both in applying their classroom learning in the clinical practice effectively and adapting to changes in the clinical environment.

2.4 Attributes of the preceptor

An effective preceptor needs certain attributes to support students in the clinical setting. These attributes play a big role in the lasting experience for students in the clinical environment (Rebholz and Baumgartner, 2015:94; Van Huyssteen and Blitz-Lindeque, 2006:15). Preceptors should be compassionate, approachable, supportive, confident, positive and motivated. These attributes build the student's self-confidence that will ultimately leads to better patient management and prevent students from experiencing burnout and depersonalisation (Rebholz and Baumgartner, 2015:94; Houghton, 2014:4; Khan *et al.*, 2012:86; Sanderson and Lea, 2012:334; Huybrecht *et al.*, 2011:274; Spurr, Bally, and Ferguson, 2010:351; Happell, 2009:72; Wilson-Bernett *et al.*, 1995:1152). Attributes are also classified into personal or professional and each will be discussed in the following sections.

2.4.1 Personal attributes

Personal attributes are seen as a person's character traits. It is also seen as the make-up of one's personality. Personal qualities contribute significantly to the development of one's professional ability (Magee and Hojat, 1998:235). Every person has both positive and negative attributes. In order to promote learning in students, a preceptor has to have certain positive attributes. Wright (1996:292) found that personality characteristics of a preceptor are very important to their students. Smythe *et al.* (2015:28) state that some people perceive personal attributes (for example ethical behaviour and respectfulness) as more important than cognitive traits. The following qualities are as indicated in literature as personal attributes: humane characteristics; enthusiasm; communication; ethical values and self-reflection. It may be argued that ethical values and self-reflection can be seen as professional attributes, but in the researcher's opinion these characteristics are primarily found in a person's personal characteristics. It is not possible for a preceptor to have ethical values in his/her profession, but not in his/her personal life.

2.4.1.1 Humane characteristics

Students value the humane characteristics in their preceptors. These characteristics include having compassion, empathy, being sensitive to the needs of others, respect, being punctual, dependable and caring for both patients and students (Kelley and Kelley, 2013:321; Goodall *et al.*, 2011:65; Fromme *et al.*, 2010:1909; Smedley, 2008:31; Myrick and Yonge, 2005:64). Pitt *et al.* (2014:1196) describe the preferred personal attributes of a nurse as being compassionate, honest, empathetic, accountable, conscientious and ethical in his/her approach. Wright and Carrese (2002:639) however categorise these qualities as interpersonal skills. For the purpose of this study, humane characteristics will be used. Smythe *et al.* (2015:28) as well as Elzubeir and Rizk (2001:276) state that both respect and being sensitive to the needs of others are important characteristics in a preceptor. Kelley and Kelley (2013:321) state that empathy is not only necessary for comprehensive patient care but is also one of the most important attributes to transfer to students through listening skills and compassion-based skills.

Students value humane contact from their preceptor. Overall, students want preceptors to be positive towards them as students and their professional development (Smythe *et al.*, 2015:31; Huybrecht *et al.*, 2011:274; Agarwal *et al.*, 2010:50; Smedley, 2008:185). This means that the preceptor should acknowledge the student's positive actions and contributions in the workplace. This creates a feeling of self-worth and value in the student (James and Chapman, 2010:43). Huybrecht *et al.* (2011:274) as well as James and Chapman (2010:42) note that negativity towards students can increase the chances for them to discontinue their studies. Students highly esteem it when a preceptor understands their situations and shows interest in them (Smythe *et al.*, 2015:31; Popovich, Katz and Pererly, 2010:2; Beaudoin *et al.*, 1998:768; Donnelly and Woolliscroft, 1989:160). Furthermore, students want preceptors to show interest in specifically the student's well-being as well specifically the student's ideas on patient care (Sinai *et al.*, 2001:84).

2.4.1.2 Enthusiasm

Students consider being enthusiastic and friendly as having a positive outlook (Jewell, 2013:325; Huybrecht *et al.*, 2011:274; Popovich, Katz and Pererly, 2010:2 Williams and Stickley, 2010:752; Myrick and Yonge, 2005:64; Wright and Carrese, 2002:240; Irby and Rakestraw, 1981:181). Enthusiasm refers to a preceptor's desire to teach and undertake the preceptor role (Smedley, 2008:185). The emotions accompanied by enthusiasm are evident in the preceptor-student relationship as well as in the teaching/learning process (Rebholz and Baumgartner, 2015:107). Several authors acknowledge that enthusiasm is an invaluable quality of a preceptor (Rebholz and Baumgartner, 2015:94; Hauer *et al.*, 2012:1389; Fromme *et al.*, 2010:1909; Agarwal *et al.*, 2010:50; Beckman and Lee, 2009:339; Flynn and Stack, 2006:44; Elzubeir and Rizk, 2001:276; Wright, 1996:291; Irby, Gillmore, and Ramsey, 1987:6; Irby and Rakestraw, 1981:181). Elzubeir and Rizk (2001:276) identified friendliness as the most important characteristic, especially in male preceptors. An enthusiastic and friendly attitude of a preceptor during a teaching session stimulates learning in a student and is seen as emotional support by the student (Spurr, Bally and Ferguson, 2010:349; Wilson-Bernett *et al.*, 1995:1157). Zilembo and Monterosso (2008:203) found that the students placed with a friendly

preceptor were more likely to seek out learning opportunities for themselves than students who were placed with an unfriendly preceptor.

2.4.1.3 Communication

A preceptor has to possess good communication skills which include listening to their students (Rebholz & Baumgartner, 2015:94; Smythe *et al.*, 2015:31; Mann-Salinas *et al.*, 2014:378; Pitt *et al.*, 2014:1197; Troxel, 2009:33; College of Nurses of Ontario, 2009:3; Smedley, 2008:185; Zilembo and Monterosso, 2008:200; Myrick and Yonge, 2005:128; Elzubeir and Rizk, 2001:276; O'Malley *et al.*, 2000:45). Effective communication builds positive relationships between preceptor and students (Popovich, Katz and Pererly, 2010:2; Sinai *et al.*, 2001:83). This positive relationship with a preceptor is very important to students, irrespective of the student's level of knowledge and skill (Skaalvik, Normann and Henriksen, 2011:2301; Williamson *et al.*, 2010:829; Hewson and Jensen, 1990:524).

How and what we communicate to students are very important. Jewell (2013:324) and Billay and Myrick (2008:259) argue that good and clear communication between preceptors and students may present a good outcome when they encounter professional conflict. How a preceptor acts on conflict is very important. A preceptor and student should, for instance, settle differences in private in order not to embarrass the student in front of his/her patients. Therefore, communication can lead to a positive or negative atmosphere in the working environment.

A positive atmosphere in the clinical environment is created by honest and open communication between preceptors and students (Happell, 2009:375; Zilembo and Monterosso, 2008:201; Flynn and Stack, 2006:39; James *et al.*, 2002:271). For example, a situation that promotes a positive atmosphere is when the staff member in the clinical practice knows the student's name (Skaalvik, Normann and Henriksen, 2011:2301; Williamson *et al.*, 2011:829; Hewson and Jensen, 1990:524). A positive learning environment makes the development of professional relationships possible.

Professional relationships or professional socialisation develop though effective communication among members of interprofessional health care teams. It is the

responsibility of the preceptor to create opportunities for students to interact with team members in order to promote the professional socialisation of the student (Marks-Maran *et al.*, 2013:1428). An example of a situation that promotes communication and professionalisation is during shift reporting in a patient- centred handover. This creates interaction, professional socialisation and promotes learning for the students (Skaalvik, Normann and Henriksen, 2011:2301; Williamson *et al.*, 2011:829, Hewson and Jensen, 1990:524).

Zilembo and Monterosso (2008:201) list the promotion of learning in students as another benefit of being an effective communicator. Carlson, Pilhammar and Wann-Hansson (2010:522) illustrate that a preceptor's behaviour, words and action facilitate the student's ability to internalise knowledge. Omer *et al.* (2013:156), Melincavage (2011:785) and Sinai *et al.* (2001:83) suggest that to promote learning, based on the needs of the student, effective communication is paramount.

2.4.1.4 Ethical values

Students value ethical behaviour, for example honesty, as a very important trait of a preceptor (Smythe *et al.*, 2015:28). Agarwal *et al.* (2010:50) and Elzubeir and Rizk (2001:276) agree that integrity and honesty are important in a preceptor. Wright and Carrese (2002:640) define being honest and having integrity as being ethical, principled and true to one's values. It is vital to give honest feedback when students did not perform satisfactorily.

2.4.1.5 Self reflection

A preceptor has to reflect in order to adapt his/her facilitation of learning according to the student's needs (Rebholz and Baumgartner, 2015:103; Smedley, 2008:189). This includes recognising one's own limitations and a readiness to admit if one doesn't know (Shepard, 2014:231; Ramani and Leinster, 2008:357). Although reflection is a learning and facilitation technique, it can also be seen as a quality of a preceptor. Fromme *et al.* (2010:1909) emphasise the importance of self-reflection and insight in clinical educators. This quality helps educators to reflect on their own

performance and aids them in improving their teaching through self-directed learning.

2.4.2 Professional attributes

Preceptors directly influence the development of professional attributes in student nurses (Smedley, 2008:185; Irby and Rakestraw, 1981:182). Preceptors should realise that students consciously and unconsciously observe and imitate their actions and interactions with colleagues, other students and patients. The benefit of imitation is that it can help the student to cope with challenges in the clinical area (Benbassat, 2014:550). However, preceptors may inadvertently portray unprofessional or unethical behaviour. It is thus of the utmost importance that role models who exude professionalism should be selected to become preceptors. Professionalism incorporates a patient-centred care approach.

2.4.2.1 Patient-centred care

Students desire a patient-centred experience during their professional development (Popovich, Katz and Pererly, 2010:1). Preceptors should demonstrate compassionate patient-centred care and involve the student in the implementation of the patient's care plan. This will assist in developing the student's skills and confidence. Students perceive a good preceptor as someone who respects and takes a personal interest in their patients (Benbassat, 2014:551) and provides continuity of care.

2.4.2.2 Professionalism

Students value a preceptor who approaches a situation in a professional manner (Shepard, 2014:231; Mann-Salinas *et al.*, 2014:378; Goodall *et al.*, 2011:65; Todhunter *et al.*, 2011:224; Happell, 2009:373). Myrick and Yonge (2005:47) define professionalism as the behaviour of a person who is knowledgeable about nursing care; someone who is respectful and ethical in his/her actions and who has sound clinical judgment in order to promote the patient's welfare. Huybrecht *et al.* (2011:274) and Ullrich and Haffer (2009:4) state that preceptors should be role

models of good practice. Smedley (2008:185) notes that students value preceptors who are invested in their professional growth. When a preceptor displays professionalism, a student can imprint this behaviour in his/her everyday life and this contributes to the development of a professional identity. Todhunter *et al.* (2011:224) report that students often experience preceptors as being cynical when it comes to professionalism; furthermore, a lack of professionalism from preceptors are associated with a lack of professionalism in their students.

Respectful collaboration with the interprofessional team is seen as concomitant with being professional (Huybrecht *et al.*, 2011:274). When other team members show respect for the preceptor; students have more confidence in the preceptor's teaching ability (Myrick and Yonge, 2005:65). A preceptor should use the opportunity to role-model integrated interprofessional collaboration skills during discussions with team members.

Interprofessional education (IPE) should be included in the nursing student's development. IPE is considered a collaborative process where students or practitioners from different professions collaborate to deliver high-quality patient-centred care. The advantages of interprofessional collaboration are that it reduces the fragmentation of health services, creating a platform where complex healthcare issues can be addressed (Farrell, Payne and Heye, 2015:6). Through collaboration with an interprofessional team, a preceptor specifically has the opportunity to demonstrate communication skills and leadership characteristics to his/her students.

2.4.2.3 Organised

Preceptors should be well organised and present information logically at the student's level of learning (Zilembo and Monterosso, 2008:200; Myrick and Yonge, 2005:64; Irby and Rakestraw, 1981:181). Students perceive well-organised preceptors as being well prepared for their contact session. Rebholz and Baumgartner (2015:102) point to the ability of a preceptor to organise workday duties as an important aspect of being successful in preceptorship. Thus the personal and

professional attributes of the preceptor contribute to his/her ability to establish effective relationships with both students and other health care workers.

2.4.2.4 Expertise

In addition to being a clinical expert in his/her field, the preceptor should also have the necessary knowledge and skills to link classroom knowledge with clinical practice. A good preceptor blends teaching and precepting (Stevens Barum, 2006:13). A sense of confidence is created by preceptors with both extensive experience of clinical practice and precepting (Rebholz and Baumgartner, 2015:102). For this reason it is ideal that preceptors should both be clinical and educational experts (Smedley, 2008:185).

2.4.2.4.1 Clinical expertise

Löfmark *et al.* (2012:165) report that preceptors admitted to experiencing difficulties due to a lack of formal qualification. Therefor it is preferred that preceptors should have advanced post-graduate training in their speciality field, as well as additional educational training in precepting to ensure quality in the facilitation of students (Rebholz and Baumgartner, 2015:108).

As a clinical expert, a preceptor should demonstrate the ability to analyse a patient's problem, and identify central issues and information concerning the case in order to come to a meaningful conclusion. The conclusion is based on the interpretation of all the information gathered (Omer *et al.*, 2013:159; Hewson and Jensen, 1990:524). Preceptors should possess not only clinical expertise and a wide range of psychomotor skills, but also extensive knowledge of their field (Rebholz and Baumgartner, 2015:94; Löfmark *et al.*, 2012:165; Hauer *et al.*, 2012:1389; Goodall *et al.*, 2011:65; Ullrich and Haffer, 2009:4; College of Nurses of Ontario, 2009:4; Smedley, 2008:185; O'Malley *et al.*, 2000:45).

Rose (2008:106) suggests that faculties should employ preceptors who are experienced practitioners, with a sufficient number of years' experience, who meet

certain qualifications and are passionate about preceptorship. It was found that the duration of a preceptor's clinical experience is very important. A short duration of clinical experience may hinder precepting processes. Clinical experience over time creates clinical competence in a preceptor that is valued by students (Huybrecht *et al.*, 2011:274; Zilembo and Monterosso, 2008:200; Irby and Rakestraw, 1981:182). Both students and preceptors are of the opinion that the experience of the preceptor plays a vital role to the professional development of the student (Baldwin *et al.*, 2014:19). Preceptors with a knowledge deficit cannot effectively support the learning of students (Williamson *et al.*, 2010:832), and those with higher academic qualifications are better preceptors.

A preceptor should display extensive up-to-date knowledge in both practice and educational areas (Rebholz and Baumgartner, 2015:94; Löfmark *et al.*, 2012:165). Extensive knowledge creates self-confidence in preceptors that is noticed by students and appreciated as an important attribute (Flynn and Stack, 2006:44). Students value the preceptor's expertise when up-to-date knowledge and experiences are shared in the clinical practice (Rebholz and Baumgartner, 2015:94; Huybrecht *et al.*, 2011:176; Popovich, Katz and Pererly, 2010:2).

It is also expected that preceptors base their current clinical knowledge on evidence based practices. Rebholz and Baumgartner (2015:101) along with Burns *et al.* (2006:172) summarise that preceptors have proved to be highly useful assets in clinical education in several ways: A preceptor has the ability to cultivate high standards in their students that include the familiarisation with best evidence-based practices. Evidence-based practice is a problem-solving approach compiled from up-to-date research that reveals relevant, valid and reliable evidence for best patient care and outcomes. This leads to high quality care and a reduction in medical costs for the patient (Melnyk *et al.*, 2010:51). A novice nurse needs a preceptor that can develop their evidence-based practices (Jewell, 2013:325). In addition to being clinically knowledgeable and skilled, the preceptor should also be knowledgeable and up-to-date regarding educational practices (Rebholz and Baumgartner, 2015:107).

2.4.2.4.2 Trained preceptors

Continuous preceptor training ensures professional and cognitive development in students whilst also promoting confidence in preceptors during their facilitation of students (Rebholz and Baumgartner, 2015:105; Huybrecht *et al.*, 2011:276; Smedley, 2008:185). As a preceptor becomes increasingly proficient and experienced, he/she again promotes confidence in students when they are successfully facilitated to complete clinical outcomes (Shepard, 2014:83). This means that preceptors must be proficient in their facilitation process in order to promote thinking skills in students so that they can become competent practitioners.

Preceptors need training in order to effectively facilitate learning in the clinical practice. Preceptor training programmes should include training on the thinking process of students; how to find the best available evidence guidelines, as well as on assessment and facilitation techniques. Troxel (2009:33) suggests that the training of preceptors should at the minimum include clinical facilitation techniques. Knowing a student's learning style can help the preceptor to adapt his/her facilitation approach to develop cognitive and metacognitive skills in different students (Botma *et al.*, 2013a:8; Huybrecht *et al.*, 2011:275; Saarikoski *et al.*, 2009:536; Troxel, 2009:33; Billay and Myrick, 2008:261). Preceptors can choose from a variety of teaching techniques to overcome busy days in the ward where facilitation time is limited (Burns *et al.*, 2006:179). Facilitation time between a student and a preceptor requires a foundation similar to a relationship.

2.5 Preceptor-student relationship

It is imperative that the relationship between a preceptor and student be built on trust. A trust relationship is where a student feels safe enough to engage in new activities and procedures beyond his/her comfort zone (Hauer *et al.*, 2012:1389). Students feel safe when they know that the preceptor supports them in the new joint activity, as indicated by Vygotsky's zone of proximal development (Andrews and Roberts, 2003:477). In such a relationship the student is willing to admit his/her fears

and excitement to the preceptor while doing something new. A trust relationship inspires students to learn and gain the independence that enhances a new learning experience (Adelman-Mullally *et al.*, 2013:32; Skaalvik, Normann and Henriksen, 2011:2301; Carlson, Wann-Hansson and Pilhammar, 2009:524; Nesbitt, 2006:19). Conversely, a negative relationship inhibits the student's learning (Omer *et al.*, 2013:156; Henderson *et al.*, 2006:564). For this reason it is pivotal to the student's experience of success that a student develops a committed relationship with his/her preceptors.

Students regard a sound interpersonal relationship with their preceptor as support. For a healthy interpersonal relationship to form, both the student and the preceptor should commit to learning and to the building of the relationship (Huybrecht *et al.*, 2011:276). The success of preceptorship is directly linked to the strength of the relationship between the preceptor and the student (Omer *et al.*, 2013:156; Williamson *et al.*, 2011:834; Spurr, Bally and Ferguson, 2010:349; Happell, 2009:373). A preceptor should establish a one-to-one relationship with the student, even if a preceptor has more than one student (Mulder and Uys, 2012:63; Rose, 2008:105; Stevens Barum, 2006:3; Burns *et al.*, 2006:172). A one-to-one relationship creates a secure and safe environment where students are intellectually challenged to attain their proximal development (Saarikoski *et al.*, 2009:545; Myrick and Yonge, 2005:37). The one-to-one preceptor-student relationship is affected by the length of time spent together.

Students value the availability of a preceptor and the time spent with them during their clinical rotation. Spending time and working together with the student is a crucial aspect of the role of a preceptor (Sanderson and Lea, 2012:336; Williamson *et al.*, 2011:829; Jowett and McMullan, 2007:268; Wilson-Bernett *et al.*, 1995:1157). Moore (2009:249) identified that the preceptorship process in the clinical setting is adversely influenced if the preceptorship is too short. More unconventional approaches have been explored to support contact sessions with students. Preceptors use electronic medial to support students; however, students appreciate face-to-face contact with their preceptor on a regular basis to maintain the relationship (Saarikoski *et al.*, 2009:599; Smedley, 2008:186). In South Africa a

preceptor should manage at least four contact sessions of 30 minutes per student per month (The Nursing Education Group (NES), 2012:54). The time indicated here is not enough to develop sufficient thinking processes in students. Preceptor-student ratios should be taken into consideration in a clinical preceptor model to ensure quality time per student in order to promote and develop thinking processes.

A too large ratio of students to a preceptor hinders effective preceptorship. Each preceptorship model varies; some authors advise that the preceptor supervises more than one unit and between ten to twelve students (Omer *et al.*, 2013:156), while others suggest a ratio of one preceptor to eight students (Happell, 2009:372; Dickson, Walker and Bourgeois, 2006:417). The clinical model for preceptorship proposed by FUNDISA suggests a ratio of one preceptor for every fifteen to twenty students. The contact time spent between the student and the preceptor creates an opportunity to establish a working relationship between both parties. It is also important to remember that overloading preceptors results in poor student-preceptor relationships as it takes time to build any relationship.

The relationship that the preceptor has with a student is professional in nature, not personal (Steven Barum, 2006:5). Within this professional relationship, openness, trust and mutual respect are essential to enable transfer of learning and role modelling (Rebholz and Baumgartner, 2015:94). The relationship between the preceptor and the student forms part of professionalisation. A positive student-preceptor relationship is essential to develop the feeling that the student is part of the professional team (Löfmark *et al.*, 2012:165). A professional relationship develops self-confidence and confidence to work in a team setting as well as with other professions (Marks-Maran *et al.*, 2013:1432; Jewell, 2013:325). Part of the preceptor's role is to continue the professional socialisation process by 'buddying' the student with a staff member when the preceptor leaves. This staff member should be supportive and encouraging towards the student (Dickson, Walker and Bourgeois, 2006:417). Supporting the student to form meaningful relationships with the clinical team forms the foundation of professional socialisation.

Professional socialisation is the process during which students gradually adopt the professional knowledge, traditions, skill and behaviour from the preceptor (Brown, Stevens and Kermode, 2012:606). During this professional socialisation process the preceptor acquaints the student with the rest of the interprofessional team members enabling a fruitful and sustainable relationship between the student and team members (Omer *et al.*, 2013:156; Spurr, Bally and Ferguson, 2010:350, James *et al.*, 2002:272). Professional socialisation creates a learning environment where the student feels part of the team.

In order to learn, students need meaningful relationships with other team members and to fit positively into their working environment. To promote learning in students, they should feel comfortable to ask questions and explore nursing practices. In general, novice nurses would rather not ask questions so that they are not perceived as incompetent by their seniors (Jewell, 2013:324). Therefore it is important to create a safe learning environment where it is accepted that students ask questions for students to learn. Students may resort to survival strategies when they feel unaccepted in their working environment and are unable to form meaningful relationships with team members. Survival strategies are adopted in an attempt to fit into the working environment or when students are included, but not listened to. In order not to expose themselves to criticism, students do not ask questions about nursing or patient practices; they do not engage with patients, nor explore for evidence of patient care. In essence, survival strategies hinder the student's learning (Henderson *et al.*, 2012:300; Nolan, 1998:622).

In essence, the professional socialisation process with staff members can either enhance or hamper the professional development of the student. Professional socialisation is the building of a professional relationship between students, preceptors and the professional team where students learn more about nursing values and roles. Students who embrace their new role as a nurse are found to be more confident (Houghton, 2014:2; Löfmark *et al.*, 2012:165; Happell, 2009:372; Sedgwick and Yonge, 2008:2; Billay and Myrick, 2008:259; Stevens Barum, 2006:13). Preceptors should promote professional socialisation by communicating with the interprofessional team in a capacity-building approach. This will create

opportunities to socialise and assist students to learn when preceptors are not available. The promotion of students into their professional role and enhancement of their clinical learning are critical to develop the novice nurse into a competent practitioner.

2.6 The novice student nurse

A novice nurse is a student nurse who is new to a specific clinical setting or context. A novice nurse may also be a professional nurse who enters a new area of practice (Jewell, 2013:324). It is important to remember that a novice who enters the profession is not a competent functional nurse, although some seniors may expect competence from them (Jewell, 2013:324). A novice does not become an expert overnight. Therefore the preceptor should realise that becoming competent is accomplished over time. It is best described by Benner's five levels of competence: the novice, advanced beginner, competent, proficient and expert.

A novice is a beginner with no experience of the situation in which he/she is expected to perform the task. They need defined rules and models to guide their actions in performing a task (Botma *et al.*, 2013a:7; Andrews and Roberts, 2003:477; Benner, 1994:127). It is noted that Benner was vague in her description of facilitating the development of these five levels of competence. Although a novice may have no previous clinical experience, he/she should have the pre-existing foundational knowledge in order to learn from experiences (Field, 2004:561). It is also vital that a novice receives appropriate and quality facilitation to link classroom knowledge to the real life clinical setting (Jewell, 2013:324). Both the pre-existing knowledge and the facilitation process are needed for a student to progress through all five stages of Benner's levels.

Corresponding with Benner's level of a novice, Kramer (1974:n.p.) noted three phases that a novice has to go through in order to progress to an advanced beginner. The phases of *Being* to *Knowing* are applied to novice nurses and are described in three phases. The first phase is known as the 'doing phase' where the student will try to understand what is expected of him/her. The main objective is to

do the task well and on time. The second stage is known as the ‘being stage’ where the student overcomes his/her overwhelming emotions and becomes more comfortable in this position. The student progresses in knowledge level but still needs validation from their peers. The last stage is known as the ‘knowing stage’, where the novice becomes more confident and comfortable and sees the bigger picture (Jewell, 2013:324). After completing this phase, the student nurse will enter the advanced beginner level as described by Benner.

Advanced beginners show a marginally accepted performance. They still use guidelines to perform their tasks, but they have been exposed to sufficient situations to build up an inventory of experience. They cannot yet prioritise and need the support from a competent person to help them identify what is important. Both novice and advanced beginners take in only a little information at the time because the situation can be overwhelming. They focus on the rules and guidelines that they need to follow and are unable to see the ‘bigger picture’ (Andrews and Roberts, 2003:127; Benner, 1994:477).

Competent nurses have about two to three years of experience. They can plan their actions in terms of long-term goals which give them a level of efficiency. They are able to make decisions based on analysis but they still lack speed and flexibility. Proficient nurses are extensive in their experience which gives them the ability to discern between what is important and less important in a situation. They see a situation as a whole and can predict potential problems and modify their plans accordingly. Experts no longer rely on analytical principles. Their long-standing experience gives them the advantage to zoom in because they have a deep understanding of the actual problem. They rely increasingly on their intuition when they reach this level (Jewell, 2013:324; Botma *et al.*, 2013a:7; Andrews and Roberts, 2003:477; Benner, 1994:127).

In order for a student to move effectively through these five levels, Field (2004:561) argues that the preceptor’s support is needed to facilitate deep reflection. Field came to the conclusion that preceptors were the ideal workforce that can coach students from novice to experts by bridging the theory-practice gap. Jewell (2013:324) and

Burns *et al.* (2006:172) state that preceptors should link the didactic knowledge to the clinical reality. The preceptor must intellectually support the student by bridging the idealistic academic environment and the reality of the practical and clinical environment (Spurr, Bally and Ferguson, 2010:350; Shpritz and O'Mara, 2006:29). The ultimate focus of a preceptor should be to develop a safe, competent, compassionate and independent clinician by promoting continuous effective learning.

Andrews and Roberts (2003:477) mentioned that Vygotsky's zone of proximal development (ZPD) should be noted in order to promote effective learning in a novice nurse. Vygotsky puts it thus: "The zone of proximal development of the child is the distance between his actual development, determined with the help of independently solved tasks, and the level of the potential development of the child determined with the help of tasks solved by the child under guidance of adults in the co-operation with his more intelligent partners" (Van der Veer and Valsiner, 1999:337). Vygotsky argues that for learning to take place the preceptor's facilitation should be at the student's zone of proximal development. This means that the preceptor should expect a task from the student that requires guidance from an expert/preceptor, until such a time as the student can complete the activity without assistance. As soon as the student completes the task independently, the task falls outside of the student's zone of proximal learning. During the facilitation process the preceptor should outline new information in such a way that it can build on existing knowledge. New information should always be at the student's learning level (College of Nurses of Ontario, 2009:4). According to Vygotsky, if the new information is on too high a level, the student will become frustrated and be unable to grasp the information, whereas if the new information is too elementary, the student will become bored. In neither case will learning occur. It should be the preceptor's focus to find appropriate procedures and cases for the student to achieve his/her learning outcomes. A preceptor can also find more complicated cases to link new knowledge with previously learned knowledge to create a more experienced and mature student.

In South Africa, The Nursing Education Team Stakeholders (NES) group (2012:50) regards the integration of practice and theory as competence when a nurse

possesses the cognitive ability to notice a problem, inter-operate the theory related to this problem, and respond in an appropriate and holistic manner to the problem. A preceptor should assist the novice nurse to make these connections.

2.7 The clinical arena

Novices need repeated experiences in clinical patient care to progress to the point where they achieve the level of an expert. Their experiences should be directly linked to their classroom theory and integrated into 'real life' experiences. The authenticity of the clinical workplace cannot be replaced by the classroom or even by simulation. The clinical environment offers a diverse and realistic experience for the student and is seen as the place where patient-centred care is offered collaboratively by an interprofessional team of experts. How a student experiences the clinical environment shapes his/her outlook towards learning, the profession and the clinical environment (Carlson, Pilhammar and Wann-Hansson, 2010:763). It has been noted that students who experience the clinical settings negatively, do not go back or specialise in that specific area (Skaalvik, Normann and Henriksen, 2011:2299). However, effective facilitation can turn a negative clinical experience into a positive learning experience.

Novice nurses experience fear and anxiety due to a lack of confidence that is based on their lack of knowledge and limited experience in the clinical environment. Their anxiety is exacerbated in an environment that is stressful and complex. Clinical environments are often unfamiliar and highly technological and contribute to their stress and anxiety. Students fear that they may make errors not knowing the equipment and may be unable to meet the patient's needs. The level of reality while in the clinical setting may also contribute to the student's anxiety (Myrick and Yonge, 2005:128).

Stressful situations and anxiety can hinder the student's ability to learn in the clinical setting (Houghton, 2014:2). A number of South African authors noted that students experience poor support in the clinical setting which is often an unfriendly environment and consequently experience high levels of stress (Magobe, Beukes

and Müller, 2010:181; MacKenzie, 2010:134; Mabuda, Potgieter and Alberts, 2008:25). It is the preceptor's responsibility to be aware of the student's stressors and to decrease the student's stress and anxiety in the clinical workplace (Marks-Maran *et al.*, 2013:1428; Pulido-Martos, Augusto-Landa and Lopez-Zafra, 2012:15; Stevens Barum, 2006:11). Preceptors should adapt their level of support according to the complexity of the clinical environment (Andrews and Roberts, 2003:476). Through the preceptor's guidance and support, the novice nurse will experience less stress, become comfortable and more confident. By reducing stress the preceptor creates a positive environment for a student to experience optimal learning.

The atmosphere of the environment is influenced by welcoming social relationships (Rebholz and Baumgartner, 2015:104; Baldwin *et al.*, 2014:24). Stalmeijer *et al.* (2009:544) and Beckman and Lee (2009:339) state that the clinical atmosphere has a strong influence on a student's learning process. Therefore the clinical atmosphere should be positive and supportive in order to optimise learning. During the South African Nursing Summit Meeting of 2011, the organising committee of the nursing summit and the ministerial task team recognised the importance of a positive and supportive learning environment for nurses and proposed that it is the responsibility of the higher education institutions to place students in a positive learning environment (The Nursing Education Group (NES), 2012:50) with a prominently positive atmosphere.

Studies by many researchers (Henderson *et al.*, 2012:299; Nurses' Association of New Brunswick, 2011:6; Stevens Barum, 2006:5; Spencer, 2003:593; James *et al.*, 2002:271) agree that students benefit from positive and supportive environments in several ways, namely:

- Students learn how to apply their theoretical classroom knowledge in practice;
- Students develop their critical thinking and clinical reasoning skills;
- Students learn the norms and values of their profession by interacting and communicating with senior team members;
- Students practice their skills, attributes and decision-making skills while showing empathy towards their patients;

- Students feel safe and pursue learning opportunities beyond their level of knowledge; and
- Students experience a feeling of job satisfaction that enhances their self-esteem and independence.

Experiences in the clinical environment influence a student's attitude to learning, practice and professional growth. The preceptor plays a vital role in ensuring positive clinical learning experiences by supporting the student all the way through his/her training (Sanderson and Lea, 2012:337; Henderson *et al.*, 2012:300; Liu *et al.*, 2010:804; Ramani and Leinster, 2008:349; Smedley, 2008:185; Moeti, Van Niekerk and Van Velden, 2004:72).

2.8 Four types of support

Several authors acknowledge the importance of preceptorship to provide support to students during their clinical experience (Sanderson and Lea, 2012:333; Williamson *et al.*, 2011:829; Saarikoski *et al.*, 2009:595; Zilembo and Monterosso, 2008:200; Lambert and Glacken, 2004:178; Wilson-Bernett *et al.*, 1995:1153). The various ways in which support offered by preceptors benefit students may be summarised as follows:

Preceptors who assist students ease them into the transition from students to competent practitioners. The guidance and support create a sense of independence in students, which builds their confidence (James and Chapman, 2010:45; Happell, 2009:374). The student's anxiety and 'reality shock' are decreased and the 'theory practice gap' is closed (Huybrecht *et al.*, 2011:274). Support that is offered to students will strengthen the learning curve and help to develop them into quality healthcare professionals. Support is multifaceted and complex; therefore it is vital that preceptors should have the necessary knowledge and skills to support and teach the student in the clinical environment.

Williamson *et al.* (2010:835) identified three types of support to students. They are tangible support, emotional support and cognitive support. Botma, Hunter and Kotze

(2012:812) identified one more type of support, known as system support. These four types of support are important to keep the playing field even, where the student learns about his/her profession and gains the necessary knowledge and experience to become a competent clinical practitioner who provides high quality care to his/her patients.

In the following sections the researcher will discuss the four types of support. The discussion will start with system support and the value of having systems in place before and during the placement of students in the clinical setting. After systems are put into place, tangible support provides students with further structure by negotiating and arranging outcomes and learning opportunities for students to achieve their intended outcomes (Ahn and Kim, 2015:707). The mixture of emotions that students experience during their placement can be eased by offering emotional support. In this domain a sense of acceptance and value of the student is created. Cognitive support is the most important support that a preceptor can offer to a student. Preceptors should use active facilitation techniques to close the gap between theory and practice. Each type of support will be discussed in detail.

2.8.1 System support

System support involves supporting the function of the clinical settings and NEI. In order to provide effective support to students, clinical settings and NEI, preceptors should preferably be employed by NEI (Sanderson and Lea, 2012:224; Liu *et al.*, 2010:804; Jowett and McMullan, 2007:266). Being employed by the NEI will enable preceptors to act as link between the clinical setting and the NEI while taking responsibility of facilitating the student's learning (Löfmark et al, 2012:165), thus relieving the pressure on registered nurses (Ramani and Leinster, 2008:348; Spencer, 2003:591).

Preceptors should convey information about student performance and issues influencing students from the clinical setting to the NEI and conversely (Nurses Association of New Brunswick, 2011:4; College of Nurses of Ontario, 2009:4). Preceptors have a responsibility to foster a good relationship between the clinical

facilities and the NEI. For this reason, preceptors should preferably not rotate with the students but remain with their specific clinical facilities. A good preceptor-clinical staff relationship also creates an opportunity for the preceptor to negotiate and find an active role for the student in the team (Löfmark *et al.*, 2012:165; Ullrich and Haffner, 2009:32). Preceptors should also realise that they represent the image of the NEI when working in the clinical setting (Houghton, 2014:5; Sanderson and Lea, 2012:334; Cox and Swanson, 2002:252).

Information that preceptors communicate to the clinical facility includes, but is not limited to, the outcomes which the student needs to complete during their placement (Sanderson and Lea, 2012:336; Botma, Jeggels and Uys, 2012:75; Löfmark *et al.*, 2012:165; Henderson *et al.*, 2009:178; College of Nurses of Ontario, 2009:3); the names of students placed at the facilities as well as necessary guidelines and information that will contribute to a smooth clinical learning experience for students. (College of Nurses of Ontario, 2009:5; Roff *et al.*, 2005:327). In addition to providing information, preceptors should evaluate the clinical facilities to see if they offer sufficient opportunities for students to complete their expected outcomes. If the preceptor finds that a specific setting does not offer the required opportunities for the student to complete the outcome, they should report it to the clinical placement coordinator of the NEI.

The NEI has a responsibility towards the preceptor to provide training regarding their role and responsibility in supporting the system, in terms of the outcomes that the students need to complete (Löfmark *et al.*, 2012:165; Nurses Association of New Brunswick, 2011:4; College of Nurses of Ontario, 2009:3; Saarikoski *et al.*, 2009:599; College of Nurses of Ontario, 2009:4), facilitation techniques, evidence based practices and assessment. The clinical setting has the responsibility to foster a positive attitude towards both the preceptor and student and should provide supervisors to guide the students in the absence of a preceptor. Preceptors can assist the clinical setting in identifying supervisors for students when they are not present in the setting (Nurses Association of New Brunswick, 2011:5; Saarikoski *et al.*, 2008:1235).

As part of the liaison role, preceptors should visit the clinical facilities before the arrival of students to prepare staff, negotiate timetables and to give information concerning the students' outcomes to be completed at the end of their clinical rotation (Löfmark *et al.*, 2012:165). Clinical staff who are prepared to expect students make a welcoming impression on arrival. There is a high priority on the importance of welcoming students to decrease placement anxiety (Rebholz and Baumgartner, 2015:107; Sanderson and Lea, 2012:335; Williamson *et al.*, 2011:829; Happell, 2009:375). Preparation of the clinical staff and placement facility beforehand contributes to structuring a positive learning environment that is essential for a learning experience (Stalmeijer *et al.*, 2009:537; Cox and Swanson, 2002:252; Copeland and Hewson, 2000:163).

A healthy collaborative relationship between the preceptor and the clinical staff contributes to a positive environment where all stakeholders may experience satisfaction. In addition, the students learn through experience and observation (Omer *et al.*, 2013:155; Löfmark *et al.*, 2012:165; Sanderson and Lea, 2012:334; Happell, 2009:375; Saarikoski *et al.*, 2009:596; Rose, 2008:107; Wilson-Bernett *et al.*, 1995:1157). The preceptor provides further support to students (known as tangible support) when they introduce students to the clinical staff and orientate them regarding the clinical facility.

2.8.2 Tangible support

Preceptors provide further structure to students' clinical experience through tangible support. Tangible support includes the comprehensive orientation of students during the first day of their new clinical placement and assisting students in the establishment and achievement of their clinical outcomes.

South Africa faces many challenges; among these are staff shortages, lack of equipment and supply in the clinical settings. These challenges make it difficult for professional nurses to support students in the clinical setting. A South African study identified that orientation of students are sometimes neglected due to the shortage of staff in the setting (Moeti, Van Niekerk and Van Velden, 2004:72). In such

circumstances it becomes the responsibility of the preceptor to orientate students during the first day of their new placement.

When a nursing student is introduced to a new clinical area he/she often experiences a mixture of emotions that may include inadequacy and self-doubt but also a sense of excitement (Lundberg, 2008:86). Even the orientation programme that is designed to ease the transition phase can create anxiety (Jewell, 2013:324). Sedgwick and Yonge (2008:2) state that the student's experience the first day of preceptor accompaniment sets the tone for the remainder of the experience. This is why it is important for a preceptor to orientate their students during the first day of their clinical placement.

A comprehensive orientation programme includes introduction of the students to the personnel/people and informing them regarding policies, procedures, unit standards and the physical layout of the unit (Nurses Association of New Brunswick, 2011:5; College of Nurses of Ontario, 2009:5; Ullrich & Haffer, 2009:3). The preceptor takes the students on a tour of the site and gives them an overview of how things are run in the unit (Burns *et al.*, 2006:178). Students should be shown where the stock is kept, how to fill out documentation, where registers are kept and how the patient's file is compiled. During this time, the preceptor sets her/his personal and professional standard so that the students know what is expected of them.

Through orientation, the preceptor is introducing a potential asset to the organisation in the form of a valued colleague and this is known as tangible support. Orientation familiarises students with their clinical environment, patients and preceptors; leads to confidence; (James and Chapman, 2010:43) and creates a sense of belonging. After orientation, preceptors should assist students to set learning goals or outcomes (Flynn and Stack, 2006:59).

Students cannot plan outcomes alone due to the limitations and blind spots in their knowledge. Therefore, preceptors should assist students in determining realistic outcomes for the duration of the placement (Moore, 2009:249). It is particularly important that the preceptor explains the relevance of the outcomes so that the

student sees the value of achieving the objectives. The outcomes should be clearly communicated and agreed upon by both the preceptor and the student (Löfmark *et al.*, 2012:164; Nurses Association of New Brunswick, 2011:5; Ullrich & Haffer, 2009:148). This results in a partnership between the student and the preceptor and forms a reciprocal responsibility as both work towards the shared outcomes (Spurr, Bally and Ferguson, 2010:351; Popovich, Katz and Pererly, 2010:3). Students should however realise that they are responsible for their own learning in order to meet the intended outcomes while being supported by the preceptor who identifies meaningful learning opportunities (Botma, Hunter and Kotze, 2012:75; Sanderson and Lea, 2012:334; Popovich, Katz and Pererly, 2010:2; College of Nurses of Ontario, 2009:3; Ullrich and Haffer, 2009:34; Saarikoski *et al.*, 2008:1235; Kirwan and Birchall, 2006:255).

The student's workload should be discussed with clinicians in order to balance learning and patient care (Nurses Association of New Brunswick, 2011:6; College of Nurses of Ontario, 2009:3) and preceptors must make their availability known to students and staff (Popovich, Katz and Pererly, 2010:2). A designated learning space in the facility allows the students to actively engage in patient care under supervision of the preceptor (Donner-Banzhoff *et al.*, 2003:775; James *et al.*, 2002:269; James and Osborne, 1999:266; Lesky and Hershman, 1995:897). Preceptors should encourage and role-model professional standards during patient care encounters (De Oliveira Filho *et al.*, 2008:1317; Ulrich and Haffer, 2009:32). The preceptor should periodically review the progress made towards attaining the set outcomes (Litzelman *et al.*, 1999:29; Litzelman *et al.*, 1998:690). Once a student has reached his/her intended outcomes, an opportunity avails itself to introduce the student to cases beyond the level of knowledge and skills in order to broaden his/her experience (Nurses Association of New Brunswick, 2011:5; Stalmeijer *et al.*, 2009:536).

Tangible support is needed specifically in developing countries, where preceptors advocate for students (Adelman-Mulally *et al.*, 2013:32) and this situation requires attributes such as resourcefulness, flexibility and innovation in order to surpass the challenges by improvising so that the student may still receive quality and correct

training (Smedley, 2008:185). Preceptors should also be adaptable enough to overcome unforeseen circumstances in the clinical environment and to address the different learning needs and learning styles of the student (Sanderson and Lea, 2012:336; Hauer *et al.*, 2012:1389; Carlson, Wann-Hansson and Pilhammar, 2009:24; James *et al.*, 2002:272; Jarski, Kullig and Olson, 1990:173). These challenges may be overcome through careful planning and negotiations and will ensure that the student achieves his/her learning goals, gaining confidence and becoming more independent (Nurses Association of New Brunswick, 2011:5; College of Nurses of Ontario, 2009:4; Wilson-Bernett *et al.*, 1995:1157).

Both tangible and system support provide structure and guidance in the clinical setting and decrease the educational workload for professional nurses. The challenging environment and the responsibility of providing high quality nursing care can evoke strong emotions in students and they often need support to deal with them (Chernomas and Shapiro, 2013:255).

2.8.3 Emotional support

Emotional support meets the student's personal and professional needs and his/her learning needs while the student is attaining his/her outcomes in the clinical setting. Preceptors agree that students have a need to experience a nurturing and caring environment (Beckman and Lee, 2009:339) which is met through emotional support. This type of support manifests as care that is provided by a preceptor that validates the student's existence within the team, while the student experiences safety to explore opportunities. Such a situation is conducive to meeting their learning needs. Emotional support should be founded on a professional relationship between a student and a preceptor and preceptors should guard against acting as a mother to the students.

Emotional support is demonstrated when preceptors show an emotional investment to students (Spurr, Bally and Ferguson, 2010:350) by investing and motivating them to actively participate in patient activities (Löfmark *et al.*, 2012:1389; Love, Heller and Parker, 1982:761). The supporting process is strengthened when the preceptor

prepares the students for patient encounters in advance (Kirkbakk-Fjaer, Andfossen and Hedelin, 2015:300; James *et al.*, 2002:269; James and Osborne, 1999:266). Students experience emotional support when preceptors share their experiences with them (Hauer *et al.*, 2012:1391). Sharing experiences with students foster a strong relationship between the preceptor and the student (Hauer *et al.*, 2012:1391) and allows students the opportunity to reflect on their own experiences (Myrick and Yonge, 2005:37). This requires a preceptor that is approachable and accessible (Zilembo and Monterosso, 2008:200; Myrick and Yonge, 2005:65). A preceptor is approachable when students feel comfortable to ask questions (Love, Heller and Parker, 1982:761), discuss patient care and explore alternative practices on patient care.

Students view facilitation of their learning as emotional support (Flynn & Stack, 2006:44) especially when the preceptor provides them with multiple opportunities to practice in order to develop confidence and competence (Botma et al, 2013b:41). Preceptors need to pay attention to an individual by allocating face-to-face time (Kirkbakk-Fjaer, Andfossen and Hedelin, 2015:300; Mulder and Uys, 2012:63; Rose, 2008:105; Saarikoski *et al.*, 2008:1235; Stevens Barum, 2006:3). Students experience the relationship as meaningful when the preceptor shows interest in them as a person (Donnelly and Woolliscroft, 1989:160) and feel respected when the preceptors know their faces and know them by name (Hauer *et al.*, 2012:1391; Saarikoski *et al.*, 2008:1235).

Emotional support increases a student's sense of belonging. A student wants to feel part of and accepted in a team that promotes (Löfmark *et al.*, 2012:168; Cox and Swanson, 2002:252) and delivers patient care in the clinical setting (Roff *et al.*, 2005:327). Therefore it is the preceptor's responsibility to link the student with the rest of the clinical team so that they may experience acceptance and belonging (Roff *et al.*, 2005:327). A preceptor should also ensure that colleagues support the novice nurse during their clinical placements (Rebholz and Baumgartner, 2015:94). When the need to belong is met, the student will have greater job satisfaction, a higher commitment to learn and better job performance (Houghton, 2014:2; Levett-Jones

and Lathlean, 2009:2870; Sedgwick and Yonge, 2008:1021) than those who feel alienated. These positive emotions are needed for students to engage in learning.

Conversely, negative emotions will decrease learning in students (Beckman and Lee, 2009:340). When students do not receive adequate support and guidance during clinical situations beyond their level of training, they will most likely not learn from the experience and they may experience stress and anxiety (James and Chapman, 2010:43), resulting in insecurity during patient encounters (Lundberg, 2008:86).

Ideally, a preceptor should encourage students to participate in problem-solving activities to become competent in those activities. As the student develops competence, confidence is cultured in students (Beckman *et al.*, 2003:133). Preceptors should identify students with a lack of confidence and engage them in appropriate activities to promote confidence (Hauer *et al.*, 2012:1389; Lundberg, 2008:86). Confidence is built when students master activities such as acquiring new skills and achieving learning outcomes. Preceptors can further build students' confidence by verbal persuasion, justified praise or encouragement (Lundberg, 2008:87; Beckman *et al.*, 2003:133). Confidence decreases anxiety in students when they perform nursing activities (Lundberg, 2008:86). In order to promoting the learning of students, preceptors should support students' cognitive processes by means of facilitation. This will enable students to become competent practitioners.

2.8.4 Cognitive support

Cognitive support is essential to assist students in becoming competent practitioners. Competence is more than executing a task skilfully. The Nursing Education Stakeholders (2010:50) state that "competence in nursing is based on the ability to integrate knowledge from all disciplines in order to identify the problem, understand the related theory to the problem, the response, the treatment of care of the patient as well as then applying all of this integrated knowledge in a practical event or situation in a real life setting or during simulation".

In other words, competence is the ability of a nurse to foresee or recognise a deviance in the expected outcome and to respond, plan and implement nursing interventions to address the deviation (Ahn and Kim, 2015:706; Botma *et al.*, 2014:124). This definition clearly indicates that competence is closely associated with the ability to think and reason, in other words, skilfully apply thinking processes. A student needs support to develop his/her thinking processes in clinical practice (Nursing Summit Organising Committee, Ministerial Task Team, 2012:40; Sanderson and Lea, 2012:334).

2.8.4.1 Thinking process

There is a direct link between desired patient outcomes and effective thinking skills (Papathanasiou *et al.*, 2014:284; Popil, 2011:204). Effective thinking processes include critical thinking, clinical reasoning and clinical judgment. Over time, effective thinking processes transform novice nurses into competent practitioners who demonstrate clinical judgment and metacognition. The development of effective thinking processes is dependent on the partnership between the preceptor and the student.

The student's responsibility in the partnership is to foster a positive attitude towards thinking. Students are considered to be a 'good' thinker when they have specific characteristics such as being outcome-driven, open-minded, confident, well-informed, flexible, self-reflective, information-seeking, innovative, creative, intuitive, resourceful, evaluative and analysing (Chan, 2013:236; Chang *et al.*, 2011:3224; Popil, 2011:204; Rudd and Baker, 2000:134). Papathanasiou *et al.* (2014:284) elaborate on these characteristics by stating that 'good' thinkers are able to:

a) examine their knowledge under new evidence;
b) support their thinking on evidence based practices and take into account the views of the patient's family members;
c) admit the limitations in their knowledge and/or experience;
d) arrive at reliable conclusions that are well-motivated; and
e) take time to determine patient problems and effective solution regardless of the difficulties or frustrations that they may experience.

These characteristics can be directly linked to clinical judgment. If the student does not have good thinking skills, poor clinical judgment will occur and the student may endanger the patient's life because he/she will not be able to make sense of the patient's condition and may act inappropriately. A positive attitude from students, together with the appropriate cognitive support of preceptors, can effectively develop the ability of students to make sound clinical judgments. It is noted in available literature that the terms clinical judgment, critical thinking, clinical reasoning and problem-solving are used interchangeably. The researcher will use Tanner's clinical judgment model (see figure 2.3) to explain the thinking processes that need to be developed and facilitated by preceptors in order to develop higher cognitive thinking skills in students.

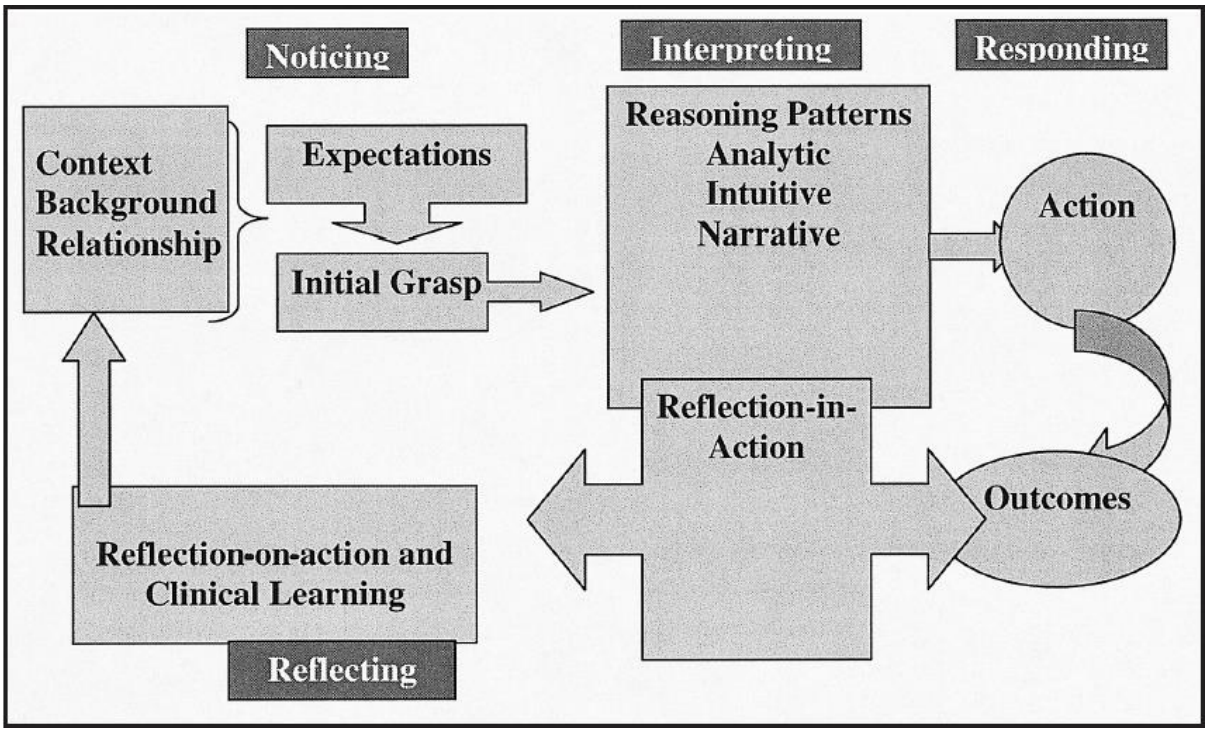

Figure 2.3 Tanner's clinical judgment model (Tanner 2006)

Tanner (2006:204) developed a model of clinical judgment to describe how a nurse progresses to the point where he/she is able to respond in an appropriate manner after all the factors regarding the patient had been analysed and taken into consideration. Tanner's model is ideal for preceptors to use in order to:

a) show students how nurses think when they are involved in a complex situation that needs clinical judgment;

b) identify gaps in the student's thinking processes or actions; and
c) address the breakdown areas identified while improving clinical judgment (Tanner, 2006:209). The model identifies the following four phases in the development of clinical judgment: noticing, interpreting, responding and reflecting.

In order for a student to notice the elements in a situation, he/she should have a foundation consisting of declarative and procedural knowledge. The nursing student should be equipped with knowledge of physiology, anatomy, pathophysiology, pharmacology, psychology, to name a few. Bruce, Klopper and Mellish (2011:146) describe declarative knowledge in nursing as a multidisciplinary collection of knowledge, based on facts that are available in textbooks, journals and on the internet. Procedural knowledge is about how to execute a procedure that requires a certain level of skill. Both declarative and procedural knowledge are on the same cognitive level and form foundational knowledge. A nurse uses foundational knowledge to notice a situation. If a student fails to 'notice', he/she will be unable to progress to the subsequent phases and will ultimately fail to address the patient's needs. Foundational knowledge forms the basis of critical thinking.

2.8.4.1.1 Critical thinking

A patient's condition brings forth a multitude of information for a nurse to process. In order for a nurse to make sense of all the information at hand he/she should have developed critical thinking skills based on his/her existing foundational knowledge. Critical thinking forms the foundation of the thinking processes and is used during clinical reasoning in order to make sound clinical judgments. Critical thinking in nursing is defined as an active cognitive process that is used during experiential learning and includes the investigation, analysis and evaluation of gathered patient information before a decision or judgment can be made (Brown and Chronister, 2009, p.e46). Through critical thinking the nurse can improve the patients' outcomes by providing them with safe and comprehensive care (Papathanasiou *et al.*, 2014:286; Popil, 2011:204). However, for the purposes of this study, critical thinking

entails the ability to relate foundational knowledge from different fields and relate them to the noticed parameter and each other. Thus, critical thinking means that a nurse should look at a patient's situation, notice what is happening, and explain the occurrence through application of his/her foundational knowledge. In essence the purpose of critical thinking is to conceptualise the problem, to make sense of the patient's situation before a decision can be made (Bruce, Klopper and Mellish, 2011:152).

Critical thinking is developed through continuous clinical experience. Preceptors should be knowledgeable about critical thinking processes in order to support students during their clinical experience from an early stage (Chan, 2013:236). One of the most important objectives of a preceptor in developing critical thinking in students is to promote theory-practice integration (Popil, 2011:204). A preceptor should be aware of factors that can hamper theory-practice integration. Zuriguel Perez *et al.* (2014:6), Chan (2013:238) and Levett-Jones *et al.* (2010a:517) identified several factors that may hinder the critical thinking process. These hindering factors relate to the 1) student, 2) preceptor, 3) educational system and 4) environmental/atmosphere factors.

Student factors comprise educational level, culture, language proficiency as well as confidence. Students' educational level determines his/her foundational knowledge. Reasoning is limited without depth and breadth of a student's foundational knowledge (Zuriguel Perez *et al.*, 2014:6). A student's cultural background also plays a role because some cultures perceive the questioning of their teachers or elders as disrespectful (Chan, 2013:238). Likewise, language barriers between preceptors and students hamper the development of critical thinking patterns (Chan, 2013:238). Students who lack confidence, have low self-esteem and high anxiety levels will most likely not participate in activities or ask questions (Zuriguel Perez *et al.*, 2014:6) and may therefore not develop critical thinking skills.

Preceptor factors include being untrained and lacking in skills. Preceptors who are not trained in the facilitation of learning or critical thinking behaviour will hinder cognition in students (Chan, 2013:238). Preceptors who do not take students'

learning styles into account in facilitation can also hamper the critical thinking process (Zuriguel Perez *et al.*, 2014:6). Students' critical thinking is hampered when preceptors display dominating beliefs and are strongly opinionated.

Educational system factors that hinder critical thinking include insensitivity towards cultures while a traditional authorisation education system hinders the progress of critical thinking (Chan, 2013:239).

The learning climate may also hamper critical thinking skills. A psychosocially/academically safe environment is needed for students to develop critical thinking through the expression of their thoughts on a patient's situation. Failing to establish a safe learning climate is fatal to the development of critical thinking (Zuriguel Perez et al, 2014:6; Chan, 2013:239). Consequently, patient outcomes may be poor (Forneris and Peden-McAlpine, 2007:411). The state of the working environment also has a direct influence on the clinical atmosphere which impact on the student's learning (Donovan & Darcy, 2011:123).

Preceptors should take note of the above-mentioned hindering factors and actively implement mediating actions, because students struggle to develop clinical reasoning skills if they have not mastered critical thinking operations.

2.8.4.1.2 Clinical reasoning

Clinical reasoning is founded on the critical thinking process. Clinical reasoning is defined as the process where a student makes a decision after a process of generating alternatives, weighing suggestions against the evidence and choosing the most appropriate hypothesis (Levett-Jones *et al.*, 2010a:516; Tanner, 2006:205). Clinical reasoning is a pivotal component of being competent as it is a complex cognitive process that needs to be developed early in novice students (Audetat, Blais and Charlin, 2013:43; Levett-Jones *et al.*, 2010a:515).

The differences between a novice and competent or expert nurse may be described as follows: Expert nurses notice a wide range of cues; they can predict possible

patient complications and act proactively. Novice nurses act reactively; they search for cues during or after the event if a complication has occurred (Levett-Jones *et al.*, 2010a:516).

In Tanner's model (2006:204), the interpretation of a patient's situation involves reasoning that results in nursing diagnoses (hypotheses) that are based on available clinical data. The hypotheses are then further evaluated in order to rule out unfitting hypotheses so that the student arrives at the most appropriate final or working hypothesis that is well-supported by the available and appropriate data. The student can then select a suitable response to the patient's situation (Lasater, 2007:497; Tanner, 2006:209). The purpose of clinical reasoning is to solve the problem at hand or to make a decision after all facts had been taken into consideration, in other words, to make a working or final diagnosis.

Levett-Jones *et al.* (2010a:516) summarise three reasons for poor patient outcomes. These reasons include the student's failure to make a definitive diagnosis, failure to institute appropriate treatment and inappropriate management of complications. The reasons mentioned can be directly linked to the student's lack of knowledge and inability to reason.

The knowledge needed for clinical reasoning is known as conditional knowledge. Conditional knowledge is defined as knowledge that promotes the student's ability to know when to take action and allows the student to motivate his/her actions. The student will be able to say when they will respond and why they will take the proposed action (Van de Mortel, Whitehair and Irwin, 2014:462). Clinical reasoning can be hindered by cognitive or situational factors.

There are two **main cognitive factors** that lead to errors in clinical reasoning. One is when a student takes a mental shortcuts. This is where the student remains fixated on prominent characteristics in the patient's condition too early in the reasoning process. The second factor is that students ignore the strength of evidence directing ideas in another direction and stay fixated on a diagnosis or

hypothesis (Levett-Jones *et al.*, 2010b:16). The result is an error in patient care, which may cause direct harm to the patient's health.

Situational factors refer to poor interpersonal communication or poor inter-professional involvement during the clinical reasoning process. Poor communication may occur between the student and patient and/or student and preceptor. Audetat, Blais and Charlin (2013:42) note that limited time spent with students hinders clinical reasoning. A preceptor will therefore have limited direct observation time of the thinking skills, which will hinder the identification of clinical difficulties. Often preceptors recognise that a student has difficulties in clinical reasoning but fails to pin-point the problem. The preceptor demonstrates his/her inability to identify the student's' error by failing to give effective feedback on poor clinical performance. The preceptor's inability to give effective feedback is often due to the complexity of the clinical reasoning process. Failure to promote clinical reasoning in a student results in poor clinical judgment that may be detrimental to the safety of the patient (Papathanasiou *et al.*, 2014:286; Popil, 2011:204).

2.8.4.1.3 Clinical judgment

Clinical judgment is founded on the cognitive processes of critical thinking and clinical reasoning. It is defined as the student's ability to plan and execute actions based on the conclusion on the patient's condition, best available evidence for treatment options and patient/family preferences (Tanner, 2006:204). Clinical judgment also includes deciding which part of the action takes priority, which procedures and policies are involved and who should be notified and when (Levett-Jones *et al.*, 2010a:517).

Clinical judgment includes reflection-on-action whereby students evaluate the patient's response on the actions executed. Here students continuously check on the patient's condition to see if their actions have the desired and best outcomes. If the patient's condition changes or deterioration occurs, students should respond by drawing on their knowledge and use their critical thinking and clinical reasoning skills to come to a new conclusion based on the patient's current situation.

The knowledge used during clinical judgment is called functional knowledge. Functional knowledge is defined as the actions after a decision had been made and is based on the student's ability to understand the situation of the patient (Biggs and Tang, 2011:82; Levett-Jones *et al.*, 2010a:519). Functional knowledge is founded in declarative, procedural and conditional knowledge which is similar to clinical judgment.

The thinking process is interactive: as the patient's parameters change, the student needs to notice, interoperate, make decisions and execute new interventions. Therefore, clinical judgment includes the student's practical skill, cognitive activities and communication skills (Levett-Jones *et al.*, 2010a:517) and is demonstrated through performance. It is important that preceptors teach students the importance of communicating changes or concerns about a patient's situation with reflection-in-action, so that action can be taken before complications occur. Learning from your actions is called metacognition and occurs through reflection-on-action.

2.8.4.1.4 Metacognition

Metacognition or reflecting-on-action refers to the evaluation of the thinking process and its consequences. Metacognition is also referred to as 'thinking about thinking'. Here the student reviews the thinking process and criticises or justifies each step of the process. Students then add the new knowledge to their existing knowledge to increase their capacity for clinical reasoning and for making sound clinical judgments in similar situations in the future. The development of their learning leads to the development of intuitive behaviour.

Reflection during the metacognition phase allows students the opportunity to learn from their actions and the resulting patient outcome. Reflection on action promotes learning and enhances competence in students, while guided reflection promotes a more in-depth understanding of clinical experience and thinking about the situation (Nielsen and Jester, 2007:513). The reflection-on-action phase is ideal to encourage self-directed learning in students that will expand their knowledge. Self-directed learning is where a student is motivated to search for knowledge that will fill the gaps identified during reflection (Guglielmino, 2008:2). The student further knows where to

go and how to bridge the knowledge gap. Self-directed learning is an important component of life-long learning (Biggs and Tang, 2011:184). The knowledge that is used during the reflection phase of Tanner's model is known as metacognitive knowledge.

Metacognitive knowledge relates to the knowledge about the cognitive processes that was used in the problem-solving process. In other words, students think about the cognitive process that they have followed and how they can avoid making similar mistakes in future. Preceptors are pivotal in developing these thinking processes in students and to identify or to 'diagnose' where they make mistakes.

Although the researcher focused on Tanner's model for clinical judgment, Kolb's experiential learning model may also be used to explain the learning that takes place in a student through experience in the clinical setting.

2.8.4.2 Kolb's learning theory

Kolb developed a model in 1984 to explain the cognitive processes that students face when their thinking skills are being developed in the clinical environment. Kolb's experiential learning theory explains the holistic perspective of a student that involves their experience, perception, cognition and behaviour (Kolb, 1984:21). The experiential theory is presented as a cyclic process as illustrated by Figure 2.4, This process includes a) a concrete experience, b) internalised reflection, c) abstract conceptualisation and d) active experimentation. During a concrete experience the student is actively involved in a situation either by doing or experiencing. Clinical reasoning and clinical judgment are applied during this process to manage a patient. Secondly, the student will reflect on the experience that he/she had just had. Here students will reflect on their actions, and learning is activated (Ramani and Leinster, 2008:356; Spencer, 2003:592). During reflection students should either come to a conclusion, conceptualise or build a new schema or adapt an existing mind schema and metacognition will take place. If gaps in the student's knowledge had been identified, preceptors should encourage self-directed learning before students encounter a similar experience. Lastly they will apply their new knowledge through

active experimentation so that the cycle will repeat itself. Kolb's experiential learning theory can be entered at any stage (Ramani and Leinster, 2008:356) and is valuable in planning and organising teaching sessions (Spencer, 2003:592). Kolb also took learning styles into consideration when he developed the experiential learning theory.

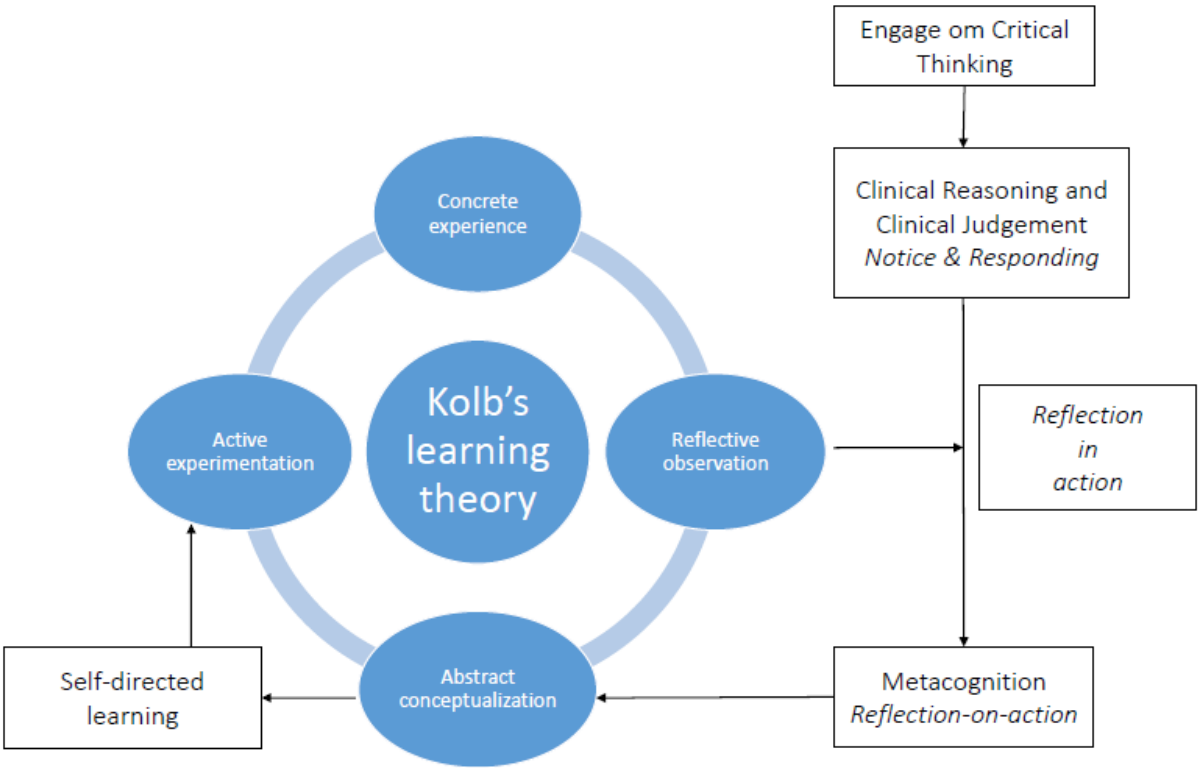

Figure 2.4 Kolb's learning theory (Kolb, 1984) linked to the thinking processes.

2.8.4.2.1 The role and function of preceptors regarding thinking in students

Preceptors should identify or 'diagnose' a student's cognitive development when he/she performs a task (Kirkbakk-Fjaer, Andfossen and Hedelin, 2015:305). Pangaro (1999:1203) and Bordage (1994:883) suggest methods to successfully 'diagnose' and assist students in order to determine their thinking processes. Pangaro (1999:1203) identified four stages which relate to the acronym RIME.

- ‘Reporter’ refers to the student’s ability to take a proper history and do a physical examination with good communication and interpersonal skills. The student is able to think critically.
- ‘Interpreter’ refers to the student’s ability to understand the patient’s condition and summarises the differential diagnoses while achieving a deeper level of influence in the patient’s care, simultaneously participating in the multidisciplinary team. The student can use his/her critical thinking and clinical reasoning skills to reach a conclusion on the patient’s condition.
- ‘Manager’ refer to the student’s ability to design an appropriate patient care plan, specific to the patient’s needs and is linked to the student’s ability to make a judgment on the patient’s condition.
- Lastly, an ‘educator’ gains a deeper level of knowledge that is regulated by self-directed learning. In order for a student to reach the point of self-directed learning, the student should go through a process of reflection about his/her learning; this forms part of metacognition. RIME allows the preceptor to map the student on the continuum according to his/her reasoning ability.

Another method, recommended by Bordage (1994:883), suggests that clinical reasoning is based on the organisation of knowledge. Reduced, dispersed, collaborated and compiled knowledge are four factors that limit the organisation of knowledge.

Reduced knowledge occurs when the student is unable to link the patient’s findings to their own knowledge because of his/her limited knowledge. Dispersed knowledge occurs when a student has sufficient theoretical knowledge but fails to apply his/her knowledge to the situation at hand. The student fails to come to a conclusion based on the facts presented in the situation. Collaborated knowledge occurs when the student is able to use terms that are more abstract than the patient’s signs and symptoms. The last step, compiled knowledge, occurs where the student can compile the terms in such a way that they can explain it to a novice student. In order to ’diagnose’ a student and to enforce his/her cognitive development, the preceptor should also take the student’s learning style into consideration.

A learning style is a cognitive approach that is useful in the clinical environment and may be described as a person's preferred method of creating knowledge, thus learning (Kolb and Kolb, 2005:195). Students value preceptors who take their individual learning style into consideration when facilitating learning during clinical teaching sessions (Moore, 2009:251). Kolb identified four learning styles, namely the Diverger, Assimilator, Converger and Accommodator. The Diverger explores and generates new ideas, whereas the Assimilator likes to make things efficient by arranging and structuring information in a logic manner. The Converger sees the practical application and wants to see how things work in practice, while the Accommodator has a hands-on approach and actively carries out plans (Botma *et al.*, 2014:15; Kolb and Kolb, 2005:198). Ramani and Leinster (2008:354) identified two more models on learning styles. They are the Honey and Mumford learning style and the modalities of learning – visual-auditory-kinaesthetic learning style. The various learning styles can be incorporated into facilitation techniques to empower preceptors to facilitate learning by developing the students' critical thinking and reasoning skills (Löfmark *et al.*, 2012:165; Troxel, 2009:35; Smedley, 2008:185; Spencer, 2003:591; Hewson and Jensen, 1990:524). It is the responsibility of the preceptor to initiate Kolb's experiential learning cycle by creating opportunities where students engage in patient care (concrete experience) (Jowett and McMullan, 2007:270; Myrick and Yonge, 2005:38). The preceptor should then proceed to facilitate the phases of Kolb's model by taking the student's learning style into consideration (Omer *et al.*, 2013:156) while developing the thinking processes in the student (Popil, 2011:204; Popovich & Pererly, 2010:2; Moeti, Van Niekerk and Van Velden, 2004:73) though the use of various facilitation techniques.

2.8.5 Facilitation techniques

Various facilitation techniques are used by preceptors to develop students' learning by stimulating thinking processes while students participate in patient care. Facilitation is defined as a process where a person makes things easier for another person in an environment that promotes mutual respect and dialogue (Dickson, Walker and Bourgeouis, 2006:417). Through facilitation of the learning process, the preceptor empowers the student to become master of his/her own learning; in

addition, through the facilitation process, the preceptor makes it easier for the student to learn by drawing on their own expertise and knowledge (Myrick and Yonge, 2005:39).

A facilitation technique may be viewed as a vehicle that links classroom knowledge to a clinical experience; thereby stimulating critical thinking, clinical reasoning and problem solving skills. Preceptors should plan and facilitate learning and care activities on the cognitive level and experience of the student (Carlson, Wann-Hansson and Pilhammar, 2009:524). Various techniques that may be applied by preceptors to facilitate learning in the clinical environment will now be investigated.

2.8.5.1 Lecturing

Although lecturing is commonly used to convey theoretical information in the classroom, it may likewise be used by preceptors in the clinical setting. Lecturing in the clinical setting requires no handbooks and involves various situations, for example the reading of an ECG strip (Carlson, Wann-Hansson and Pilhammar, 2009:525). Usually lecturing alone does not actively involve the student and often results in a lower level of cognitive function from the student. Preceptors should combine lecturing and questioning to increase the student's participation and to stimulate the development of their critical thinking skills. Therefore, preceptors should only use lecturing when knowledge gaps are identified or when new concepts are introduced to the student, for example in the reading of an ECG strip. Lecturing under the correct circumstances in the clinical setting creates a platform for preceptors to continue building the student's declarative knowledge. Procedural knowledge may be developed through demonstrations and return demonstrations.

2.8.5.2 Demonstration

A demonstration is done when students are unfamiliar with a skill or procedure and should be linked to the student's outcomes or objectives. A demonstration occurs where a preceptor physically demonstrates a psychomotor procedure or skill to a student, while incorporating a patient's condition in the process. For example, a preceptor demonstrates to a student how to give an injection. Although

demonstrations involve visual and auditory senses, preceptors should try to include other senses as well in order to make it memorable for students (Carlson, Wann-Hansson and Pilhammar, 2009:524). Demonstrations are not restricted to psychomotor skills alone but may also be used in interviewing sessions where a patient's diagnosis or problem is unknown to the student.

It is important for preceptors to give the student an assignment to actively involve the student in the demonstration (Irby and Wilkenson, 2008:385). After the demonstration, the student's participation is activated by engaging in a discussion of what had been observed (Irby and Wilkenson, 2008:385). It is the responsibility of the preceptor to actively seek out opportunities for the student to practice the demonstrations so that he/she can become confident in executing the procedure. During the practice sessions, the preceptor often uses the coaching technique.

2.8.5.3 Coaching/ Instructing

Coaching is used in many disciplines such as sports, psychology, and business. It is also a term to which the nursing education community is familiar. Coaching is defined as a custom fit to a specific person's needs, with a combined effort in helping someone to achieve the goals or objectives that were identified by them (Hayes and Kalmakis, 2007:556; Bennett, 2006:240; Ervin, 2005:297). Coaching is commonly described as an approach; however, for the purposes of this study, coaching in preceptorship will be described as a technique that is concerned with instructing.

The preceptor directs and guides students to meet their set skills or objectives in a safe, non-judgmental environment. Students need coaching, especially where clinical skills and nursing activities such as documentation and procedures are new to them. The preceptor provides students with opportunities to master that procedure or skill which may not be spontaneous to the student. During the coaching process a significant amount of time is spent with the student in terms of guidance and instruction to complete the tasks at hand. A coaching session may vary from ten minutes to longer, depending on the student's level of skill (Ervin, 2005:298).

A crucial element of coaching is encouragement during the practice of the skill set. Preceptors can offer the student verbal and non-verbal cues as encouragement during coaching (Burns *et al.*, 2006:176; Irby, Gilmore and Ramsey, 1987:6). Cues are important as they create positive reinforces and guide the student to the next step, they may also prevent incorrect steps by requesting the student to think.

Coaching is done individually due to the difference in learning needs of students. As students become proficient in their skills, their confidence will increase and lead to better patient management (Khan *et al.*, 2012:86; Carlson, Pilhammar and Wann-Hansson, 2010:764; Carlson, Wann-Hansson and Pilhammar, 2009:525). At the end of a coaching session the role of the preceptor will change to a supportive role, as the student is encouraged to be self-directed to move towards independence (Ullrich and Haffer, 2009:4). When students have mastered the set goal, the preceptor can move on to other goals with the same student or move on to another student (Ramani and Leinster, 2008:358; Stevens Barum, 2006:4). How a preceptor interacts with a student during a coaching session directly influences the student's view of the preceptor's image as a role model.

2.8.5.4 Role modelling

Role modelling can be described as the adoption of behaviours or attitudes for oneself after observing the behaviour or attitude of someone that one admires (Baldwin *et al.*, 2014:18). Keeling and Templeman (2013:18) state that the behaviour of a preceptor appears to be significant to the student in the development of his/her own sense of professional identity. Therefore, role modelling by preceptors is important because it creates in the student a feeling of value and identity as a nurse (Carlson, Pilhammar and Wann-Hansson, 2010:766; Happell, 2009:374).

The effect of role modelling occurs when the student observes the actions and interactions of the preceptor with patients. The adoption of a preceptor as a role model is dependent on the preceptor's enthusiasm for and positive attitude towards nursing (Baldwin et al, 2014:8; Ramani and Leinster, 2008:355). A preceptor as a role model is a conscious choice that a person has to make as he/she demonstrates

certain functions such as psychomotor skills, thinking processes (Adelman-Mullally *et al.*, 2013:30; Löfmark *et al.*, 2012:165; Sanderson and Lea, 2012:334; Skaalvik, Normann and Henriksen, 2011:295; Dolmans *et al.*, 2004:409; Elzubeir and Rizk, 2001:272), the application of evidence based practices (Fromme *et al.*, 2010:1909; Carlson, Pilhammar and Wann-Hansson, 2010:767) and professional roles. It is important to involve students in a discussion of what they observed and how they are going to do it; in other words, to assess how the role model influenced their own thinking (Price and Price, 2009:51).

2.8.5.5 Case presentations using the SNAPPS

During a case presentation, a student presents and describes the assessment findings and management plan of a patient case to the preceptor or the rest of the team by using their problem solving and thinking (Chan, 2013:239; Popil, 2011:204). Problem solving activities such as case presentations stimulate the student's critical thinking because they must obtain clinical data that substantiate their reasoning and conclusions. The process of interpreting the clinical data and linking it to existing disease schemas enhances meaning making and knowledge construction (Papathanasiou *et al.*, 2014:285; Ness *et al.*, 2010:45). To determine the student's existing knowledge, the preceptor should start with a real life case that is similar to the student's previous experiences (Carlson, Wann-Hansson and Pilhammar, 2009:523).

Before a case can be presented to the group, the student should first conduct a history taking and physical examination by using his/her critical thinking skills (Irby and Wilkenson, 2008:386). Students further apply their clinical reasoning skills to draw a conclusion about the patient's condition as well as suggest an effective management plan for the patient. If students are unable to draw a conclusion on the patient's condition, the preceptor should investigate and identify the gaps in the student's existing knowledge.

Students value a discussion on patient cases in the clinical setting, according to Jarski, Kullig and Olson (1990:175). Therefore, preceptors should initiate a

discussion to actively include the rest of the team in the case presentation. Group members may be asked to identifying missing information or clarify on motivations and decisions that need to be made (Irby and Wilkenson, 2008:386). The active participation or discussion in a real clinical case facilitates effective learning in students (Ness *et al.*, 2010:45) because they realise the relevance of the learning content. The SNAPPS technique is useful when facilitating learning through case presentations.

SNAPPS is used with students who see patients on an out-patient basis or in the primary health care setting and report to the preceptor (Beckman and Lee, 2009:342; Irby and Wilkenson, 2008:385). SNAPPS comprises of five steps, namely summarising, narrowing down, analysing, probing, planning and selecting. The student first gives a short summary of the history and examination findings. After the discussion, the student lists the differential diagnoses and narrows those down to two or three working diagnoses. The next step involves the analysis of the listed diagnoses whereby the student demonstrates critical thinking and clinical reasoning skills. The student has the opportunity to probe the preceptor by asking questions on their doubts, problems or concerns regarding the specific case. Step five involves the planning and creating of a management plan for the patient by discussing various treatment and care options. The process concludes with the student identifying case specific learning needs and explaining how these will be achieved (Beckman and Lee, 2009:342; Irby and Wilkenson, 2008:385; Wolpaw *et al.*, 2003:895). Another technique that is helpful to develop clinical reasoning when a student presents a case is to ask them to ‘think aloud’ about their decision making process.

2.8.5.6 Thinking aloud

Thinking aloud provides the preceptor with the opportunity to identify learning needs by identifying: a) gaps in declarative knowledge, b) the inability to use thinking operations and c) the inability to reason in students (Adelman-Mulally *et al.*, 2013:30; Banning, 2008:10; Spencer, 2003:593; Neber *et al.*, 1992:421).

Thinking aloud serves as a dual method and promotes the communication skills of both student and preceptor. Students are asked to ‘walk’ the preceptor through the problem solving process and interpretation of data, thus promoting their clinical reasoning skills. Students can be involved in a thinking aloud seminar that is group focused. This enables students to actively interact and participate in a discussion that promotes their critical thinking skills (Banning, 2008:11).

As part of the dual method, preceptors can use thinking aloud to demonstrate these thinking processes (Botma *et al.*, 2014:134) while caring for patients (Ness *et al.*, 2010:42). Examples of using thinking aloud are case conferences and nursing handovers during shift changes (Ness et al, 2010:43).

Thinking aloud requires concentration; both the preceptor and the student should be limited to 20-30 minutes (Ness *et al.*, 2010:43). The technique should preferably be done in private. Patients must be appropriately prepared as it can be unsettling and confusing for them. Both the student and the preceptor should be sensitive to what information is related to the patient or family. Thinking aloud is not the only technique that can help students in linking concepts; concept mapping is an ideal technique to use in linking concepts in facilitation.

2.8.5.7 Mind mapping

Mind mapping (also known as concept mapping) is where the link between concepts and processes is visually illustrated. The preceptor asks the student to draw a visual representation on a sheet of paper of his/her understanding of a healthcare related subject or patient’s condition. The existing knowledge is explored and gaps are identified. The preceptor guides the student to construct new knowledge by linking the classroom knowledge to what is seen and experienced in practice (Khan *et al.*, 2012:86; Senita, 2008:7). Preceptors use mind mapping as it assists the student to develop a conceptual understanding of clinical manifestations and related patient care.

Mind mapping has several advantages for students. Mind mapping a) develops the student’s critical thinking skills (Chan, 2013:239); b) organises the student’s thoughts

on paper; c) helps the student to prioritise nursing care; d) adds additional information to the student's existing knowledge; e) promotes transfer of learning; f) visually shows students the relationship of concepts and structures (Wang and Liao, 2014:691; Khan *et al.*, 2012:86); and g) develops the student's conceptual understanding (McMillan, 2010:436). Concept mapping can be used to organise and link information that was generated during brainstorming.

2.8.5.8 Brainstorming

Brainstorming is a technique in with which students can generate a large number of ideas around a subject and is an excellent way to stimulate students to think outside the box (Carlson, Wann-Hansson and Pilhammar, 2009:525). Various diagnoses and patient management ideas may be discussed during these sessions. Brainstorming provides students with the opportunity to elaborate on their experiences and explore new possibilities (Adelman-Mulally *et al.*, 2013:31).

Preceptors should create a non-judgmental climate so that students feel free to share their thoughts and ideas without feeling exposed (Carlson, Wann-Hansson and Pilhammar, 2009:524). Techniques such as brainstorming may be time-consuming and there may be times where preceptors have only a limited time to spend with students due to various circumstances. The five minute preceptor technique is ideal to use when time is limited (Irby and Wilkenson, 2008:384).

2.8.5.9 Five minute preceptor technique

The five minute preceptor technique is adapted from the microskills model of teaching, also known as the 'one minute technique' (Beckman and Lee, 2009:342; Neber *et al.*, 1992:420). The microskills/one minute technique consists of the following steps: getting a commitment, probing of supporting evidence, teaching general rules, reinforcing what was done well, and correcting mistakes (Ramani and Leinster, 2008:349; Neber *et al.*, 1992:420). Bott, Mohide and Lawlor (2011:35) adapted the one minute technique specifically for nursing and call this the five minute preceptor technique. An advantage of the five minutes preceptor technique is the structure it provides to learning encounters. Bott, Mohide and Lawler (2011:35)

changed three of the steps to accommodate the broader scope of nursing practices to the following steps: 1) get a commitment, 2) probe for supporting evidence, 3) teach general rules, 4) reinforce what was done right and 5) reinforce the positives and correct errors. For the purpose of this study the five minute preceptor technique will be now be discussed in finer detail.

To get the student to take a stand implies that the preceptor should encourage students to discuss their interpretation of what they have noticed. It is important that the preceptor creates a safe environment for the student to voice their thoughts and ideas. When students fail to commit, it can be ascribed to one of three problems: (a) the student did not process the information, (b) they do not want to reveal their weakness or (c) they are dependent on the thinking of others (Neber *et al.*, 1992:420). Preceptors should not fill in the blanks, but rather ask questions to engage the student with the given patient data.

Step two comprises probing for supporting evidence (clinical data) of proposed commitments. This step provides the preceptor with information on the student's existing knowledge and gaps in his/her knowledge. It is the preceptor's responsibility to validate or gently discard the supporting evidence that the student provides. Students will often look at the preceptor for cues of approval that they are on the right track. A preceptor should guard against giving a student negative cues such as frowning or shaking of the head, but rather ask clear and high order cognitive questions to develop his/her critical thinking skills.

During step three the preceptor highlights the general rules that apply to typical cases. The principle here is that the preceptor has to teach general rules that are more memorable to transfer to other patient experiences in future (Bott, Mohide and Lawler, 2011:37).

The last two steps include feedback by reinforcing the positives in the patient encounter and correcting errors and/or misinterpretations. It is important to give the student positive feedback on what was done well because it builds the student's confidence and self-esteem. Preceptors should give the student extensive positive

feedback on how their actions will promote patient health (Carlson, Wann-Hansson and Pilhammar, 2009:525).

Optimal learning is achieved when the preceptor also gives corrective feedback to the students. Preceptors should encourage students to do a self-assessment and to identify the mistakes they made. When the student has identified his/her mistakes, the preceptor can facilitate corrective behaviour by recommending how to prevent making the same mistake in future. This is a sensitive step where a student can be built up or broken down; therefore, this last step should be done in a private and calm environment where the student can feel safe. It is important that both positive and corrective comments from the preceptor should be specific in context.

It is important for a preceptor to be effective in questioning during the five minute preceptor technique. Questioning is probably the technique that is most commonly used during clinical facilitation. Each preceptor should reflect on his/her own questioning skills in order to become proficient.

2.8.5.10 Questioning

The main purpose of questioning as a facilitation technique is to examine students' knowledge levels according to Bloom's taxonomy. Lower level questions commonly use the question 'what' whereas higher level questions include 'why' and 'how'. It is imperative that preceptors should become proficient in asking the correct question (Chan, 2013:238; Beckman and Lee, 2009:340). Questions to students must be phrased clearly and unambiguously. Well phrased questions challenge students and promote learning and critical thinking skills (Botma *et al.*, 2014:134). The preceptor should be able to listen attentively, read a student's facial expression and adjust questions according to the student's level of understanding (Beckman and Lee, 2009:340). Questioning is a key method to engage students in the learning process and encourage critical thinking (Chan, 2013:239; Ness *et al.*, 2010:41). There are different types of questions that can be used in the facilitation process of students.

Socratic questioning is used to examine the thoughts of the student in many directions such as focusing their attention on concepts and/or problems and explore

ideas (Chan, 2013:239). Spencer (2003:593) describes four types of questions, namely: closed, open, probing and reflective questions. Closed questions require the recall of facts and are on a lower cognitive level. The drawback of using closed questions is that students may not participate when they think their answers are wrong and the facilitator ends up answering his/her own questions. Open questions are useful to promote higher order cognitive thinking (Spencer, 2003:593) while probing questions are an extension of reflective questioning that may be used when a preceptor gives a cue that the student needs to be more attentive. This encourages the student to verbalise his/her thought patterns; it also opens the conversational ground between student and preceptor. Reflective questioning is used to encourage the student's critical thinking skills (Carlson, Wann-Hansson and Pilhammar, 2009:525) and develops metacognition.

2.8.5.11 Reflection

Students should be taught to do self-reflection by evaluating or reflecting on their actions on a continuous basis. Reflection on an experience, together with a discussion with a preceptor, can be used to bridge the theoretic ideals with the reality of the clinical environment (Forneris and Peden-McAlpine, 2007:411), thus promoting learning in students. It is especially useful when students have to develop decision making skills through active thinking processes (Ness et al, 2010:44). Reflection-in-action promotes clinical judgment while reflection-on-action develops metacognition. Reflection-in-action takes part during an activity while reflection-on-action takes place after the activity was completed (Khan *et al.*, 2012:86; Carlson, Wann-Hansson and Pilhammar, 2009:525; Ramani and Leinster, 2008:356). With reflection the preceptor can assess if students have achieved their expected outcomes and adapt the remaining outcomes accordingly.

Reflective behaviour can be role modelled to a student by preceptors or health care professionals (Botma *et al.*, 2014:136). To cultivate reflective behaviour in a student, preceptors should encourage students to talk about their experiences or reflect-on-action (Ness *et al.*, 2010:44). It is important that preceptors should take note of the level of reflection of their students. Although most students may reflect on a situation,

it can be only superficial in nature. Preceptors should focus on a deep level of reflection. The deeper the level of reflection, the deeper the level of learning that takes place in the student. There are different ways to promote a deeper level of reflection in clinical facilitation. Preceptors can implement reflective journaling or reflective writing that will help the student to define their thoughts (Chan, 2013:239; Nielsen and Jester, 2007:514). Reflective writing also helps students to identify their own shortfalls and to take responsibility of their own learning by encouraging them to go back to their textbooks to gather more information. This is better known as self-directed learning (Khan *et al.*, 2012:86).

Botma *et al.* (2014:136) describe the following steps to encourage effective reflection after student-patient contact sessions. First, students should describe the situation that they have experienced from their own point of view. Secondly, their emotional response should be voiced and explored. Thirdly, they should explain what they have noticed during the experience. Fourthly, students are encouraged to discuss decisions that were made and the factors that influenced them to make the decisions. Lastly, students are asked to reflect on what they have learned during the experience. The preceptor should then assist them to find a similar learning experience so that they have an opportunity to modify their behaviour. Preceptors should also direct students towards relevant resources to fill in the gaps identified in the student's knowledge. Although these steps are described under reflection it may also be used in debriefing sessions with students.

2.8.5.12 Debriefing

The clinical environment is filled with realistic and harsh conditions. Nursing students are exposed to the reality of life and death every day. Some of these experiences can be traumatic to students and preceptors should use debriefing as a method to decrease the trauma and guide the student to learn from the experience. Debriefing is not confined to traumatic experiences alone; this technique can also be used when students experience an unfamiliar situation or perform a procedure for the first time.

Debriefing is a reflective process where preceptors encourage dialogue from students to talk about their experience (Botma *et al.*, 2014:137). The five steps of effective reflection are incorporated to structure the debriefing sessions (see the previous item 2.8.3.11, Reflection). Preceptors use it not only to decrease the intensity of the experience but also to serve as a learning opportunity. It is equally suited to take place individually or in a group. Group debriefing at the end of an experiential learning session creates a focused learning environment for students (Sanderson and Lea, 2012:336).

Debriefing is a useful tool in clinical education if done correctly and should be performed by a trained and experienced person. The reason why an experienced person should conduct a debriefing session is that an open and blameless atmosphere should be created in order to be effective (Ness *et al.*, 2010:43).

2.8.5.13 Feedback

Feedback aims to inform students of their level of performance and/or progress with regard to expected standards and outcomes. Preceptors give feedback after formative assessment and concrete clinical learning experiences. Students value immediate and continues feedback in a supportive environment where the transfer of learning can take place. Therefore, postponing feedback can decrease the potency of the lessons that could be learned (Beckman and Lee, 2009:341; Ramani and Leinster, 2008:354). Feedback should be rendered in a safe and positive learning environment, especially when it comes to feedback that the student may regard as negative. It is also noted that preceptors may feel hesitant to give critical feedback to students and may therefore avoid feedback in general.

Good, constructive feedback promotes confidence and motivation of students. Students are motivated when they know that they are making progress; this leads to further improvement of their own clinical practice (Spurr, Bally and Ferguson, 2010:352). Giving feedback to students is an important task of a preceptor (Moore, 2009:250). Feedback also provides preceptors with an opportunity to review and restructure goals set out previously in order to strengthen the student's learning.

Good preceptors provide feedback, support and direction to students during their learning experiences. Every preceptor should provide his/her students with clear and frequent feedback on their performance (Kilminster and Jolly, 2000:827).

Feedback can be given verbally, non-verbally or in written form (Carlson, Wann-Hansson and Pilhammar, 2009:524). Verbal or written feedback should be direct but supportive. Non-verbal feedback gives students cues that indicate if they are on the right tract or not (Botma *et al.*, 2014:135). Preceptors should, however, guard against only praising students without constructive feedback on their performance (Botma *et al.*, 2014:135). Feedback should reinforce their strengths and correct the errors that were made (Irby and Wilkenson, 2008:386).

Feedback should be linked to case-related self-directed learning where learning is further facilitated by the motivation of students to continue acquiring knowledge and skills outside the formal contact session. Beckman and Lee (2009:341) describe a mnemonic for preceptors to help them to give constructive feedback to their students in order to motivate as well as build their students' confidence.

FIT and ABLE are respectively described by Beckman and Lee (2009:341) as follows:

- Frequency: feedback should be given on a continuous basis with verbal and non-verbal responses.

- Interactive: feedback should be mutual in nature. The preceptor as well as the student should give feedback.

- Timely: feedback should be given within 48 hours, but the sooner the better.

ABLE is described as follows:

- Appropriate of student's level: feedback should be on the student's level of competence in order to be successful.

- Behaviour specific and balanced: feedback of the student's behaviour should be included in feedback in general. The sandwiching technique is an excellent way to give both positive and corrective feedback to the student. 'Negative' feedback should always be given in a positive manner and should direct and promote further learning for the student.

- Labelled: Feedback should always be labelled as such otherwise students may view it as a friendly informal discussion.

- Empathetic: The following strategy can be used: Compliment in public and correct in private to display sensitivity in the social context. Feedback should not be mistaken for assessment. Feedback versus assessment is seen as informal, less judgmental and more frequent (Botma et al., 2014:135).

2.9 Assessment

Assessment at the end of a rotation or placement marks the closure of the preceptor-student relationship. Preceptors should give students the opportunity to evaluate themselves, as well as the support offered by preceptors (Ullrich and Haffer, 2009:4; Myrick and Yonge, 2005:68; Hewson and Jensen, 1990:162). Evaluation is defined by Ramani and Leinster (2008:349) as a process where the preceptor assesses the student on his/her knowledge, skills and attitudes. Assessment is an evaluation process that is aligned with the student's learning outcomes that had been determined at the beginning of the clinical placement (Löfmark *et al.*, 2012:165; Ullrich and Haffer, 2009:146). Assessment is defined as the evaluation of students' performance and competence by observing their actions and interactions in the clinical environment (Sanderson and Lea, 2012:334). The preceptor has to make a value judgment of competent or not yet competent on what had been observed (Ullrich and Haffer, 2009:137).

The assessment criteria are set out in a nursing institution's curriculum and are specific to each nursing institution. Preceptors are responsible for assessment in the clinical setting; this is continued throughout the student's rotation. Assessment in the

clinical setting can be divided into formative and summative assessment. Summative assessment includes the preceptor assigning a mark on a student's performance on a specific outcome or skill. Formative assessment is the informal continuous assessment on the progress of the student's performance during their placement (Botma *et al.*, 2014:164). Formative assessment leads to summative assessment.

Formative assessment is useful and essential for the following reasons:

(a) to see if the student can function in a 'real life' environment (Botma, Jeggels and Uys, 2012:75),

(b) in order to give feedback on the student's performance and competence (Myrick and Yonge, 2005:132), and

(c) to ensure that students provide safe nursing care to their patients (Ulfvarson and Ozelman, 2012:703) before progressing to the next level. Learning outcomes guide preceptors in planning for assessment tasks (Ramani and Leinster, 2008:349; Spencer, 2003:591).

Valid and reliable assessment instruments must be used to assess the student's performance. It is crucial that the preceptor is familiar with the assessment instrument before assessing the student. A wide range of skills could be assessed in the clinical setting and this offers the ideal situation for integrated assessment (Ramani and Leinster, 2008:354). Therefore an assessment instrument should reveal a true reflection of the competence of a student, based on the integration of knowledge, skills and attitudes and not just ne a tick list of practical skills (Ulfvarson and Ozelmark, 2012:703).

Both the student and the preceptor should be aware of the standards and expectations regarding the assessment in order to promote transparency (Myrick and Yonge, 2005:68). Preceptorship programmes should include training in the principles and process of assessment, emphasise adherence to assessment standards, and focus on reducing the anxiety that preceptors may experience on

judging a student's performance (Flynn and Stack, 2006:60). Evidence based practices should always be included in assessments.

2.10 Care based on best available evidence

Evidence based practice (EPB) in nursing describes knowledge of nursing practices that are based on the best research, synthesising the evidence and its translation into protocols that guide the nurse's actions (Myrick, *et al.*, 2012:1). Nurses in the clinical setting are inclined to follow traditional nursing care instead of EPB. Possible reasons are that nurses do not understand EBP, do not have the necessary computer skills to locate EBP guidelines, or lack the authority to enforce EBP (Zhang *et al.*, 2012:570; Brown *et al.*, 2010:522; Melnyk *et al.*, 2010:51).

Brown *et al.* (2010:521) state that nursing students are strategically positioned to influence the nursing profession towards adopting EBP. They explain that students who are well prepared for clinical practice and are confident in their decision-making are more likely to use and continue to use EBP. Best practice guidelines should be included in the undergraduate nursing curriculums and by preceptors in clinical practice (Fromme *et al.*, 2010:1909; Guyatt *et al.*, 1993:1099).

Yoo and Oh (2012:202), however, indicate that although preceptors have moderate knowledge about EBP, they do not implement it in practice. Therefore, training programmes should equip preceptors with adequate knowledge on EBP and how to locate best practice guidelines in their specialities (Fromme *et al.*, 2010:1909; College of Nurses of Ontario, 2009:3), as well as promote a positive attitude towards EBP in student nurses.

Preceptors should challenge their students to think critically and apply standards and best practice guidelines to everyday situations (Sanderson and Lea, 2012:337). Preceptors should role model EBP in all patient care activities (Ervin, 2005:297).

Evidence based practices reduce mortalities, promote safe and holistic patient care, reduce costs, strengthen the scientific foundation of nursing practices and contribute

to job satisfaction in the clinical setting (Melnyk *et al.*, 2010:51; Brown *et al.*, 2010:526).

Preceptors have the ideal opportunity to develop students who are proficient in providing effective and quality patient care through the stimulation of their thinking processes. Students need support to become competent nurse practitioners who can face challenges and obstacles in the clinical environment. Preceptors are the ideal workforce to support student and facilitate their learning in the clinical setting. Transfer of learning is influenced by the student's characteristics, the educational system, the transfer climate and the work environment. Preceptors should take note of these factors and be resourceful to overcome any of these factors in order to create an optimal learning environment for students. The primary goal of a preceptor is to support students in the clinical setting by offering system, tangible, emotional and cognitive support. Supporting students in practice gives them the opportunity to apply their classroom learning in real-life practice. Preceptors can use various facilitation techniques to assist student in becoming competent. Trained assessors must use valid and reliable assessment instruments to assess tasks that are aligned to learning outcomes as well as teaching and learning activities. Preceptors should always give constructive feedback in a safe learning environment.

Chapter 3 Methodology

3.1 Introduction

The methodology chapter provides a description of the practical execution of the research process of the study (Terre Blanche *et al.*, 2012:6; Fouché *et al.*, 2011:142). The research question, purpose and objectives of the study should continuously be referred to and described in the methodology chapter.

The purpose of this study is to develop a valid and reliable instrument to measure the support that preceptors should provide to their students. This chapter describes the application of a methodological research design to determine the validity and reliability of the newly developed questionnaire. The process of item selection to compile an instrument draft, the implementation of the pretest and the data collection through the main study are explained. The chapter will continue with a discussion of the research design.

3.2 Research design

Polit and Beck (2012:741) define the research design as an outlined plan that addresses both the research question and how the researcher will scientifically carry out the research in order to enhance the integrity of the study. The research question: “How can the supporting role of a preceptor best be measured?” will be answered through a quantitative methodological study.

A quantitative study is a systematic and objective process where numerical data are collected from a population group to simplify and surmise the findings to the concept that is being studied (Maree and Pietersen, 2012:145; Moule and Goodman, 2009:6). The quantitative design is linked to the researcher’s attempt to measure the constructs of support. Measurement includes “the assignment of numbers to objects according to specified rules to characterise quantities of some attribute” (Polit and

Beck, 2012:733). The population group was asked to respond to a list of statements (also called items) in a consistent manner so that a numerical value could be added to each statement in order to measure the preceptor's support.

Through the literature review, the researcher proposed that preceptors provide four types of support. At present there is no questionnaire available that addresses all four types of support (Fluit *et al.*, 2010:1337). Therefore, the researcher compiled a new comprehensive questionnaire from existing questionnaires in which the items were organised under the four types of support. A methodological design addresses the development and evaluation of a research instrument.

Such a methodological design is used to develop measurement instruments or techniques. Methodological studies are crucial to determine the validity and reliability of an instrument and aim to develop a high quality instrument (that can be used by others) and drawing a valid and reliable conclusion about the newly developed instrument (Polit and Beck, 2012:268). A methodological study can be seen as an approach to create new knowledge (Polit and Beck, 2012:268; LoBiondo-Wood and Hober, 2010:207; Marczyk, DeMatteo and Festinger, 2005:4; Mouton, 2001:173).

The strength of a methodological research design is that it produces meaningful evidence about sources of error in empirical research. The limitations include the restriction of the application of these results to other settings and other countries (Mouton, 2001:174).

3.3 Data gathering technique

A method to measure the supportive role of preceptors was selected. Measurement methods can be described as tools or instruments which include checklists, interviews, scales, protocols and questionnaires (Goddard and Melville, 2013:41; Botma *et al.*, 2010:273). The selection of the measuring and data collection method should be guided by ethical and cost considerations and the availability of assistants to help with data collection, inter alia. A researcher should contemplate whether to use an existing instrument adapt an existing instrument or develop a new instrument

(Polit and Beck, 2012:295). The measuring method complements the aim of the research. For this study, the researcher selected a questionnaire to measure preceptor support.

3.4 Selection of a test for reliability and validity

It is deemed appropriate to include a figure to illustrate the process described by LoBiondo-Wood and Hober (2010:294) of selecting the most appropriate validity and reliability test for a study (figure 3.1). The researcher determined two areas of validity that includes the content domain and the construct domain. The content domain was established through looking at content validity and the construct domain was determined by a factor analysis. The reliability was determined by the homogeneity through an alpha Cronbach test.

Reliability determines the instrument's consistency and displays accuracy, precision, homogeneity, stability and equivalence of a measurement method (Grove, Burns and Gray, 2013:389; LoBiondo-Wood and Hober, 2010:295). There are three main qualities to be determined to prove that an instrument is reliable. All of these qualities, however, do not need to be tested; it all depends on the purpose of the study.

The aim of this study is to prove that the newly developed tool is indeed reliable. Homogeneity is the first step in determining reliability before further testing on stability and equivalence can be done. Homogeneity shows that the items all measure the same construct (LoBiondo-Wood and Hober, 2010:295). This is also known as internal consistency (Polit and Beck, 2012:333; Delport and Roestenburg, 2012:177). Internal consistency can be tested by using an item to total correlation, split-half, KR-20 and the Cronbach alpha coefficient test. The latter is also the most standardised measuring test used to determine the reliability of an instrument (Melnyk *et al.*, 2010:318). To determine the reliability of this study the Cronbach alpha coefficient test is used and the result is pointed out by a statistical value.

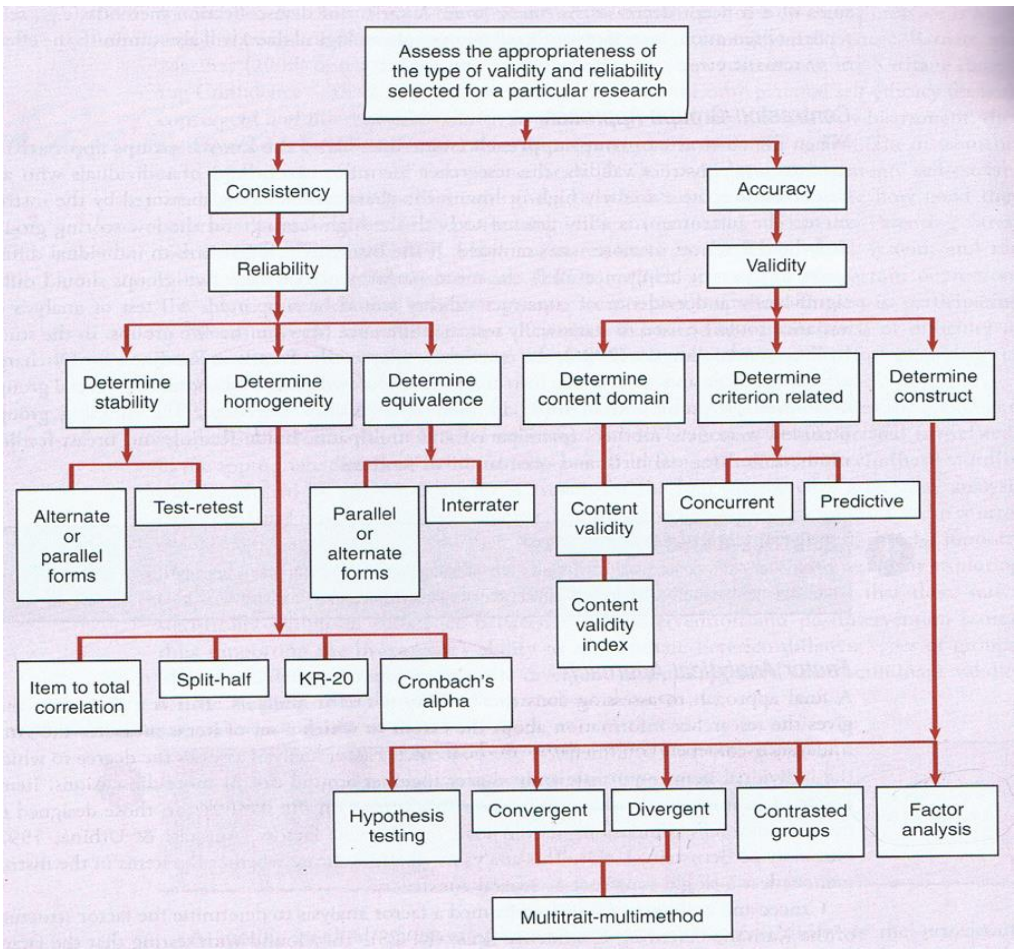

Figure 3.1 Selecting the most appropriate validity and reliability test for a study (LoBiondo-Wood and Hober, 2010:294)

Stability refers to the ability of the instrument to reveal the same results with repeated testing over time. A test-retest or parallel forms are used to test stability (LoBiondo-Wood and Hober, 2010:295). Future studies may test the reliability again over time to prove the stability of the instrument. This instrument should first be tested for homogeneity reliability before it can be retested; therefore, the stability of the instrument will not be determined now.

Equivalence shows the same result when a parallel instrument is used (LoBiondo-Wood and Hober, 2010:295). No parallel or alternative forms are available for the researcher to do this test; and therefore the test for equivalence will be omitted.

Three kinds of validity are highlighted in figure 3.1, namely content validity, criterion-related validity and construct validity. Content validity involves the critical reviewing

of the measuring instrument by experts who evaluate the items in the questionnaire against each construct being measured. Content validity will be further discussed under 3.7.2, Content validity.

Criterion-related validity is concerned with the correlation of the scores of an instrument with another/external criterion (Polit and Beck, 2012:724). Criterion validity is not included in this study because the researcher does not attempt to predict scores for future performance (predictive validity) or to compare results with an external criterion at the same time (concurrent validity).

Construct validity attempts to answer the following question: “What is the instrument really measuring?” Within construct validity the researcher develops an idea about the manner in which the items in specific constructs relates to other constructs (LoBiondo-Wood and Hober, 2010:209). The idea is supported by the literature review and the face/content validity about the constructs (Polit and Beck, 2012:338). Construct validity can be determined by hypothesis testing, multitrait-multimethod (which examines specifically convergent and divergent validity), contrast groups and a factor analysis.

A factor analysis is the most common approach used in determining construct validity. For this study, a factor analysis will be done because the researcher wants to determine to which extent the items measure the same construct and how the items load on the same factor (LoBiondo-Wood and Hober, 2010:293). An exploratory factor analysis will be done first to determine if the items are relevant to the specific constructs measured. The researcher will now begin to discuss the development of the instrument.

3.5 Instrument construction

Instrument construction is a lengthy and rigorous process (Grove, Burns and Gray, 2013:440). Careful planning precedes the construction of the draft instrument. The researcher first had to identify existing instruments in order to compile a new and comprehensive instrument. Jones (2004:298) developed a flow chart (see figure 3.2) to identify appropriate existing instruments as well as the development of new

instruments. The researcher had to apply both sections of Jones' flow chart in this research study. This section will be divided into two subsections, namely the evaluation of existing instruments and the construction of a new instrument.

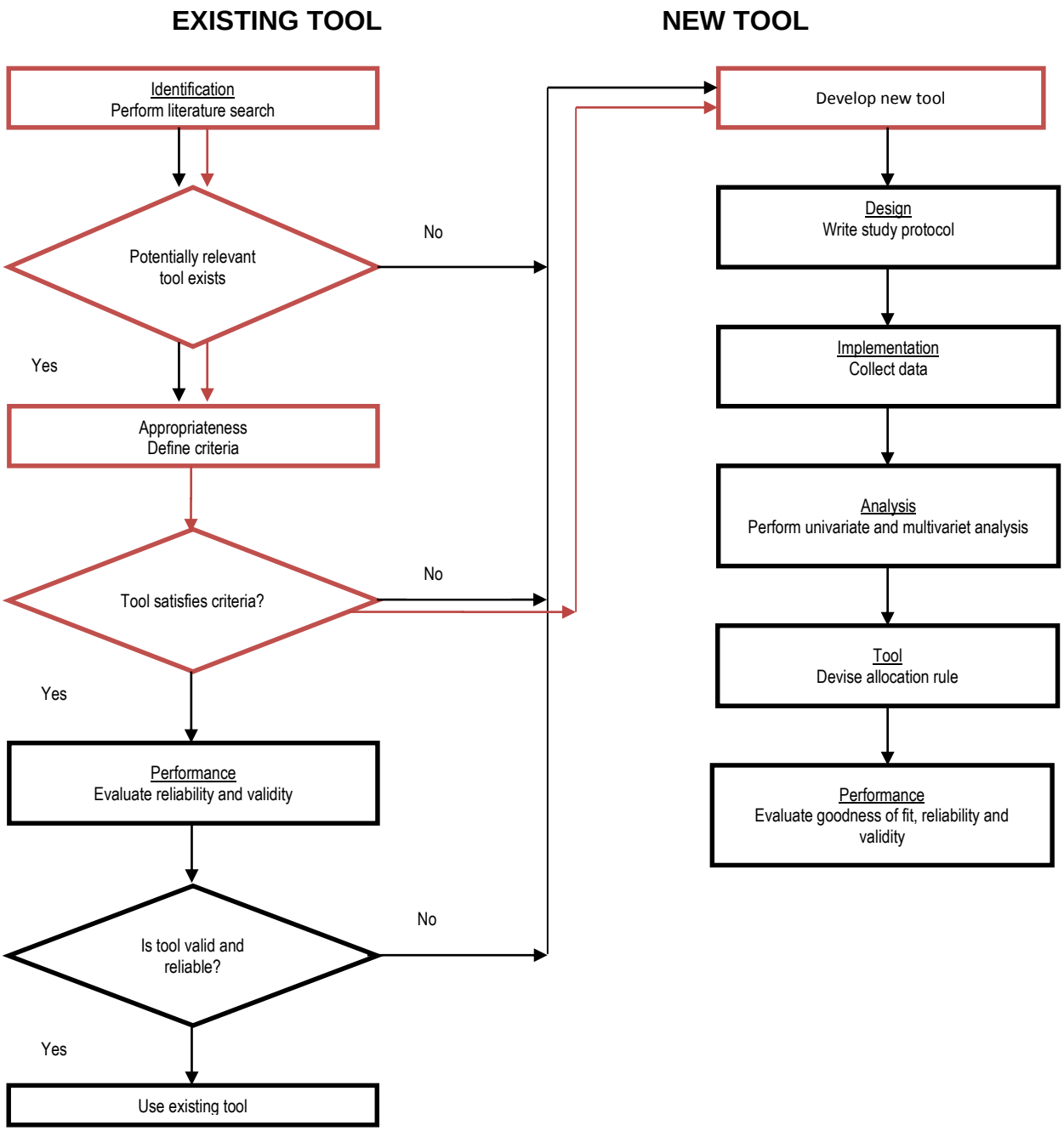

Figure 3.2 Jones' flow chart depicting the identification and assessment of an existing tool and development of a new tool (Jones, 2004:298).

3.5.1 Selecting existing instruments

The researcher followed a rigorous process in the selection of existing instruments. Existing instruments had to be identified and appraised for appropriateness. The instruments were further evaluated for their performance criteria by looking at the validity and reliability. If none of the tools conformed to the appropriateness or performance criteria the researcher would have to develop a new instrument (Jones, 2004:298). The red line shown in figure 3.2 illustrates the researcher's route in evaluating existing instruments followed by the decision of developing a new instrument.

The researcher's aim is to develop an instrument where students could evaluate their preceptors. LoBiondo-Wood and Hober (2010:208) stated that the construct or behaviour should be defined. This is done by an in-depth review of literature to identify theories underlying the concept or construct. For this study the construct will represent the support that preceptors offer.

The first step is to identify existing instruments. Snellenberger and Mahan (1982:152) stated that the advantage of using existing instruments is that the groundwork is already founded in these the questionnaires. Fluit *et al.* (2010:1337) evaluated a total of thirty-two instruments in their systematic review on assessing the quality of clinical teachers. The articles included in the systematic review only refer to the results of the instrument and do not always include the instrument. The researcher successfully recovered twenty-seven of these articles. Five instruments were excluded because the researcher could not gain access to the instruments via library resources nor by contacting the authors of the articles directly.

During the literature review the researcher identified fifteen additional evaluation instruments that conform to the set criteria. In total, forty-two instruments were included for this study. See table 3.1 for an alphabetical layout of the existing instruments that were selected and included for the study.

The next step is to evaluate the identified instruments for appropriateness. The researcher used the following question to determine appropriate criteria: “Is the student evaluating the preceptor’s performance after their contact session?” If the answer was positive, the researcher included the instrument. The researcher’s conclusive evaluation is that although none of the instruments include all four types of support; they nevertheless include instruments used to evaluate preceptors/clinical teachers during clinical rotations, thus adhering to the set out criteria of the research aim.

The existing instruments were evaluated for appropriateness, including validity and reliability. The type of instrument was also taken into consideration to estimate the most appropriate measurement method as given in the articles. All of the evaluated instruments that met the inclusion criteria for the research were self-administered questionnaires. Therefore, after thorough evaluation the researcher deemed it appropriate to continue with a questionnaire as a measurement method and a suitable way to gather data.

Table 3.1 Selection of existing instruments

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
1	Afonso, Lavoisier, Cardozo, Oswald, Mascarenhas, Aranha and Shah	2005	Are anonymous evaluations a better assessment of faculty teaching performance? A comprehensive analysis of open and anonymous evaluation processes.	5-point Likert scale	Yes	Yes
2	Beckman, Lee, Rohren and Pankratz	2003	Evaluating an instrument for peer review of inpatient teaching.	5-point Likert scale	Yes	Yes
3	Benbassat and Bachar	1981	Validity of students' ratings of clinical instructions.	1-10 Rating scale	Yes	Yes

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
4	Bergen, Stratos, Berman and Skeff	2009	Comparison of clinical teaching by residents and attending physicians in inpatient and lecture settings.	5-point rating scale	Not reported	Not reported
5	Bierer and Hull	2007	Examination of a clinical teaching effectiveness instrument used for summative faculty assessment.	5-point rating scale	Yes	Not reported
6	Boerboom, Bolmans, Jaarsma, Muijtjens, Beukelen and Scherpbier	2011	Exploring the validity and reliability of a questionnaire for evaluating veterinary clinical teachers' supervisory skills during clinical rotations.	5-point Likert scale	Yes	Yes
7	Cohen, MacRae, and Jamieson	1996	Teaching effectiveness of surgeons.	5 point rating scale	Yes	Yes

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
8	Copeland and Hewson	2000	Developing and testing an instrument to measure the effectiveness of clinical teaching in an academic medical centre.	5-point rating scale	Yes	Yes
9	Cox and Swanson	2002	Identification of teaching excellence in operating room and clinic settings.	4-point Likert scale	Not reported	Yes
10	De Oliveira Filho, Dal Mago, Garcia and Goldschmidt	2008	An instrument designed for faculty supervision evaluation by anaesthesia residents and its psychometric properties.	4-point Likert scale	Yes	Yes
11	Dolmans, Wolfhagen, Gerver, De Grave and Scherpbier	2004	Providing physicians with feedback on how they supervise students during patient contacts.	5-point Likert scale	Not reported	Not reported

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
12	Donnelly and Woolliscroft	1989	Evaluation of clinical instructors by third-year Medical students.	7-point rating scale	Not reported	Yes
13	Donner-Banzhoff, Merle, Baum and Basler	2003	Feedback for general practice trainers: developing and testing a standardised instrument using the importance-quality-score method.	2-point rating scale	Yes	Yes
14	Guyatt, Nishikawa, Willan, McIlroy, Cook, Gibson, Kerigan and Neville	1993	A measurement process for evaluating clinical teachers in internal medicine.	5-point response scale	Yes	Not reported

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
15	Hayward, Williams, Gruppen and Rosenbaum	1995	Measuring attending physician performance in a general medicine outpatient clinic.	5-point Likert scale	Yes	Yes
16	Hekelman, Vanek, Kelly and Alemagno	1993	Characteristics of family physicians' clinical teaching behaviour in the ambulatory setting: A descriptive study.	Not reported	Yes	Yes
17	Hewson and Jensen	1990	An inventory to improve clinical teaching in the general internal medicine clinic.	5–point Likert scale	Yes	Yes
18	Irby and Rakestraw	1981	Evaluating Clinical Teaching in Medicine.	5-point rating scale	Yes	Yes

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
19	James and Osborne	1999	A measure of Medical instructional quality in Ambulatory Settings: The MedIQ.	6-point rating scale	Yes	Yes
20	James, Kreiter, Shipengrover and Crosson	2002	Identifying the attributes of instructional quality in ambulatory teaching sites: A validation study of the MedEd IQ.	5-point rating scale	Yes	Not reported
21	Jarski, Kulig and Olson	1990	Clinical Teaching in physical therapy and teachers perceptions.	7-point rating scale	Not reported	Yes
22	Litzelman, Stratos, Marriott and Skeff	1998	Factorial validation of a widely disseminated educational framework for evaluating clinical teachers.	5-point Likert scale	Yes	Yes

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
23	Litzelman, Westmoreland, Skeff and Stratos	1999	Student and resident evaluation of faculty – how dependable are they?	5-point rating scale	Yes	Yes
24	Löfmark, Thorkildsen, Råholm and Natvig	2012	Nursing students' satisfaction with supervision from preceptors and teachers during clinical practice.	5-point Likert scale	Yes	Yes
25	Love, Heller and Parker	1982	The use of student evaluations in examining clinical teaching in pharmacy.	5-point rating scale	Yes	Yes
26	Marks-Maran, Ooms, Tapping, Muir, Phillips and Burke	2012	A preceptorship programme for newly qualified nurses: A study of preceptrees' perceptions.	4-point Likert scale	Not reported	Yes

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
27	Nation, Carmichael, Fidler and Violato	2011	The development of an instrument to assess clinical teaching with linkage to CanMEDS roles: a psychometric analysis.	5-point rating scale	Yes	Yes
28	Rambottom-Lucier, Gilllmore, Irby and Ramsey	1994	Evaluation of clinical teaching by general internal medicine faculty in outpatient and inpatient settings.	6-point Likert scale	Not reported	Yes
29	Roff, McAleer and Skinner	2005	Development and validation of an instrument to measure the postgraduate clinical learning and teaching educational environment for hospital-based junior doctors in the UK.	4-point Likert scale	Yes	Yes

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
30	Saarikoski, Isoaho, Warne and Leino-Kilpi	2008	The nurse teacher in clinical practice: Developing the new sub-dimension to the clinical learning environment and supervision (CLES) scale.	5-step continuum scale	Yes	Yes
31	Schum, Yindra, Koss and Nelson	1993	Students' and residents' rating of teaching effectiveness in a department of paediatrics.	7-point Likert scale	Yes	Yes
32	Snellenberger and Mahan	1982	A factor analytic study of teaching in off-campus general practice clerkship.	4-point rating scale	Yes	Yes
33	Silber, Novielli, Paskin, Brigham, Kairys, Kane and Veloski	2006	Use of critical incidents to develop a rating form for resident evaluation of faculty teaching.	5-point rating scale	Yes	Not reported

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
34	Skeff	1983	Evaluation of a Method for improving the teaching performance of attending physicians.	5-point rating scale	Not reported	Yes
35	Smith, Varkey, Evans and Reilly	2004	Evaluating the performance of inpatient attending physicians.	5-point Likert scale	Yes	Yes
36	Spickard, Corbett and Schorling	1996	Improving residents' teaching skills and attitudes towards teaching	9-point rating scale	Not reported	Yes
37	Stalmeijer, Dolmans, Wolfhagen, Muijtjens and Scherpbier	2008	The development of an instrument for evaluating clinical teachers: involving stakeholders to determine content validity.	5-point Likert scale	Yes	Not reported

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
38	Steiner, France-Law, Kelley and Rowe	2000	Faculty evaluation by residents in an emergency medicine program: a new evaluation instrument.	5-point Likert scale	Yes	Yes
39	Ulrich and Haffer	2009	Precepting in nursing: developing an effective workforce.	4-point rating scale	Not reported	Not reported
40	Williams, Litzelman, Babbott, Lubitz and Hofer	2002	Validation of a global measure of faculty's clinical teaching performance.	5-point rating scale	Yes	Yes
41	Wright, Kern, Kolodner, Howard and Brancati	1998	Attributes of excellent attending-physician role models.	7-point Likert scale	Not reported	Yes

No	Author(s)	Year	Name of Article	Description as given in article	Validity done	Reliability done
42	Zuberi, Bordage and Norman	2007	Validation of the SETOC instrument – student evaluation of teaching in outpatient clinics.	7-point Likert scale	Yes	Yes

3.5.2 Compiling draft instrument

Drawing on Jones' flow chart (2004:298), the researcher had to write and submit a research proposal to state the nature of the research, which was to design a comprehensive instrument to evaluate the support that students receive from their preceptors. This protocol first had to be approved by an evaluation committee that consisted of the researcher, her supervisor, a biostatistician, one researcher within the School of Nursing and two researchers within the Faculty of Health Science.

After the evaluation committee had approved the study it was submitted together with the relevant documentation to the Ethics Committee of the Faculty of Health Sciences. The population group of the study included students from the University of the Free State, therefore the researcher had to obtain permission from the Vice-Rector (Academic) of the University of the Free State; the Dean of the Faculty of Health Sciences and the Head of the School of Nursing. See Addendum A_1 for a copy of the approval of the study by the Ethics Committee.

With the approval from the Ethics Committee the researcher continued with the implementation process of the study which involved compiling the draft evaluation instrument. The researcher had already evaluated and selected forty-two instruments to be included in the study.

With regard to the instrument construction each item in the forty-two instruments were assigned to one of the four types of support, namely system, tangible, emotional, and cognitive support. The researcher used a table format in Microsoft Word® to group each item under a suitable pillar. The next step was to compile the comprehensive tool in the format of a self-administered questionnaire.

3.5.3 Purpose of the questionnaire

The basic objective of a questionnaire is to obtain facts and opinions about a phenomenon from people who are informed on the particular issue (Delport and Roestenburg, 2012:186). The researcher wanted to look at the support that students

receive from their preceptors. A self-administered questionnaire was used in this study to gather the information on support. Self-administered questionnaires are structured self-report instruments which are completed by the respondent (Polit and Beck, 2012:306; Delport and Roestenburg, 2012:188).

3.5.4 The advantages of a questionnaire

Potential advantages of a properly constructed questionnaire can be listed as follows:

- It can portray a high measure of reliability and validity.
- It can be presented in a consistent manner and asserts a directness and flexibility.
- The questionnaire is cost effective.
- Anonymity can be incorporated in this type of data gathering method.
- Information that is otherwise difficult or sensitive can be gathered through a self-administered questionnaire.
- Bias can be eliminated by using self-administered questionnaires due to the absence of an interviewer.
- The researcher remains in the background and assists students only if problems arise, thus excluding bias in the data collection process.
- It is easy to design, but takes considerable effort to make sure that all questions are well-formulated.
- Questionnaires can be distributed to a large number of respondents in various ways.
- It can limit the influence of power differences between the researcher and respondents during the data collection process (Polit & Beck, 2012:305; Moule & Goodman, 2009:305).

3.5.5 Limitations of questionnaires

Possible limitations of questionnaires include the following:

- Groups of possible potential can be excluded.
- Questionnaires may lack in depth and insider observation might lead to the criticism of “surface level” analysis and incomplete questionnaires.
- The respondent cannot elaborate on the statement.
- Poor response rate can occur.
- Incomplete or illegible questionnaires can be returned to researcher (Moule and Goodman, 2009:305).

After the decision was made to select a questionnaire, careful consideration should be given to the type of scale that is going to be used.

Referring to Table 3.1, the forty-two scales that were evaluated varied between a rating scale and a Likert scale. In the case of Likert scales, the respondent’s responses were measured by asking them to agree or disagree. According to Moule and Goodman (2009:306) the Likert scale is the one most commonly used. The researcher chose four response categories, namely: strongly agree, agree, disagree and strongly disagree. The researcher chose four categories to prevent the respondent from getting confused with too many responses (Polit and Beck, 2012:335; Moule and Goodman, 2009:306).

By giving the respondent only four options, the researcher compels the respondent to side with a response to either agree or disagree. This eliminates a neutral response from the respondent. Maree and Pietersen (2012:167) state that the advantage of a Likert scale is that it can measure a construct by assigning a value to each one of the response categories. The researcher assigned the numerical value of four to “strongly agree’, decreasing in numerical order to ‘strongly disagree’. The researcher then further looked at the item construction of the existing instruments in order to compile items in the comprehensive instrument.

3.6 Item construction

As mentioned, the literature review included the identification of the roles and functions of preceptors. The types of support that students need for optimal transfer of learning in the clinical environment were used as constructs or domains. Each item listed in the collected list of items was then divided under each domain. A literature review also forms the foundation for both the construct and the item formation. The literature review created a pool of information where sources may be linked to relevant items in the new comprehensive instrument.

The researcher also applied the following guidelines on item construction as cited by Goddard and Melville (2013:48), Polit and Beck (2012:355), Neuman (2011:314) and Botma *et al.* (2010:134) in order to enhance the quality of the questionnaire:

- A table of essential content in the literature should first be identified. The content should be displayed in the question or statement and will eliminate unnecessary ones.

- Avoid jargon; terminology should be clarified and simple words should be used to prevent confusion. The questionnaire's validity and reliability are increased when the respondent grasps each question quickly and as the researcher intended.

- The researcher must identify which items will be included in the questionnaire. This will be determined by the table of essential content.

- Avoid double-barrelled items, thus statements with more than one answer. The item should be clear, applicable and meaningful to all respondents.

- The items used should be short, clear and direct.

- The reading level of the target population should be taken into consideration. This includes reading skills and the language of the respondents.

- The items should be arranged in a logical manner and similar items should be grouped together.

- The length of questions should be clear and short and unnecessary words should be eliminated.

- Double negative statements should be avoided.

Taking these guidelines into consideration, the researcher used a systematic process to compile the items. The researcher compiled an electronic list of all the items found in the existing instruments. The items were rigorously scrutinised. Open ended questions as well as biographical questions were excluded during this process. The items were matched to the supportive quality of the preceptor, e.g. system, tangible, emotional or cognitive support. This created a large pool of items under each category. After matching the item to the relevant category, the researcher ensured that each item adhered to the guidelines on item construction as previously stated. Some of the items were duplicated, because different researchers asked the same questions or some researchers' questions built on existing questionnaires.

Declarative statements were used in the item construction. The researcher took careful consideration in stating items clearly and unambiguously. Readability is seen as the degree of difficulty of the text in question. Readability is crucial in an instrument because it can influence the validity and reliability of the research (Grove, Burns and Gray, 2013:442). Therefore, the simplest phrasing was adhered to. Some of the items from the existing questionnaires were changed to improve its readability and comprehensibility to the student.

Jargon and lay terms were excluded by using simple statements, for example "*the preceptor avoided digressions"* (Litzelman *et al.*, 1998:690). The length of the items was kept short and straight to the point. The following statement is an example of what may be seen as being too long: *"Creating an environment in which I felt comfortable accepting challenges even at the risk of making mistakes"* (James and Osborne, 1999). Double negatives were avoided and negative stems were rephrased into a positive stem. An example is "*I felt like my time was wasted due to the way things were run*" (James *et al.*, 2002:269). Double-barrel items were rephrased into two items to avoid confusion. An example of a double-barrel item is *"Rate the clinical supervision provided by the physicians for analysing clinical data and developing diagnostic hypothesis*" (Afonso *et al.*, 2005:47).

Polit and Beck (2012:354) note that there are other factors to take into consideration when constructing an item. These include deciding on the number of items to be included in the instrument; considering the time frame of answering these items; the intensity of the items; and whether to use positive or negative stems in the items. The newly constructed items created a large pool of items of which cognitive support contained the largest number of items. The large number of items on cognitive support correlates with literature, because the main function of preceptors is to link theory in practice by developing and enhancing thinking processes in students.

The large pool of items was reduced by grouping items with the same or similar statements. The final draft instrument contained 73 items that were spread over four pages. The domain of system support consisted of 13 items, tangible support of 12 items, emotional support of 14 items and cognitive support of 30 items. Four biographic questions addressed the student's age, year of study, ethnic group and gender. Refer to Addendum B for the draft questionnaire. One way to reduce and refine the number of items in an instrument is to consider the validity of the questionnaire.

3.7 Validity

Validity is reflected in an instrument when it measures what it is supposed to measure (Grove, Burns, and Gray, 2013:173; Delport and Roestenburg, 2012:173; Pietersen and Maree, 2012:216; Babbie, Mouton and Prozesky, 2011:122). Delport and Roestenburg (2012:173) describe two factors in the definition of validity, namely that the instrument actually measures the construct in the research question and that it is measured accurately. A high validity shows that the instrument that is being measured reflects the real meaning of the concept under consideration. Although no instrument can be completely valid, it can indicate a degree of measure to the researcher (Grove, Burns and Gray, 2013:393). The researcher applied the validity to determine if the newly developed instrument indeed accurately measures the supporting role of preceptors.

The first step in determining if the instrument accurately measures the supporting roles of preceptors was to look at the content and face validity before the collection of data, while construct validity was done after the instrument had been used for data collection.

3.7.1 Face validity

Face validity is used to determine if a questionnaire 'looks' like it is measuring what it is supposed to measure. Face validity requires experts from the field that is being studied to evaluate the questionnaire. For the purpose of this study, experts in preceptorship and clinical accompaniment were identified by the researcher. The readability and clarity of the items and instructions were also evaluated by the experts during this process (Botma *et al.*, 2010:137). Face validity does not deliver strong evidence of validity on its own, but should be used in combination with other types of validity measures, like content and construct validity (Polit & Beck, 2012:336).

3.7.2 Content validity

Content validity can be defined as the determination of the accuracy of the content or items in the instrument (Grove, Burns and Gray, 2013:173; Polit and Beck, 2012:336; Babbie, Mouton and Prozesky, 2011:123). The content validity thus focuses on the content that is included and evaluates it in order to see if the items in the questionnaire indeed represent the content of what is being measured and that it includes all the right items. More people should be included in this process, especially experts in that particular field (Goddard and Melville, 2013:47). Experts evaluated the questionnaire by answering two questions as indicated by Grove, Burns and Gray (2012:173): "Is the instrument really measuring the construct we assume it is?" and "Does the instrument provide an adequate sample of items that represent the concept being measured?" The experts also served as a check for bias or misinterpretations that may be presented in the draft instrument.

Polit and Beck (2012:337) indicated that at least three experts are needed to evaluate a questionnaire for content validity, while more are preferable. Eight experts

were identified to look at both the face and content validity. The experts were knowledgeable in either clinical accompaniment, student support or questionnaire construction. Questionnaires were electronically distributed to each expert via email and a time frame of seven working days on feedback was indicated. The experts gave feedback on each item by indicating if the item should be included, may be included or, excluded from the questionnaire, or if the item should be moved to another domain. Of the eight experts identified, only five gave feedback. See table 3.2 for a summary on the expertise and responses of each expert on face and content validity.

Table 3.2 Summary of expert responses on face and content validity

Number	Position held	Expertise	Responded
1	Doctor (PhD) at University level	Student support	Yes
2	Doctor (PhD) at university level	Questionnaire design	Yes
3	Medical doctor at university level	Clinical accompaniment	Yes
4	Medical doctor at university level	Clinical accompaniment	No
5	Professor at university level	Questionnaire design and student support	Yes
6	Associate Professor at university level	Student support	No
7	Associate Professor at university level	Student support	No
8	Professor at university level	Student support	Yes

The feedback is summarised as follows:

- The main concern of the experts was that the questionnaire was too long (seventy-two items).
- Two experts queried an item-domain classification, which was re-evaluated and classified according to their recommendation.

The draft questionnaire for experts is provided as Addendum C.

The biostatistician was also included in reviewing the questionnaire to look at the content as well as coding of data. All recommendations were taken into consideration. The researcher made the decision to keep all seventy-three items on the questionnaire and re-evaluate the questionnaire after the reliability and construct validity was also done. The questionnaire was submitted to the Ethics Committee at the Faculty of Health Sciences of University of the Free State for approval (ECUFS nr 50/2014). See Addendum C for the approval letter for the questionnaire.

3.8 Ethical considerations

Because the questionnaire was a newly developed instrument, the Ethics Committee requested the submission of the new instrument. This was indicated in the letter from the Ethics Committee on approval of the study. See Addendum A_1 and A_2 for approval letters. The questionnaire, as well as the relevant documentation, was submitted for approval.

Ethical considerations are an important aspect of each research study and it should be well described in the research proposal in order to obtain ethics clearance from a committee. Ethical considerations should protect individuals against physical and psychological harm. There are three main principles to consider in the ethical approach of a research study, which include respect for people, justice and

beneficence (Polit and Beck, 2012:152; Botma *et al.*, 2010:17). The researcher considered all three aspects throughout the study.

3.8.1 Respect for people/Autonomy

Respect for people or autonomy comprises of two aspects, namely the right to full disclosure and the power or the right of the respondent to self-determination (Polit and Beck, 2012:155). It refers to the researcher's obligation to disclose all the information regarding the study to the respondent so that the respondent can make a self-determined informed decision whether or not to participate in the study (Strydom, 2012:119; Botma *et al.*, 2010:13; LoBiondo-Wood and Hober, 2010:252).

3.8.2 Full disclosure

Every respondent has the right to full disclosure. This means that they have the right to a full description of the nature of the research, their responsibilities in the study and the risks and benefits of participating in the study (Polit and Beck, 2012:154).

The students as potential respondents were requested to evaluate the preceptors that accompanied them during the month, according to the questionnaire. Students that did not receive accompaniment during the month were asked not to participate due to the nature of the study. It was explained to students that the benefit of the study for them was that they will contribute to the future training of preceptors according to the needs that would be revealed by the study. There were no direct risks, but indirectly, student could have felt guilty for evaluating their preceptors. The only responsibility that the student had was to truly and justly evaluate his/her preceptor. The researcher requested that the students complete the questionnaire for two consecutive months to ensure that sufficient quantitative data was provided to draw a definitive assumption on the validity and reliability of the questionnaire.

This information was given to the respondents verbally and in writing (leaflet) before the questionnaire was handed to the respondent. The leaflet and questionnaire were compiled in both Afrikaans and English according to the University of the Free State's current language policy (University of the Free State, 2003:3). The

researcher presented verbal information and leaflets according to the students' language preferences during the data collection sessions. Informed consent was in the form of a leaflet (writing) and was compiled according to the Ethics Committee's regulations regarding informed consent. See Addendum D_1 and D_2 for the detailed informed consent leaflet.

The value of full disclosure enables the respondent to make an informed decision to either participate in the study or to refuse participation. This is known as a person's right to self-determination.

3.8.3 Self-determination

Voluntariness is defined as a respondent, in the research study, who chooses to participate out of self-determination and free will. Self-determination can be violated when a researcher uses coercion, covert data collection and deception (LoBiondo-Wood and Hober, 2010:252).

Power coercion was a factor in this study because the researcher is a lecturer at the university. Coercion involves threats or penalties to respondents if they do not participate, or rewards for agreeing to participate (Strydom, 2012:117; Polit and Beck, 2012:154; Botma *et al.*, 2010:6). The researcher attempted to limit her influence by explaining that there would be no retribution if students chose not to participate. It was mentioned previously that one of the advantages of using questionnaires as a data collection method is that it limits the influence of power differences (Moule and Goodman, 2009:305). The researcher allocated 10 minutes for the students to consider the consequences of participation and to decide if they wanted to participate. The researcher left the venue after she had explained the research to the students. A fellow lecturer handed out the questionnaires once the student(s) had decided to participate. The colleague could contact the researcher if the respondents had any questions or concerns.

3.8.4 Beneficence/ Non-maleficence

Beneficence occurs where a researcher attempts to minimise harm and maximise the benefits for respondents. It is the researcher's obligation to protect the respondent from any physical, emotional, social or financial harm (Polit and Beck, 2012:153). Each respondent has the right to freedom from harm/discomfort and the right to be protected against exploitation. It is important for the benefits to always outweigh the risks in any research study (Strydom, 2012:116; Polit and Beck, 2012:152; Botma *et al.*, 2010:10).

Emotional and financial harm were identified as possible areas that may cause harm to the students. Emotional harm includes stress and fear. The students were required to evaluate their preceptors on the support that they had received during the placement. There was a possibility that the student could experience fear from retribution or guilt for evaluating their preceptors. The researcher minimised emotional harm by ensuring anonymity. Anonymity is achieved when there is no identifiable link between the respondent and the response of the respondents (Polit and Beck, 2012:153; Botma *et al.*, 2010:17). The researcher ensured anonymity by omitting both preceptor and student identification information on the questionnaire. The students placed the completed questionnaires in a box at the exit of the room, thereby ensuring that questionnaires could not be linked to a person by name. Financial disadvantage to students was minimised by the researcher collecting data when students were available on campus, thus eliminating the need for students to travel to campus for the process of data collection.

The possible discomfort that was identified by the researcher was the fact that completing the questionnaire could consume the student's time. The researcher informed the students that it would take approximately 30 minutes at the most. All respondents completed the questionnaires within the allocated time.

The benefits of participation were also listed in the informed consent document. Although there were no direct benefits to the students, they were assured that they were indirectly contributing to the quality training of current and future preceptors that

support them in the clinical setting. By participating in the study, they were assisting the researcher in developing a valid and reliable tool to conduct future evaluation on support to students.

3.8.5 Justice

Justice includes the right that each respondent has towards fair treatment and the right to privacy. Justice requires that all respondents have equal distribution of the benefits and an equal opportunity to participate in the research study (Polit and Beck, 2012:155; Botma *et al.*, 2010:19).

Respondents' right to fair treatment was considered by asking all respondents in the second to fourth year of study to complete the questionnaire. This afforded the respondents an equal opportunity to be included in the study. First-year students were excluded from the study due to the fact that at the time of data collection, the first-year students had not yet been placed in a clinical facility with accompaniment. They could therefore not provide any value for the nature of the study. Consequently, there was no unfair selection of respondents. As the study did not offer direct benefits, no benefits could be unjustly distributed.

Confidentiality was ensured by the researcher in the following ways. All hard copies of the completed questionnaires were kept in a fireproof cabinet. All electronic data entered during the capturing process were kept on an external hard drive also in a fireproof cabinet. Lastly, no identifying data were captured.

3.9 Pretest study

A pretest is done on a small number of participants that meets the inclusion criteria prior to the main study. The usability of an instrument can be determined by a pretest and to see if the participants understand the questions and know what is expected of them (Botma *et al.*, 2010:275).

Ten second-year students of the Medi-Clinic Hospital group in Bloemfontein were asked to participate in the pretest. The researcher communicated with lecturers at the training school, as well as top management in order to get approval to conduct the pretest at their facility. Permission to conduct the pretest was obtained on submission of a copy of the research proposal, ethics clearance documentation as well as the questionnaire and consent form. Approval was granted by their head office.

Eight students participated in the pretest. Two students completed the Afrikaans questionnaires, while six students completed the English questionnaires. A cover letter accompanied the questionnaire. The cover letter explained the purpose of the research and why the respondents were chosen; elaborated on the anonymity and confidentiality with reference to the ethics approval of the study and supplied the status and contact details of the researcher (Botma *et al.*, 2010:137).

It took the students between 15-20 minutes to complete the questionnaire. The researcher was available to answer any questions. No questions were asked. The researcher interviewed the respondents to determine the clarity of the instructions; the clarity of the questionnaire; language difficulty or items that were unclear. The conclusion of the students' feedback was that everything was clear and understandable. The questionnaires were then coded by the researcher and sent to the biostatistician for final evaluation before the main study. Based on the results of the pretest, the researcher did not foresee any difficulties or barriers in the data collection process. For the researcher to continue to the main data collection process, an appropriate population group had to be selected.

3.10 Population

The term population sets boundaries for the study units. It refers to individuals in the universe who possess specific characteristics (Strydom, 2012:223). For the purpose of this study, nursing students in the School of Nursing at the University of the Free State were used as a population group. All 295 nursing students enrolled in the

undergraduate nursing programme are accompanied by preceptors during their clinical placement. A total of 192 students were included in the population group. Ninety-six first-year students were excluded because they were not accompanied by a preceptor at the time of the data collection, and seven students were not registered for a practical nursing module.

3.11 Data collection

The data collection process in quantitative research consists of obtaining numerical data to answer the research objectives and question (Grove, Burns and Gray, 2013:46). The data collection follows a consistent process that includes obtaining consent from the relevant groups before the physical data is collected.

The data collection period stretched over a two month period which resulted in two contact cessions with the second- to fourth-year groups. The researcher visited every year group at the end of their month of clinical placement. The researcher started this contact session by explaining to the students the nature of the study as well as the ethical considerations. Ten minutes was then given to students to read through the informed consent leaflet and to decide if they were willing to participate. By completing the questionnaire the students gave their consent to participate in the study. No signatures were thus obtained from the respondents. The questionnaire was then handed out to the students who were willing to participate.

The respondents deposited the completed questionnaire in a box as they exited the room. No questions were asked in any of the sessions. The researcher obtained 172 completed questionnaires during the first data collection session and 131 during the second data collection session. In total, 303 responses were obtained over the two month period.

3.12 Data capturing and cleaning

The first step is data capturing and cleaning, where the researcher organises the data into appropriate units for the analysing process. The process includes the coding of data, entering the data into a computer and the cleaning up of data (Terre Blanche *et al.*, 2012:490). The researcher first assigned an identification number to each questionnaire. A student assistant, under supervision of the researcher, coded the questionnaires. Coding of data refers to the process where data are transformed into numbers (Polit and Beck, 2012:463). Numbers were allocated according to the student's Likert indicator responses as mentioned in the section on compiling a draft questionnaire. Coding spaces were included on the draft questionnaire on the right hand side of the questionnaire and indicated as "for office use" in order not to confuse students during the data collection period. See Addendum B for the coding spaces.

The student assistant captured the data of the 303 questionnaires in a Microsoft® Excel spreadsheet. Another student assistant checked and verified the captured data for consistency and accuracy by comparing the captured data with the hard copies of the questionnaires. No mistakes were noted during the verification process. The data were then handed electronically to a biostatistician at the Department of Biostatistics at the University of the Free State to be analysed for both validity and reliability.

3.13 Data analysis

Data analysis is defined as a process that organises and gives meaning to the data gathered (Grove, Burns and Gray, 2013:46). This is a rigorous analytical process that is done by biostatisticians who are familiar with specialised computer software. The researcher will first look at the reliability of an instrument because a questionnaire cannot be valid if it is unreliable, although an instrument can be reliable but not valid (Polit and Beck, 2012:336).

3.13.1 Reliability

Reliability refers to the consistency or accuracy in the measurement. The reliability of an instrument refers to “how dependable or accurate is the instrument that is being measured” (Melnyk *et al.*, 2010:126). The reliability of an instrument is high when that instrument shows the same result when it is administrated at different times and under different subjects of the same population (Terre Blanche *et al.*, 2012:493; Polit and Beck, 2012:741; Grove, Burns and Gray, 2013:608).

The reliability or internal consistency is expressed in a value of 1.00, which indicates a perfect reliability/internal consistency with no measurement error, to 0.00 that indicates no reliability/consistency (Polit and Beck, 2012:741). All measurements or scales contain a possibility of error when used (Pugh, Wood, and Boulet, 2015:291; Melnyk *et al.*, 2010:133). Polit and Beck (2012:334) state that a coefficient of 0.70 may be adequate but risky to use because of the increased measurement error. A coefficient of 0.80 is seen as highly desirable. Terre Blanche, Durrheim and Painter (2012:493) state that the coefficient for instrument measuring abilities should be 0.90 or higher. In essence, the closer a coefficient of the instrument is to 1.00, the smaller is the measurement error.

As previously stated in this chapter, the researcher selected and used the Cronbach alpha coefficient test to determine the reliability of the instrument.

3.13.1.1 The Cronbach alpha coefficient test

The Cronbach alpha coefficient test is used to determine the internal consistency of the instrument (Delport and Roestenburg, 2012:177). It is widely accepted as reliable. The internal consistency of an instrument addresses the correlation of various items and indicates to which extent the items consistently measure the concept; in other words, the mean of the inter-item correlation (Melnyk *et al.*, 2010:318). The next step is to determine the construct validity of the instrument.

3.13.2 Validity

Validity is used to determine the degree to which an instrument effectively measures each construct (Polit and Beck, 2012:336). The construct validity in this study was used to determine if the instrument accurately measures the types of support offered by preceptors and that the items reflect on the construct. Construct validity can also examine the theory underlying the instrument.

Polit and Beck (2012:336) state that the validity of an instrument is difficult to determine, but if a researcher took appropriate steps to ensure that the content of the instrument is valid; then the construct validity will also be strengthened. The researcher attempted to strengthen the validity of the questionnaire by assembling a panel of experts to evaluate the questionnaire for face and content validity. Validity was further evaluated by following a statistical approach for the construct.

3.13.2.1 Construct validity

Construct validity is a key standard for measuring the quality of an instrument. It is used to determine the degree to which an instrument effectively measures the construct; or if instrument measures something else (Delport and Roestenburg, 2012:175; Polit and Beck, 2012:336). The construct validity in this study will be used to determine if the instrument accurately measures the support of preceptors and that the items reflect on the construct. Construct validity can also examine the theory underlying the instrument (Delport and Roestenburg, 2012:175).

An analysis of construct validity needs to be performed to standardise an instrument and to determine if the constructs are in fact covered by different groups of related items (Pietersen and Maree, 2012:217; Mouton, 2009:128). As mentioned above, a factor analysis will be used as an approach to determine the construct validity of the instrument.

3.14 Exploratory factor analysis

In essence, a factor analysis is used to determine the underlying factors in the questionnaire using the data gathered. It is a method used to confirm that the questionnaire is in truth measuring the theoretical dimensions and for identifying which items cluster together and which ones do not, thus reducing or refining the items (Pietersen and Maree, 2012:217; Delport and Roestenburg, 2012:175; Melnyk *et al.*, 2010:125). The procedure is used to identify and group together different items measuring an underlying attribute. For this study there were six constructs measured, namely system support, tangible support, cognitive support (clinical judgment), techniques used during the facilitation process, self-directedness and emotional support. The researcher used the exploratory factor analysis to determine if the items relate to the original constructs or if the items relate to other constructs.

The researcher wanted to determine if the theoretical dimensions of support are in fact being measured. Data was collected from a large pool of representatives in order to conduct the exploratory factor analysis. A total of 303 questionnaire were completed by the participants. Data were then analysed using an exploratory factor analysis to explore the relationship between the items in the instrument. Items that are closely related were clustered into a factor.

Each factor consists of weighted combinations of individual items on each extracted item by means of a factor extraction. A factor extraction is the first phase of a factor analysis. The second phase is a factor rotation. The factor rotation is performed on the factors that have met the extraction criteria, which makes it more interpretable for the researcher (Polit and Beck, 2012:365). When factors are weighted it is also called factor loadings and can range from -1.00 to 1.00 which expresses the correlation between the items and factors. The researcher can select a minimum loading range of 0.3 to 0.5 (Grove, Burns and Gray, 2013:398).

Factor analysis is not only used to identify items that belong together in factors, but also to make decisions on the retention or deletion of items. It may be considered to

delete or restructure items with a low loading. Items that load high on more than one factor can also be considered to be deleted (Polit and Beck, 2012:366). Likewise, items that do not fall into factors do not correlate with other items and may be deleted (Grove, Burns and Gray, 2013:398).

The validity correlates with the reliability of an instrument. An unreliable instrument cannot be valid, meaning that an inconsistent instrument cannot show validity, whereas an instrument can be reliable but not valid. A highly reliable instrument can not reflect on the validity, although a low validity is linked to a low reliability (Polit and Beck, 2012:336).

Chapter 4 Results

4.1 Introduction

In this chapter the researcher discusses what the data reveal, and interprets the results of the statistical analysis (Grove, Burns and Gray, 2013:608). The statistical analysis is a rigorous process done with assistance from a biostatistician. SAS®/STAT® computer software, version 12.3 of the SAS® System for Windows, was used for the data analysis.

In the first place the results on the internal consistency of the questionnaire will be discussed. Secondly, the construct validity will be discussed by referring to the results of the factor analysis. Lastly a conclusion will be drawn on the validity and reliability of the instrument.

4.2 Biographical information

In total, 303 questionnaires were subjected to the process of analysis. Biographical information was included in items one to four. Tables 4.1 to 4.4 show the biographical data of the respondents. Please note that missing values/respondents are not calculated in the percentage.

Table 4. 1 Age

	Age	N	%	Cumulative N	Cumulative %
Item 1	18	1	0.33	1	0.33
	19	49	16.39	50	16.72
	20	75	**25.08**	125	41.81
	21	58	19.40	183	61.20
	22	66	22.07	249	83.28
	23	22	7.36	271	90.64
	24	8	2.68	279	93.31
	25	8	2.68	287	95.99
	27	3	1.00	290	96.99
	29	1	0.33	291	97.32
	30	5	1.67	296	99.00
	32	1	0.33	297	99.33
	33	1	0.33	298	99.67
	36	1	0.33	299	100.00

Table 4. 2 Study Year

	Study year	N	%	Cumulative N	Cumulative %
Item 2	2	115	**40.49**	115	40.49
	3	78	27.46	193	67.96
	4	91	32.04	284	100.00

Table 4.3 Ethnicity

	Ethnicity	N	%
Item 3	White	140	46.51
	Black	148	**49.17**
	Coloured	13	4.32

Table 4. 4 Gender

	Gender	Frequency N	Percent %
Item 4	Female	248	**93.23**
	Male	18	6.77

The students' ages range from 18 to 36 years, with a model age of 20 and a median age of 21. The highest number of respondents (25.08%) was aged 20 years. The researcher was unable to compare the age with other data due to the nature of the data collection that ran over two consecutive months. The same population group

participated twice in the same research. Also, four students did not respond to item one, making it difficult to determine in which age group these four students were.

Analysis shows that the sample included second-, third- and fourth-year students who were registered for a nursing practical module, thus receiving support from preceptors. First-year students were excluded from the study because they had not received any clinical accompaniment by preceptors during the data collection phase. There were 75 second-year students, 46 third-year students and 71 fourth-year students registered during the data collection phase. Despite nineteen respondents who did not complete this item in the questionnaires, the second study year (40.49%) had the most respondents. This correlates with the high number of students (75 students) in the second-year group. The fourth-year students were the second largest group of (32.04%) respondents, followed by the third-year group (27.46%).

The majority of the participants were black students (49.17%) followed by white students (46.51%), and coloured (4.32%) students in the minority. Two students did not respond to this item. The researcher was unable to obtain statistical data from the university to compare the data to the ethnical representation of students registered at the University of the Free State or the Faculty of Health Sciences.

The majority of the students who participated was female (93.23%), as nursing has traditionally been regarded as a female profession. This finding corresponds with statistics shown by the South African Nursing Council (South African Nursing Council, 2015:25).Thirty-seven students, however, did not complete this item.

In the following section the researcher will discuss the results of the reliability test that was performed on the questionnaire.

4.3 Reliability

As discussed in chapter three, the reliability of a study refers to what extent or degree an instrument is consistent (Pietersen and Maree, 2012:215). The Cronbach

alpha coefficient test was used to determine the reliability of this questionnaire. Reliability ensures the consistence of an instrument and a solid reliability score of 0.8 in a study enhances the power of the study as it shows a minimal measurement error (Goddard and Melville, 2013:41; Polit and Beck, 2012:334).

4.3.1 Cronbach alpha coefficient

A level of ≥ 0.70 is needed to show that the instrument is reliable, which shows a very good reliability (LoBiondo-Wood and Hober, 2010:2). As mentioned in chapter three, the higher the coefficient rate, the higher the reliability and the lower the measurement error rate. For this newly developed questionnaire the Cronbach alpha coefficient test (covering questions 5 to 73) was 0.98, which shows a very good internal consistency because it is very close to 1 and therefore proves that the instrument has little measurement errors. Table 4.5 is a summary of the reliability regarding each construct. Questions one to four are omitted because they measured the biographical characteristics of the respondents.

Table 4. 5 Internal consistence of each construct measured

Construct	Questions	Cronbach alpha coefficient
System support	5-17	0.93
Tangible support	18-29	0.93
Cognitive support; Clinical judgment	30-40	0.96
Technique used during facilitation process	41-54	0.94
Self-directedness	55-59	0.91
Emotional support	60-73	0.96

Each construct also shows a good internal consistency with limited measurement error as summarised in table 4.5. Thus the researcher may conclude that the reliability of the questionnaire is high.

The next step is to evaluate the results for their validity. Burns, Grove and Grey (2013:323) together with Polit and Beck (2012:336) stated that just because an instrument shows reliability, it does not mean that the instrument is valid. Therefore, validity is included in the testing of a questionnaire to ascertain that it actually reflects the construct – in this case support – that is being examined (Grove et al, 2013:389; Goddard and Melville, 2013:41).

4.4 Validity

Validity refers to the accuracy of the instrument, in other words does the instrument truly reflect the construct being measured (LoBiondo-Wood and Hober, 2010:288). An exploratory factor analysis was done for this questionnaire to determine if the items relate to the constructs being measured.

4.4.1 Exploratory factor analysis

Factor analysis is a statistic approach where clusters of related items are examined. Each item is grouped together under a specific construct. In essence, the factor analysis tests the theory that the researcher has about the interrelationships among the items in the instrument and identifies which items belong together in a specific construct. The factor analysis categorises the number of constructs as factors after the analysis is done (Polit and Beck, 2012:398).

Factor determination is done by looking at the eigenvalue or at the scree test (Pietersen and Maree, 2012:220). Eigenvalue is defined as “the value equal to the sum of the squared weights of each factor” and should be greater than one (Polit and Beck, 2012:726). A scree test is a line plot of the eigenvalues in percentage and is used to reveal the number of factors. A scree test, also known as a scree plot, helps to determine the best possible number of factors (Raubenheimer, 2004:60). The principal discontinuity in a scree test is illustrated by the sharp drop in percentage of change and shows the appropriate termination point (Polit and Beck, 2012:363). For this study the researcher and the biostatistician decided on the scree plot as a cut-off

benchmark for the number of factors. The scree plot distribution pattern is illustrated in figure 4.1 and indicates three factors.

Initially the researcher hypothesised that there were six constructs (system support, tangible support, cognitive support that included clinical judgment, techniques used and self-directedness, and system support) according to the literature review. After the factor analysis had been done the results revealed only three factors (constructs) in the questionnaire. These factors are classified as factors one, two and three. The researcher will label the factors according to the item clusters after analysing the data.

As mentioned in chapter 3, each item is weighted and loads a factor. Polit and Beck (2012:366) suggested that loadings of 0.4 or higher be used as cut-off values, but somewhat smaller values may be acceptable if it makes theoretical sense to do so. Other authors suggest that the cut-off value may be as low as 0.3 or as high as 0.5 (Grove, Burns and Gray, 2013:398). This means that the researcher needs to evaluate each item carefully in order to determine if the item should be kept or discarded.

Due to the fact that there is no “fixed” cut-off value and that it is up to the researcher to decide the researcher examined and compared both ≥ 0.4 and ≥ 0.5 as cut-off values. It is not the norm to compare two cut-off values in a factor analysis, but the researcher was of the opinion that this would be a fair way to determine which items should be excluded from the final questionnaire. The researcher can justify the decision as follows: originally a cut-off value of 0.5 was selected, which may be regarded as ‘very strict’. The risk in considering a high cut-off value (0.5) is that the researcher may lose valid items. A cut-off value of 0.4 shows that a number of items loaded on more than one factor, indicating that those items should be excluded, but then some of these items could be kept if the researcher used a cut-off value of 0.5. After consulting with an experienced biostatistician the researcher decided to isolate and compare all the items that are excluded with a cuff-off value of ≥ 0.4 and ≥0.5 in order to examine each of them individually. See Table 4.7 for a summary of the

items isolated with a cut-off value of ≥ 0.4 and Table 4.8 for a summary of items isolated with a cut-off value of ≥ 0.5.

Table 4.6 summarises each item loading on the three factors identified. The items with an asterisk are included in the final questionnaire, while the other items will be individually evaluated by the researcher. A total of twenty-four items were compared and isolated from the questionnaire. Sixteen items were excluded in a cut-off value of ≥ 0.4 and sixteen items were excluded in a cut-off value of ≥ 0.5. Eight items loaded on both ≥ 0.4 and ≥ 0.5. Table 4.9 illustrates a summary of all excluded items from both values and each item will be discussed in the following section. Items were excluded if they did not load on any factor with a cut-off value of ≥ 0.4 or ≥ 0.5, or if the item loaded on one or more factor. In the next section the researcher will motivate the reason for exclusion of each item.

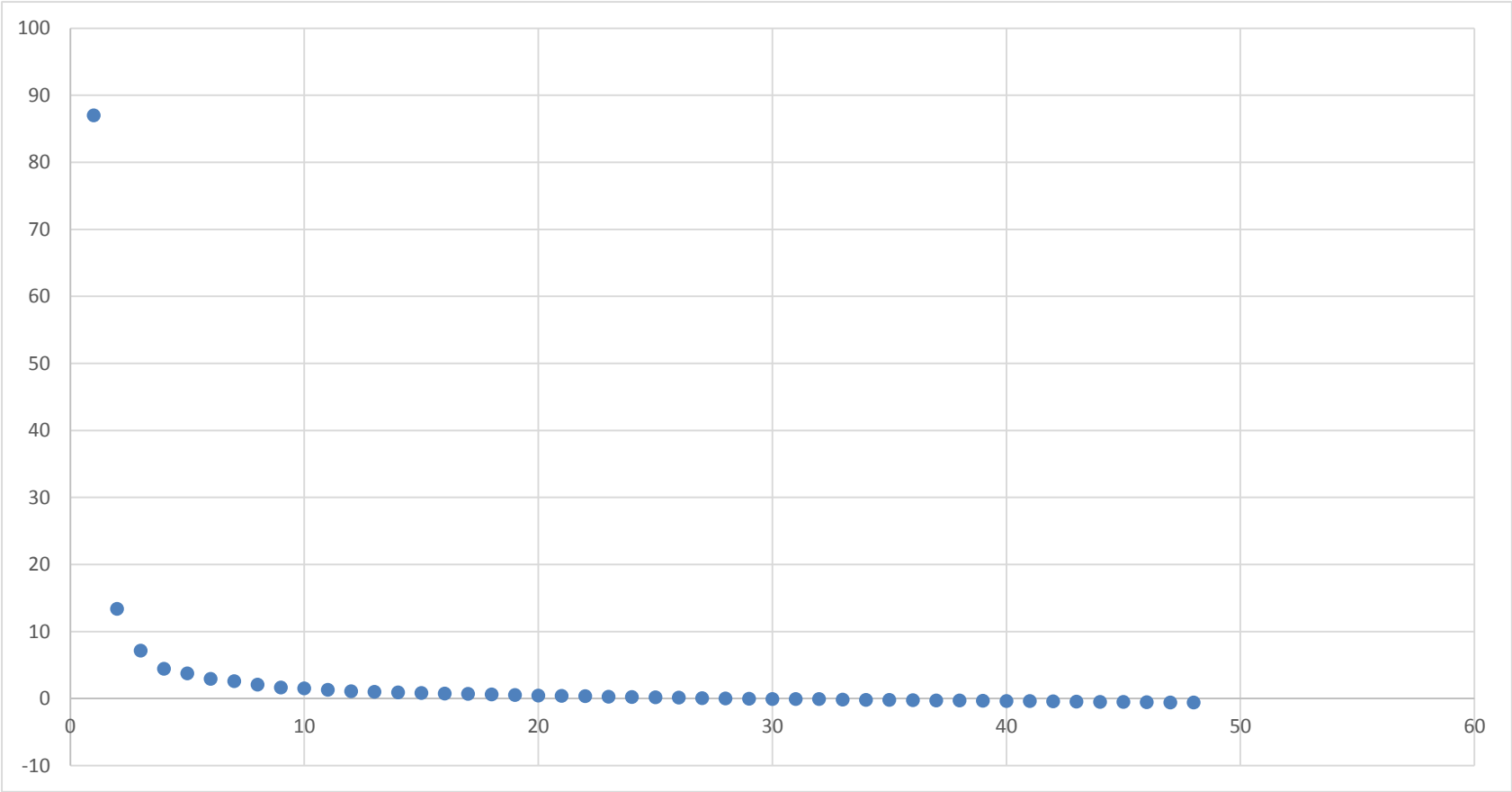

Figure 4.1 Scree plot of eigenvalues

Table 4.6 Item loadings on the three factors identified

Construct	Item	Factor loading		
		Factor 1	Factor 2	Factor 3
System support	5	0.24	0.21	0.45
* System support	6	0.29	0.30	0.53
*System support	7	0.17	0.22	0.63
System support	8	0.21	0.41	0.50
*System support	9	0.30	0.25	0.52
*System support	10	0.35	0.24	0.66
*System support	11	0.24	0.15	0.69
*System support	12	0.23	0.23	0.64
*System support	13	0.28	0.21	0.69
*System support	14	0.20	0.22	0.75
*System support	15	0.26	0.18	0.65
*System support	16	0.28	0.34	0.62
*System support	17	0.31	0.25	0.59
Tangible support	18	0.34	0.16	0.43
*Tangible support	19	0.32	0.15	0.56
Tangible support	20	0.37	0.32	0.48
*Tangible support	21	0.31	0.28	0.56
Tangible support	22	0.41	0.35	0.52
Tangible support	23	0.38	0.37	0.45
Tangible support	24	0.42	0.35	0.52

Construct	Item	Factor loading		
		Factor 1	Factor 2	Factor 3
Tangible support	25	0.44	0.34	0.44
Tangible support	26	0.52	0.31	0.46
Tangible support	27	0.40	0.31	0.50
Tangible support	28	0.49	0.28	0.50
Tangible support	29	0.40	0.27	0.43
*Cognitive support: Clinical judgment	30	0.67	0.26	0.37
*Cognitive support: Clinical judgment	31	0.67	0.20	0.37
*Cognitive support: Clinical judgment	32	0.69	0.28	0.31
*Cognitive support: Clinical judgment	33	0.70	0.32	0.27
*Cognitive support: Clinical judgment	34	0.76	0.26	0.26

Construct	Item	Factor loading		
		Factor 1	Factor 2	Factor 3
*Cognitive support: Clinical judgment	35	0.75	0.26	0.24
*Cognitive support: Clinical judgment	36	0.71	0.24	0.31
*Cognitive support: Clinical judgment	37	0.67	0.18	0.30
*Cognitive support: Clinical judgment	38	0.70	0.21	0.37
*Cognitive support: Clinical judgment	39	0.68	0.31	0.30
*Cognitive support: Clinical judgment	40	0.64	0.37	0.25
Cognitive support: Techniques	41	0.41	0.35	0.37
Cognitive support: Techniques	42	0.46	0.28	0.36
Cognitive support: Techniques	43	0.37	0.38	0.35
*Cognitive support: Techniques	44	0.54	0.32	0.31

Construct	Item	Factor loading		
		Factor 1	Factor 2	Factor 3
Cognitive support: Techniques	45	0.34	0.23	0.41
*Cognitive support: Techniques	46	0.60	0.32	0.35
Cognitive support: Techniques	47	0.50	0.34	0.41
*Cognitive support: Techniques	48	0.58	0.34	0.35
Cognitive support: Techniques	49	0.55	0.31	0.43
Cognitive support: Techniques	50	0.43	0.40	0.44
Cognitive support: Techniques	51	0.43	0.45	0.42
Cognitive support: Techniques	52	0.49	0.41	0.41
*Cognitive support: Techniques	53	0.57	0.34	0.39
Cognitive support: Techniques	54	0.48	0.20	0.48

Construct	Item	Factor loading		
		Factor 1	Factor 2	Factor 3
Cognitive support: Self-directedness	55	0.45	0.41	0.32
*Cognitive support: Self-directedness	56	0.40	0.54	0.20
*Cognitive support: Self-directedness	57	0.33	0.56	0.22
Cognitive support: Self-directedness	58	0.34	0.47	0.31
*Cognitive support: Self-directedness	59	0.40	0.54	0.20
*Emotional support	60	0.35	0.62	0.14
*Emotional support	61	0.24	0.76	0.16
*Emotional support	62	0.19	0.72	0.29
*Emotional support	63	0.19	0.79	0.25
*Emotional support	64	0.24	0.79	0.23

Construct	Item	Factor loading		
		Factor 1	Factor 2	Factor 3
*Emotional support	65	0.24	0.81	0.23
*Emotional support	66	0.14	0.81	0.24
*Emotional support	67	0.27	0.66	0.33
*Emotional support	68	0.15	0.65	0.31
*Emotional support	69	0.30	0.66	0.27
*Emotional support	70	0.25	0.77	0.21
*Emotional support	71	0.23	0.57	0.23
*Emotional support	72	0.33	0.58	0.36
*Emotional support	73	0.27	0.73	0.26

*Items with an * will be included in the final questionnaire. All other items will be discussed to determine if they should be included or excluded.*

Table 4.7 Items excluded with a cut-off value of ≥ 0.4

Constructs	Item	Factor loading		
		Factor 1	Factor 2	Factor 3
System support	8	0.21	**0.41**	**0.50**
Tangible support	22	**0.41**	0.35	**0.52**
Tangible support	24	**0.42**	0.35	**0.52**
Tangible support	25	**0.44**	0.34	**0.44**
Tangible support	26	**0.52**	0.31	**0.46**
Tangible support	27	**0.40**	0.31	**0.50**
Tangible support	28	**0.49**	0.28	**0.50**
Tangible support	29	**0.40**	0.27	**0.43**
Techniques used	43	0.37	0.38	0.35
Techniques used	47	**0.50**	0.34	**0.41**
Techniques used	49	**0.55**	0.31	**0.43**
Techniques used	50	**0.43**	**0.40**	**0.44**
Techniques used	51	**0.43**	**0.45**	**0.42**
Techniques used	52	**0.49**	**0.41**	**0.41**
Techniques used	54	**0.48**	0.20	**0.48**
Self-directedness	55	**0.45**	**0.41**	0.32

Table 4.8 Items excluded with a cut-off value of ≥ 0.5

Constructs	Items	Factor loading		
		Factor 1	Factor 2	Factor 3
System support	5	0.24	0.21	0.45
Tangible support	18	0.34	0.16	0.43
Tangible support	20	0.37	0.32	0.48
Tangible support	23	0.38	0.37	0.45
Tangible support	25	0.44	0.34	0.44
Tangible support	29	0.40	0.34	0.44
Techniques used	41	0.41	0.35	0.37
Techniques used	42	0.46	0.28	0.36
Techniques used	43	0.37	0.38	0.35
Techniques used	45	0.34	0.23	0.41
Techniques used	50	0.43	0.40	0.44
Techniques used	51	0.43	0.45	0.42
Techniques used	52	0.49	0.41	0.41
Techniques used	54	0.48	0.20	0.48
Self-directedness	55	0.45	0.41	0.32
Self-directedness	58	0.34	0.47	0.31

Table 4. 9 Summary of all items excluded from questionnaire

Construct	Question	Factor loading		
		Factor 1	Factor 2	Factor 3
System support	5	0.24	0.21	0.45
System support	8	0.21	0.41	0.50
Tangible support	18	0.34	0.16	0.43
Tangible support	20	0.37	0.32	0.48
Tangible support	22	0.41	0.35	0.52
Tangible support	23	0.38	0.37	0.45
Tangible support	24	0.42	0.35	0.52
Tangible support	25	0.44	0.34	0.44
Tangible support	26	0.52	0.31	0.46

Construct	Question	Factor loading		
		Factor 1	Factor 2	Factor 3
Tangible support	27	0.40	0.31	0.50
Tangible support	28	0.49	0.28	0.50
Tangible support	29	0.40	0.27	0.43
Techniques used	41	0.46	0.35	0.37
Techniques used	42	0.41	0.28	0.36
Techniques used	43	0.37	0.38	0.35
Techniques used	45	0.34	0.23	0.41
Techniques used	47	0.50	0.34	0.41
Techniques used	49	0.55	0.31	0.43

Construct	Question	Factor loading		
		Factor 1	Factor 2	Factor 3
Techniques used	50	0.43	0.40	0.44
Techniques used	51	0.43	0.45	0.42
Techniques used	52	0.49	0.41	0.41
Techniques used	54	0.48	0.20	0.48
Self-directedness	55	0.45	0.41	0.32
Self-directedness	58	0.34	0.47	0.31

4.4.2 Discussion on eliminated items

The following section describes the researcher's reasoning on the eliminating process on each item from the questionnaire in numerical order as indicated in Table 4.9. The researcher considered the following in the item evaluation:

- The type of item
- The loading of the item on a cut off value of ≥0.4 and ≥0.5
- Comparing the value difference in cut-off values ≥0.4 and ≥0.5.
- The relation of each item loading to each factor
- The item loading across all three factors
- The construction of the item
- The relevance of the item by bearing literature in mind. Rephrasing was only considered where literature strongly supported inclusion of the item.

Item 5 deals with the enforcement of professional standards in students. Although a cut-off value of ≥ 0.5 excludes the item, a cut-off value of ≥ 0.4 includes the item. The researcher looked at the item loading and saw that it has a high loading on factor 3 (0.42) in comparison to factor 1 (0.24) and factor 2 (0.21). The researcher decided to *include* item 5 into the questionnaire.

The following items are *excluded* from the questionnaire because the item loaded on two factors and has a difference of < 0.1 between the two factor loading values.

- **Item 8**
- **Item 25**
- **Item 28**
- **Item 29**
- **Item 47**
- **Item 54**
- **Item 55**

The orientation of students during their first day in their practice setting (**item 18**) was excluded based on a cut-off value of ≥ 0.5. A cut-off value of ≥ 0.4 however, includes this item. The researcher noted that the item loading was high on factor 3 (0.43) in comparison to factor 1 (0.34) and factor 2 (0.16). The researcher further looked at the literature support. Orientation gives a student structure by showing them the physical layout and an overview of how things are run. Orientation lessens their anxiety by giving them a sense of direction (Omer *et al.*, 2013:159; Nurses Association of New Brunswick, 2011:5; Ullrich and Haffer, 2009:31; Burns *et al.*, 2006:178). The researcher's own experience validates the relevance of this item, as she had seen first-hand the importance of orientating students on the first day of their clinical setting. Based on the support of literature and the researcher's own experience, the items *remained* in the questionnaire.

The following items are included although they loaded on two factors. The researcher looked at the factor loadings and if the difference between the two factor values were ≥ 0.1 the researcher *included* the item in the questionnaire.

- **Item 22**
- **Item 24**
- **Item 27**
- **Item 49**

A cut-off value of ≥ 0.4 includes **item 20** which deals with the preceptor's description of what is expected of the student in the clinical practice. A cut-off value of ≥ 0.5 excludes this item from the questionnaire. The item has a high loading of 0.48 on factor 3 in comparison to factor 1 (0.37) and factor 2 (0.32) so the researcher decided to *include* item 20 in the questionnaire.

Item 23 that deals with the preceptor's awareness of the student's level of learning outcomes. A cut off value of ≥ 0.5 exclude this item while a cut off value of ≥ 0.4 include the item. The researcher concluded that item 23 (0.45) should be *included*

from the questionnaires and will review this item after the confirmatory factor analysis.

On scrutiny of **item 26** the researcher realised that it was a double-barrel statement. The preceptor provides opportunities to practice both practical *and* problem-solving skills. Furthermore, the item loaded onto factor 1 (0.52) and factor 3 (0.46) and was therefore *excluded*.

The preceptor's initiation in discussion that enhances the student's learning (**item 41**) was excluded on a cut-off value of ≥ 0.5 but included on a value of ≥ 0.4. The researcher noticed that the items loaded closely on factor 1 (0.41), factor 2 (0.35) and factor 3 (0.37). For consistence the researcher decided to *include* item 41 and to review the item after the confirmatory factor analysis had been done.

The cut-off value of ≥ 0.5 excludes **item 42** which deals with the preceptor using questions to probe the student's learning. A cut-off value of ≥ 0.4 includes this item. It was noted by the researcher that there was a high item loading on question factor 1 (0.46) in comparison to factor 2 (0.28) and factor 3 (0.36). Therefore the researcher decided to *include* the item in the questionnaire

Item 43 did not load on any of the items with a cut-off value of ≥ 0.4. This item, concerned with the preceptor's way of asking questions in a non-threatening manner, was therefore *excluded* from the questionnaire.

A cut-off value of 0.4 includes **item 45** (0.41) and deals with the preceptor using visual aids to enhance the student's learning. A cut-off value of ≥ 0.5, however, excludes this item. This item addresses the student's learning style. Andreou, Papastavrou and Merkouris (2014:362) state that there is a link between learning styles and critical thinking in nursing students. Learning styles also need to be considered in Donovan and Darcy's (2011:121) transfer of learning model as an important element in student characteristics. The researcher concluded that learning styles should be considered in the facilitation of students and therefore should be included in the questionnaire. Item 45, however, only addresses students with visual

learning styles. The researcher kept the item but rephrased it as follows to include all learning styles: ‘the preceptor took my preferred learning style into consideration during facilitation’.

Item 45 also loaded on factor 3, which consists of system and tangible support. The researcher deemed this a conflicting finding because the item actually belongs with facilitation techniques under cognitive support. Miles, Huberman and Saldana (2014:299) state that inconsistencies and conflicting findings force us to examine or explain why this happens. At this stage the researcher did not have an explanation why this discrepancy occurred. By examining the item the researcher realised that all learning styles were not included in the questionnaire. Changing the wording of the item to include all learning styles allows the researcher to keep item 45 under facilitation techniques, and review this item again after the confirmatory factor analysis.

The following items were *excluded* because they loaded on all three factors.

- **Item 50**
- **Item 51**
- **Item 52**

Item 58 loaded high on factor 1 (0.47) in comparison to factor 1 (0.34) and factor 3 (0.31). A cut-off value of ≥ 0.4 included the item but a cut-off value of ≥ 0.5 excluded the item. The researcher decided to *keep* the item and review this item after the confirmatory factor analysis.

In conclusion, from the subset of twenty-four items that had been isolated for examination, a total of twelve items were eventually excluded, while twelve items were included in the questionnaire. Thus, from the original sixty-nine items only fifty-seven items will be included in the new questionnaire. The researcher will validate these items again with a confirmatory factor analysis. In the following section the researcher will discuss the relation of the items to the three factors that were revealed by the factor analysis.

4.4.3 Included item relation to relevant factors

The following section will discuss the items to the originally proposed constructs in order to rename the construct. Tables 4.10, 4.11 and 4.12 summarise the originally postulated constructs related to the items with the factor loading of each.

Table 4. 10 Summary of all the items that load on factor 1 after item exclusion

Originally postulated Construct	Question	Factor loading	Statement *My preceptor*:
Cognitive support	30	0.67	guided me in assessing the patient.
Cognitive support	31	0.67	guided me to notice pertinent information.
Cognitive support	32	0.69	guided me in interpreting the patient information.
Cognitive support	33	0.70	guided me to relate my knowledge with patient data.
Cognitive support	34	0.76	guided me to formulate differential diagnoses.
Cognitive support	35	0.75	guided me in making a final diagnosis.
Cognitive support	36	0.71	guided alternative treatment options.
Cognitive support	37	0.67	discussed treatment options with the patient.
Cognitive support	38	0.70	guided me to choose the most appropriate treatment plan in collaboration with the patient.
Cognitive support	39	0.68	promoted evidence based practices.

Originally postulated Construct	Question	Factor loading	Statement *My preceptor*:
Cognitive support	40	0.64	supported me to relate my theoretical knowledge to clinical practice.
Technique used	41	0.41	initiated discussions to enhance my learning.
Techniques used	42	0.46	guided me in going clinical skills.
Techniques used	44	0.54	explored my reasons for decisions.
Techniques used	45	0.34	considered my learning style during facilitation
Techniques used	46	0.60	guided me in doing clinical skills.
Techniques used	48	0.58	gave me constructive feedback in preparation for my assessment**.**
Techniques used	49	0.55	guided my reflection on the clinical experience.
Techniques used	53	0.57	demonstrated various approaches to patient's problems.

Table 4.11 Summary of all the items that load on factor 2 after item exclusion

Originally postulated Construct	Question	Factor loading	Statement *My preceptor*:
Self-directedness	56	0.54	stimulated me to see my strengths and limitations.
Self-directedness	57	0.56	assisted me in identifying personal learning needs.
Self-directedness	58	0.47	assisted me in meeting my learning needs by referring me to literature sources.
Self-directedness	59	0.54	decreased the amount of guidance in order to promote my independence.
Emotional support	60	0.62	encourages me to achieve my set outcomes.
Emotional support	61	0.76	was sensitive to my needs.
Emotional support	62	0.72	was approachable during my clinical placement rotation.
Emotional support	63	0.79	made me feel comfortable in asking questions.
Emotional support	64	0.79	encourages me to participate in patient care.

Originally postulated Construct	Question	Factor loading	Statement *My preceptor*:
Emotional support	65	0.81	showed interest in me as a person.
Emotional support	66	0.81	showed interest in my learning.
Emotional support	67	0.66	supported me when I experienced difficulties in performing a task.
Emotional support	68	0.65	gave me individual attention during my clinical rotation.
Emotional support	69	0.66	reduced my anxiety by preparing me for patient encounters.
Emotional support	70	0.77	made me feel comfortable in discussions on patient care.
Emotional support	71	0.57	knows me by name.
Emotional support	72	0.58	helped me to establish rapport with other clinicians.
Emotional support	73	0.73	builds my confidence.

Table 4.12 Summary of all the items that load on factor 3 after item extraction

Originally postulated construct	Question	Factor loading	Statement *My preceptor*:
System support	5	0.45	enforces professional standards in practice.
System support	6	0.53	selects meaningful education and practice opportunities to meet my learning needs.
System support	7	0.63	negotiated my workload with the clinicians in practice.
System support	9	0.52	arranged with me when he/she was available for facilitation.
System support	10	0.66	made sure that the relevant information/guidelines were at my disposal in the clinical facility.
System support	11	0.69	linked me with a skilled clinician to ensure continuity of my learning.
System support	12	0.64	collaborated with the inter-professional team.
System support	13	0.69	communicated my set objectives with the clinical supervisor
System support	14	0.75	established an active role for me in the clinical team.
System support	15	0.65	shared his/her expertise with the clinical team.

Originally postulated construct	Question	Factor loading	Statement *My preceptor*:
System support	16	0.62	created a positive learning environment.
System support	17	0.59	organised a learning space so that I could join in patient care.
Tangible support	18	0.43	orientated me the first day of my clinical placement in regards to the practice setting.
Tangible support	19	0.56	made every patient encounter a learning experience.
Tangible support	20	0.48	gave me a clear description of what was expected of me in the clinical practice.
Tangible support	21	0.56	negotiated learning outcomes for the placement.
Tangible support	22	0.52	clarified the relevance of the objectives.
Tangible support	23	0.45	was aware of my level of learning.
Tangible support	24	0.52	assisted me in planning activities to meet the set outcomes.
Tangible support	27	0.50	guided me through the routine of the clinical setting.

The researcher's aim was to develop a valid and reliable tool that measures the constructs of support rendered by preceptors in undergraduate nursing students. The factor analysis clearly shows that there are only three factors. To summarise:

- Factor 1 includes items from both constructs of cognitive support and techniques that preceptors use to facilitate cognitive support.

- Factor 2 includes items from both constructs of self-directedness that is needed to create life-long learners and emotional support.

- Factor 3 includes items from constructs in system support and tangible support.

It was noted that there was a clear relation between the constructs and their related items e.g. factor 1 only included items from cognitive support and techniques. Only one item (item 45) loaded on factor 3 which was the only discrepancy that the researcher found in the factor analysis. In other words, there was no overlapping of items (except item 45) from other originally postulated domains. The researcher credited this to the in-depth literature study that was done beforehand.

The three constructs/factors were renamed according to allocation of items and original construct. The research focused on the types of support that preceptors provide to nursing students, as well as the items.

Factor 1 included cognitive support that consisted of eleven items and facilitation techniques that included eight items. Therefore, the researcher categorised this construct as cognitive support because all the items contributed to the cognitive support of the student. This concluded a total of nineteen items under cognitive support in the final questionnaire.

Emotional support (factor 2) consists of fourteen items while self-directedness consists of four items. The researcher therefore categorised the construct as

emotional support. Emotional support consists of eighteen items in the final questionnaire.

Factor 3 includes system support with twelve items and tangible support includes eight items. The researcher decided that the construct should be named system support because of the extensive description that this word offers. System support will consist of twenty items in the final questionnaire and is included in Addendum F. Table 4.13 shows a breakdown of the rename of the constructs and the number of items. It was also noted by the researcher that the number of total items correlates well with each other (19-18-20). The final questionnaire is included in Addendum F and the layout of the constructs with items will be as follows: System support (factor 3), cognitive support (factor 1) and emotional support (factor 2).

Table 4.13 Renamed constructs

Factors	New construct	Previous postulated items/constructs	Total items
Factor 1	Cognitive support	11 Cognitive support (clinical judgment) 8 Facilitation techniques	19
Factor 2	Emotional support	14 Emotional support 4 Self-directedness	18
Factor 3	System support	12 System support 8 Tangible support	20

In conclusion, the data analysis indicated that the newly developed instrument is indeed reliable and valid and that the instrument can be used to determine the support that preceptors provide to their students during clinical accompaniment. The final questionnaire can be used to ensure that NEI can assess the support that preceptors provide in order to promote the transfer of learning as indicated in the theoretical framework in Figure 1.1.

The following chapter will provide an overview of the study with recommendations for future research as well as indicate the limitations in the study.

Chapter 5 Recommendations

5.1 Introduction

In chapter 1 it was established that there is a need for nursing stakeholders in South Africa to develop a platform to advance clinical teaching in nursing in order to deliver competent practitioners. Preceptors were identified as the ideal entity to support students in the clinical setting as a measure to reach the goal of developing competent practitioners. Preceptors have several important roles and responsibilities that focus on creating a support system that will enable students to transfer their classroom learning to clinical practice. The main goal of preceptors is to facilitate the thinking processes of students in order to promote theory-practice integration and thereby enhance students' performance.

For precepting to be effective, preceptors should preferably be employed by Higher Education Institutions (HEI) so that they can work individually with nursing students without having an extra patient workload. Through a comprehensive literature review the researcher established that a preceptor should have certain personal and professional attributes. These attributes contribute to the preceptor's ability to form meaningful relationships with the student that in turn leads to professional socialisation of the students and enhances their motivation to learn.

In order to develop competent nurse practitioners, preceptors need to promote thinking processes (cognitive support) in their students. Cognitive support in the clinical setting can be enhanced by a variety of facilitation techniques. An optimal learning climate is created where the student experiences both system and emotional support. The preceptor plays a pivotal role in communication between the HEI and the clinical setting and the planning prior to the arrival of the students. A preceptor's awareness of a student's emotional needs and guidance in self-directed learning is key to the success in developing competent nurse practitioners.

Facilitation of learning in the clinical context is a complex skill and preceptors need to be trained and assessed. However, Fluit *et al.* (2010:1337) concluded in their systematic review of instruments measuring clinical teaching that none of the existing 32 instruments which they evaluated were able to measure all the essential elements of clinical teaching. A valid and reliable tool is therefore needed to evaluate the quality of support preceptors offer students in the clinical setting. By means of a measurement instrument, areas for improvement regarding the supportive roles of the preceptors can be identified. Gaps can be identified and ultimately the preceptor training programmes can be improved.

5.2 Overview of the study

The aim of this study was to develop a valid and reliable instrument that measures the four constructs of support that preceptors should offer to undergraduate nursing students. In order to measure the supportive role of the preceptor, the researcher had to achieve the objectives as set out in chapter 1 of the study. The first objective was to compile a draft questionnaire based on a critical analysis of existing instruments. The researcher identified forty-seven questionnaires through the literature review and conducted a critical analysis of the forty-two accessible instruments. The draft questionnaire consisted of six constructs and sixty-nine items.

The Cronbach alpha value of 0.98 indicates a high reliability of the instrument and therefore addressed the second objective.

Objective four was to determine the validity of the instrument. Face and content validity were enhanced by sending the instrument to five experts nationally. These experts included healthcare professionals outside the nursing profession. Construct validity was done by means of an exploratory factor analysis. The eigenvalues/scree plot identified three clear factors, namely cognitive support, emotional support and system support. Twenty-four items were eliminated by applying a cut-off factor loading value of > 0.5. Through comparing factor loadings with a cut-off value of ≥

0.4 and ≥0.5, twenty-four items were identified and evaluated and twelve items eliminated. A final questionnaire consisting of fifty-seven items was compiled.

Every research project has one or other form of limitation. The researcher identified several limitations in this study and will discuss them in the following section.

5.3 Limitations of this study

Although the number of respondents was adequate for the data analysis of the study, a bigger sample size would have improved the power of the study. The exclusion of the first-year undergraduate students contributed to the smaller than expected sample size. The first-year students were excluded in this study because they had not received preceptor accompaniment at the time of the data collection process.

Another limitation regarding the sample was only nursing students were included, because it was a convenience sample; whereas inclusion of the other health professions would have broadened the application of the questionnaire.

Heterogeneity implies that senior (e.g. fourth year) students may evaluate their preceptors on a different level because they have different expectations and experiences. However, in theory preceptorship should be adapted to the level of the student and therefor heterogeneity should not be a problem.

The researcher realised after the data had been collected, that power-coercion was not completely prevented. The fellow lecturer who handed out the questionnaires to the students was the lecturer of that specific year group. It may therefore be argued that students could have felt coerced to participate in the research.

Preceptors are allocated to specific clinical units and precept students who rotate through this units during clinical placements. Students evaluated preceptors over two consecutive months. Therefore each preceptor was evaluated by two groups of students; thereby reducing the error of leniency and/or error of severity.

This instrument may not be of value to other countries. Countries that do not use preceptorship to develop effective thinking patterns but instead prefer to socialise students into the nursing procession, or focus on psychomotor skills, may not find this instrument applicable.

In spite of the above-mentioned limitations the potential benefits of this study clearly outweigh them. The next section will discuss the value of the study.

5.4 Value of this study

The value of this research will be discussed by considering the role that relevant stakeholders play in clinical nursing education.

Students may benefit from this study in two ways. First, an improvement in the quality of the students' accompaniment may be established through preceptors who are aware of the types of support that students need. Furthermore, the students' competence/performance can be developed through the preceptors' support that addresses the relevant facets involved in the transfer of learning in students.

Preceptors may benefit from this study by using its content for an orientation programme. Reflective activities can also be used to promote continue professional development.

Patients may benefit directly from improved student performance, as the quality of care will probably be better than without preceptor support. By promoting the use of the best available evidence to develop care plans, preceptors enhance standards of care offered by students.

Health service providers will benefit as competent practitioners who are able to meet the needs of the patients that they have in their care will be employed.

Preceptors benefit by knowing what is expected of them both by the nursing education institution and the students. Through knowing what is expected of them, preceptors can increase the quality of support that they give to students.

The School of Nursing at the University of the Free State has a standardised instrument to evaluate the competence of their preceptors. The school may additionally use the instrument to enhance and monitor the quality of their preceptors.

Other nursing education institutions may also use this instrument to support their nursing students through preceptorship.

Other health science professions that focus on clinical teaching may also use this instrument to enhance the quality of support that clinical facilitators offer to their students to enhance the transfer of learning.

Existing preceptor programmes may be adapted or refresher courses presented to address gaps that are identified by students who completed the questionnaire.

The exploration of the concepts that had been described in preceptorship is far from definite. There is still a lot of knowledge to gain from preceptors' support, the effect they have on the student self and the student's learning.

5.5 Recommendations for future research

This section proposes further research that emanates from this research. The next step is to perform a confirmatory factor analysis to strengthen the validity of the instrument. Incorporating students from other health sciences may broaden the scope of usability.

Improving the reliability of the instrument is done by performing a stability test through a test-retest. This is done by testing the instrument repeatedly over a longitudinal timeline.

The instrument may be tested for its criterion-related validity, specifically its predictive validity, where the researcher can determine if the instrument is able to distinguish between an effective and a poor preceptor.

Students from other health sciences can be invited to complete the instrument in order to determine if it can be used by other health care professions that also accompany their students in the clinical setting.

Further research is recommended on the following topics:

- Determine if student motivation to transfer learning has improved after the preceptors were made aware of the support that should be provided to students.

- Determine if student performance and the quality of care that they deliver to their patients have improved.

- Determine if there is an improvement on the system support and communication on student management by interviewing practitioners.

This concludes the findings of this study. Preceptorship is an important aspect of nursing education and careful consideration should be given to those persons who are employed as preceptors and the manner in which the registered nurses who guide our future nurses are trained.

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Addendum A1

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Ms H Strauss/jdpls

2014-04-14

REC Reference nr 230408-011
IRB nr 00006240

MS L CRONJÉ
SCHOOL OF NURSING
UFS

Dear Ms Cronjé

ECUFS NR 50/2014
PROJECT TITLE: THE DEVELOPMENT OF A VALID AND RELIABLE TOOL TO MEASURE THE SUPPORTIVE ROLE OF NURSING PRECEPTORS IN SOUTH AFRICA.

1. You are hereby kindly informed that the Ethics Committee approved the above research project at the meeting held on 8 April 2014.

   1.1. Kindly note that once the questionnaire has been developed, it has to be submitted to the Ethics Committee for approval.

2. Committee guidance documents: Declaration of Helsinki, ICH, GCP and MRC Guidelines on Bio Medical Research. Clinical Trial Guidelines 2000 Department of Health RSA; Ethics in Health Research: Principles Structure and Processes Department of Health RSA 2004; Guidelines for Good Practice in the Conduct of Clinical Trials with Human Participants in South Africa, Second Edition (2006); the Constitution of the Ethics Committee of the Faculty of Health Sciences and the Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines.

3. Any amendment, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

4. The Committee must be informed of any serious adverse event and/or termination of the study.

5. All relevant documents e.g. signed permission letters from the authorities, institutions, changes to the protocol, questionnaires etc. have to be submitted to the Ethics Committee before the study may be conducted (if applicable).

6. A progress report should be submitted within one year of approval of long term studies and a final report at completion of both short term and long term studies.

7. Kindly refer to the ETOVS/ECUFS reference number in correspondence to the Ethics Committee secretariat.

Yours faithfully

.....

PROF WH KRUGER
CHAIR: ETHICS COMMITTEE

Cc [redacted]

Addendum A2

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Ms M Marais

2015-03-10

REC Reference nr 230408-011
IRB nr 00006240

MS L CRONJÉ
SCHOOL OF NURSING
UFS

Dear Ms Cronjé

ECUFS NR 50/2014 **SCHOOL OF NURSING**

PROJECT TITLE: THE DEVELOPMENT OF A VALID AND RELIABLE TOOL TO MEASURE THE SUPPORTIVE ROLE OF NURSING PRECEPTORS IN SOUTH AFRICA.

1. You are hereby kindly informed that, at the meeting held on 03 March 2015, the Ethics Committee approved the above project after all conditions have been met.

2. Committee guidance documents: Declaration of Helsinki, ICH, GCP and MRC Guidelines on Bio Medical Research. Clinical Trial Guidelines 2000 Department of Health RSA; Ethics in Health Research: Principles Structure and Processes Department of Health RSA 2004; Guidelines for Good Practice in the Conduct of Clinical Trials with Human Participants in South Africa, Second Edition (2006); the Constitution of the Ethics Committee of the Faculty of Health Sciences and the Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines.

3. The Committee must be informed of any serious adverse event and/or termination of the study.

4. Any amendment, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

5. A progress report should be submitted within one year of approval of long term studies and a final report at completion of both short term and long term studies.

6. Kindly use the ETOVS/ECUFS NR as reference in correspondence to the Ethics Committee Secretariat.

Yours faithfully

DR SM LE GRANGE
CHAIR: ETHICS COMMITTEE

Addendum B1

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.

| | | |

Tangible support The preceptor:	Strongly agree	Agree	Disagree	Strongly disagree		
18. orientated me the first day of my clinical placement in regards to the practice setting.						**22**
19. made every patient encounter a learning experience.						**23**
20. gave me a clear description of what was expected of me in the clinical practice.						**24**
21. negotiated learning outcomes for the placement.						**25**
22. clarified the relevance of the objectives.						**26**
23. was aware of my level of learning outcomes.						**27**
24. assisted me in planning activities to meet the set outcomes.						**28**
25. revised my set objectives periodically.						**29**
26. provided opportunities to practice both practical and problem-solving skills.						**30**
27. guided me through the routine of the clinical setting						**31**
28. gave me the chance to develop proficiency through repeated practice.						**32**
29. introduced me to cases beyond my level of knowledge.						**33**
Cognitive support: <u>clinical judgement</u> The preceptor:	Strongly agree	Agree	Disagree	Strongly disagree		
30. guided me in assessing the patient.						**34**
31. guided me to notice pertinent information.						**35**
32. guided me in interpreting the patient information.						**36**
33. guided me to relate my knowledge with patient data.						**37**
34. guided me to formulate differential diagnoses.						**38**
35. guided me in making a final diagnosis.						**39**
36. guided alternative treatment options.						**40**
37. discussed treatment options with the patient.						**41**
38. guided me to choose the most appropriate treatment plan in collaboration with the patient.						**42**
39. promoted evidence based practices.						**43**
40. supported me to relate my theoretical knowledge to clinical practice.						**44**

Technique used during the facilitation process The preceptor:	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**		
41. initiated discussions to enhance my learning.						**45**
42. asked clear questions to **probe my learning.**						**46**
43. asked questions in a **non-threatening manner.**						**47**
44. explored my reasons for decisions.						**48**
45. used visual aids to enhance my learning.						**49**
46. guided me in doing clinical skills.						**50**
47. gave me regular ongoing feedback **on my performance.**						**51**
48. gave me constructive feedback **in preparation for my assessment.**						**52**
49. guided my reflection on the clinical experience.						**53**
50. motivated his/her actions clearly.						**54**
51. adjusted his/her facilitation to my level of knowledge.						**55**
52. explored my understanding of concepts rather than recall of information.						**56**
53. demonstrated various approaches to patient's problems.						**57**
54. summarized the major points at the end of every contact session.						**58**
Self-directedness The preceptor:	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**		
55. gave me specific responsibilities during the facilitation process.						**59**
56. stimulated me to see my strengths and limitations.						**60**
57. assisted me in identifying personal learning needs.						**61**
58. assisted me in meeting my learning needs by referring me to literature sources.						**62**
59. decreased the amount of guidance in order to promote my independence.						**63**

Emotional support The preceptor:	Strongly agree	Agree	Disagree	Strongly disagree		
60. encourages me to achieve my set outcomes.						**64**
61. was sensitive to my needs.						**65**
62. was approachable during my clinical placement rotation.						**66**
63. made me feel comfortable in asking questions.						**67**
64. encourages me to participate in patient care.						**68**
65. showed interest in me as a person.						**69**
66. showed interest in my learning.						**70**
67. supported me when I experienced difficulties in performing a task.						**71**
68. gave me individual attention during my clinical rotation.						**72**
69. reduced my anxiety by preparing me for patient encounters.						**73**
70. made me feel comfortable in discussions on patient care.						**74**
71. knows me by name.						**75**
72. helped me to establish rapport with other clinicians.						**76**
73. builds my confidence.						**77**

Addendum B2

Preseptor-ondersteuningsvraelys

Deur hierdie vraelys te voltooi, stem u in om aan die navorsing deel te neem. Evalueer asseblief die ondersteuning wat u van u preseptor ontvang het wat u hierdie maand begelei het. U deelname is vrywillig en anoniem.

| | | |

Tasbare ondersteuning Die perseptor:	**Stem beslis saam**	**Stem saam**	**Stem nie saam nie**	**Stem glad nie saam**		
18. het my die eerste dag van my kliniese plasing t.o.v. die praktykomgewing georiënteer.						**22**
19. het elke pasiënt as ’n leerervaring gebruik.						**23**
20. het aan my ’n duidelike beskrywing gegee van wat van my in die kliniese praktyk verwag word.						**24**
21. het die leeruitkomste vir die plasing onderhandel.						**25**
22. het die toepaslikheid van die doelwitte uitgeklaar.						**26**
23. was bewus van my vlak van leeruitkomste.						**27**
24. het my gehelp om aktiwiteite te beplan om die gestelde uitkomste te bereik.						**28**
25. het my gestelde doelwitte periodiek hersien.						**29**
26. het geleenthede verskaf om praktiese en probleemoplossingsvaardighede te oefen.						**30**
27. het my deur die roetine van die kliniese omgewing gelei.						**31**
28. het my die kans gebied om vaardighede deur herhaalde praktyk te ontwikkel.						**32**
29. het my aan gevalle buite my kennisvlak bekendgestel.						**33**
Kognitiewe ondersteuning: <u>kliniese oordeel</u> Die perseptor:	**Stem beslis saam**	**Stem saam**	**Stem nie saam nie**	**Stem glad nie saam**		
30. het my gelei in die assessering van die pasiënt.						**34**
31. het my gelei om pertinente inligting raak te sien.						**35**
32. het my gelei om die pasiënt se inligting te interpreteer.						**36**
33. het my gelei om my kennis met die pasiënt se data in verband te bring.						**37**
34. het my gelei om differensiële diagnoses te formuleer.						**38**
35. het my gelei om ’n finale diagnose te maak.						**39**
36. het my na alternatiewe behandelingsopsies gelei.						**40**
37. het behandelingsopsies met die pasiënt bespreek.						**41**
38. het my gelei om die mees toepaslike behandelingsplan in samewerking met die pasiënt te kies.						**42**
39. het bewys-gebaseerde praktyke bevorder.						**43**
40. het my ondersteun om my teoretiese kennis in verband met kliniese praktyk te bring.						**44**

Tegniek tydens die fasiliteringsproses gebruik Die perseptor:	**Stem beslis saam**	**Stem saam**	**Stem nie saam nie**	**Stem glad nie saam**		
41. het besprekings geïnisieer om my kennis te verbreed.						**45**
42. het duidelike vrae gevra om **my kennis te verken**.						**46**
43. het vrae op 'n **nie-dreigende wyse** gevra.						**47**
44. het my redes vir besluite verken.						**48**
45. het visuele hulpmiddels gebruik om my leer te bevorder.						**49**
46. het my gelei in die uitvoering van kliniese vaardighede.						**50**
47. het deurlopende terugvoer oor **die uitvoering van my take** gegee.						**51**
48. het vir my konstruktiewe terugvoer **ter voorbereiding van my assessering.**						**52**
49. het my refleksie oor die kliniese ervaring gerig.						**53**
50. het sy/haar aksies duidelik gemotiveer.						**54**
51. het sy/haar fasilitering volgens my kennisvlak aangepas.						**55**
52. het my begrip van konsepte, eerder as die herroep van inligting ondersoek.						**56**
53. het verskeie benaderings tot pasiënte se probleme gedemonstreer.						**57**
54. het die vernaamste punte aan die einde van elke kontaksessie opgesom.						**58**
Selfgerigtheid Die perseptor:	**Stem beslis saam**	**Stem saam**	**Stem nie saam nie**	**Stem glad nie saam**		
55. het spesifieke verantwoordelikhede gedurende die fasiliteringsproses aan my gegee.						**59**
56. het my gestimuleer om my sterkpunte en beperkings raak te sien.						**60**
57. het my gehelp om persoonlike leerbehoeftes te identifiseer.						**61**
58. het my gehelp om my leerbehoeftes te bereik deur my na literatuurbronne te verwys.						**62**
59. het die mate van leiding verminder ten einde my onafhanklikheid te bevorder.						**63**

Emosionele ondersteuning Die perseptor:	**Stem beslis saam**	**Stem saam**	**Stem nie saam nie**	**Stem glad nie saam nie**		
60. moedig my aan om my gestelde uitkomste te bereik.						**64**
61. was sensitief vir my behoeftes.						**65**
62. was toeganklik tydens my kliniese plasingsrotasie.						**66**
63. het my gemaklik laat voel om vrae te vra.						**67**
64. moedig my aan om aan pasiëntsorg deel te neem.						**68**
65. het belangstelling in my as persoon getoon.						**69**
66. het belangstelling in my leer getoon.						**70**
67. het my ondersteun wanneer ek probleme in die uitvoering van ’n taak ondervind het.						**71**
68. het individuele aandag aan my tydens my kliniese rotering gegee.						**72**
69. het my angs verminder deur my vir pasiënt interaksie voor te berei.						**73**
70. het my gemaklik laat voel in besprekings oor pasiëntsorg.						**74**
71. ken my by die naam.						**75**
72. het my gehelp om ’n rapport met ander klinici op te bou.						**76**
73. bou my selfvertroue.						**77**

Addendum C

Feedback form for questionnaire

Item number	Include definitely	Include maybe	Exclude in questionnaire	Relevant to construct/move to other construct

Dear Colleague

I would like to invite you to evaluate a questionnaire which I have designed as part of my master's degree study. The questionnaire is on the support that students receive from their preceptors during the clinical rotation. The questionnaire was compiled from existing questionnaires. The aim of the questionnaire is therefore to measure the validity and reliability of the support which students receive which will assist us to improve accompaniment in the clinical practice. The questionnaire includes the following constructs: personal characteristics, professional characteristics, system support, tangible support, cognitive support and emotional support. The questionnaire is evaluated by applying a four point Likert scale (strongly agree, agree, disagree and strongly disagree).

As part of my construct validation I would like to invite you to provide me with feedback regarding the questionnaire. A feedback document is attached to this email. Please indicate next to each question if it should be included. Possibly included, or excluded. Please also indicate in the final column if the item is relevant to the current construct or if you are of the opinion that the item in question should be moved to another construct.

Please feel free to add suggestions for the amendment of the items. After your feedback had been received, the questionnaire will be sent for professional language editing as well as translation into Afrikaans. Would you be kind enough to provide your feedback by 11 February 2015. Thank you kindly for your willingness. It is much appreciated.

Yours sincerely

Lizemari

Item	Feedback			
	Include definitely	**Include maybe**	**Exclude from questionnaire**	**Relevant to construct/move to other construct**
System support The preceptor:				
set standards for my personal and professional conduct while in practice.				
communicated my set objectives with the clinicians in the practice setting.				
actively sought out meaningful education and practice opportunities to meet my learning needs.				
negotiated workload with the clinicians in practice.				
urged me to meet the professional standards.				
prepared the clinicians in advance of my arrival.				
arranged with me when he/she was available for facilitation.				
made sure that the relevant information/guidelines were at my disposal in the clinical facility.				
offered support to other members of the team.				

Item	Feedback			
	Include definitely	**Include maybe**	**Exclude from questionnaire**	**Relevant to construct/move to other construct**
linked me with a skilled clinician to ensure continuity of my learning.				
collaborated with the inter-professional team.				
communicated my set objectives with clinicians in practice.				
established an active role for me in the clinical team.				
has good relationships with the clinicians.				
shared his/her expertise with the clinical team.				
created a positive learning environment.				
organised a learning space so that I could join in patient care.				
Tangible support The preceptor:				
orientated me on the first day of my clinical placement in regards to the practice setting.				
made every patient encounter a learning experience.				
gave me a clear description of what was expected of me in the clinical practice.				

Item	Feedback			
	Include definitely	**Include maybe**	**Exclude from questionnaire**	**Relevant to construct/move to other construct**
negotiated learning outcomes for the placement.				
clarified the relevance of the objectives.				
was aware of my level of learning outcomes.				
assisted me in planning activities to meet the set outcomes.				
revised my set objectives periodically.				
provided opportunities to practice both practical and problem-solving skills.				
guided me through the routine of the clinical setting				
Cognitive support **<u>Clinical judgment</u>** The preceptor:				
guided me in assessing the patient.				
guided me to notice pertinent information.				
guided me in interpreting the patient information.				
guided me to relate my knowledge with patient data.				
guided me to formulate differential diagnoses.				

Item	Feedback			
	Include definitely	**Include maybe**	**Exclude from questionnaire**	**Relevant to construct/move to other construct**
guided me in making a final diagnosis.				
guided alternative management options.				
discussed treatment options with the patient.				
guided me to choose the most appropriate treatment plan in collaboration with the patient.				
promoted evidence based practices.				
supported me to relate my theoretical knowledge to clinical practice.				
Technique used during the facilitation process. The preceptor:				
shared relevant expert knowledge in the field.				
initiated discussions to enhance my learning.				
asked clear questions to **probe my learning.**				
asked questions in a **non-threatening manner.**				
explored my reasons for decisions.				
used visual aids to enhance my learning.				

Item	Feedback			
	Include definitely	**Include maybe**	**Exclude from questionnaire**	**Relevant to construct/move to other construct**
guided me in doing clinical skills.				
gave me regular ongoing feedback **on my performance.**				
gave me constructive feedback **in preparation for my assessment.**				
demonstrated expert patient care.				
guided my reflection on the clinical experience.				
motivated his/her actions clearly.				
adjusted his/her facilitation to my level of knowledge.				
explored my understanding of concepts rather than recall of information.				
demonstrated various approaches to patients' problems.				
summarised the major points at the end of every contact session.				
gave me the chance to develop proficiency through repeated practice.				
introduced me to cases beyond my level of knowledge.				

Item	Feedback			
	Include definitely	**Include maybe**	**Exclude from questionnaire**	**Relevant to construct/move to other construct**
<u>Self-directedness</u> The preceptor:				
gave me specific responsibilities during the facilitation process.				
stimulated me to see my strengths and limitations.				
assisted me in identifying personal learning needs.				
assisted me in meeting my learning needs by referring me to literature sources.				
decreased the amount of guidance in order to promote my independence.				
Emotional support The preceptor:				
encouraged me to achieve my set outcomes.				
was sensitive to my needs.				
was promptly available at my request.				
was approachable during my clinical placement rotation.				
made me feel comfortable in asking questions.				

Item	Feedback			
	Include definitely	**Include maybe**	**Exclude from questionnaire**	**Relevant to construct/move to other construct**
encouraged me to participate in patient care.				
showed interest in me as a person.				
showed interest in my learning.				
supported me when I experienced difficulties in performing a task.				
gave me individual attention during my clinical rotation.				
reduced my anxiety by preparing me for patient encounters.				
made me feel comfortable in discussions on patient care.				
knew me by name.				
helped me to establish rapport with other clinicians.				
built my confidence.				

Addendum D1

Informed Document and Consent Form

UNIVERSITY OF THE FREE STATE

FACULTY OF HEALTH SCIENCES

SCHOOL OF NURSING

Information and Informed consent form to participate in research and the completion of the questionnaire.

RESEARCH TITLE: The development of a valid and reliable tool to measure the supportive role of nursing preceptors in South Africa.

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 study I will be able to evaluate the support that a student is receiving from the preceptor and use this information to improve the quality of support that preceptors are providing to students. The research is conducted for a Master's degree in Nursing Science. 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. The instrument will take about 30 minutes to complete. All Bachelor's degree students in the School of Nursing will be invited to join in this study. There is currently no alternative funding for the study and the researcher is responsible for the financial implications of this study.

There are no risks involved in this study, except for the time that it takes you to complete the questionnaire. Every effort will be made to maintain confidentiality. No personal detail will be required on the questionnaire so that privacy may be respected. The questionnaires will be placed in a sealed container by the student self so that no questionnaire can be linked to specific student. Note that you will not receive any credit marks or financial compensation for participating in this study.

The only expectation that I have is that you will complete the questionnaire truthfully.

By completing the questionnaire you are giving direct input in how we can improve your learning experience in the clinical setting and improve the quality of support that you receive from preceptors.

Participation is voluntary and you may withdraw from this study at any time. You will not be penalised in any way should you not consent to participate.

There are no costs involved in the participation of this study. A time slot will be negotiated when you are already on campus.

The only people that have access to the research data is the research team working on this project. The data collected in this research may be used for publishing purposes.

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: Ethical Committee of the Faculty of Health Sciences at the University of the Free State at (051) 4052812.

Addendum D2

Ingeligte toestemming dokument en

toestemming vorm

UNIVERSITEIT VAN DIE VRYSTAAT

FAKULTEIT GESONDHEIDSWETENSKAPPE

SKOOL VAN VERPLEEGKUNDE

Inligting en ingeligte toestemmingvorm tot deelname aan navorsing en voltooiing van die vraelys.

NAVORSINGSTITEL: *The development of a valid and reliable tool to measure the supportive role of nursing preceptors in South Africa.*

Navorser: Ms. L Hugo Sel nommer: 082 781 2699

Geagte Verpleegkundestudent

Ek, Lizemari Hugo, doen navorsing oor die ondersteuning wat preseptore aan hulle studente verskaf. Nadat die studie afgehandel is sal ek die ondersteuning van studente kan evalueer en die inligting gebruik om die gehalte van ondersteuning wat preseptors aan hulle studente bied, te verbeter. Hierdie navorsing is vir ’n Meestersgraad in Verpleegkunde. Ek wil u graag uitnooi om deel te neem aan hierdie navorsingstudie.

Die studie volg ’n kwantitatiewe benadering waar u gevra sal word om ’n vraelys te voltooi om u preseptor te evalueer. Die vraelys sal ongeveer 15 minute neem om te voltooi. Alle Baccalaureusgraad-studente in die Skool van Verpleegkunde word uitgenooi om aan die studie deel te neem. Tans is daar geen alternatiewe befondsing nie en ek is verantwoordelik vir die finansiële implikasies van die studie.

Daar is geen risiko’s betrokke in die studie nie, behalwe vir die tyd wat dit u gaan neem om die vraelys te voltooi. Vertroulikheid sal tot elke prys behou word.. Geen persoonlike inligting word aangedui op die vraelys nie ten einde u privaatheid te

respekteer. Die voltooide vraelyste word deur die student self geplaas in ʼn geseëlde houer sodat geen vraelys met ʼn spesifieke student verbind kan word nie.

Let asseblief daarop dat u nie enige kredietpunte of finansiële vergoeding vir u deelname aan die studie sal ontvang nie.

Die enigste verwagting wat ek het is dat u die vraelys eerlik en na die beste van u vermoë sal beantwoord.

Deur die vraelys te voltooi, sal u ʼn direkte bydrae lewer tot die verbetering van u leerervaring in die kliniese omgewing en ook die gehalte van die ondersteuning wat u preseptore ontvang.

Deelname is vrywillig en u mag enige tyd onttrek van die studie. Indien u nie u weg oopsien om deel te neem nie, sal u op geen manier gepenaliseer word nie.

Daar is geen koste verbonde aan deelname tot die studie nie. ʼn Tydsgleuf sal onderhandel word wanneer u alreeds op kampus is.

Die enigste mense wat toegang tot die navorsingdata sal hê is die navorsingspan wat aan die projek werk. Die data wat tydens die navorsing ingesamel word, mag in publikasies gebruik word.

Neem asseblief kennis dat wanneer u die vraelys voltooi, u aandui dat u verstaan wat die studie behels en dat u vrywillig toestem om deel te neem aan die studie.

Kontak my gerus vir enige verdere inligting by 082 781 2699.

U is welkom om enige klagtes of probleme aan te meld by die Sekretaresse of die Hoof van die Etiese Komitee van die Fakulteit van Gesondheidswetenskappe te kontak by: (051) 4052812.

Addendum E

To: Lizemari Cronje
Cc: Coetzee, Kayline; Jordaan, Hanlie
Subject: RE: Toestemming vir Pilot study: Lizemari Cronje

Dear Lizemari,
Thank you for choosing our Learning Centre for your pilot study. It will be fine with me to select 10 second year learners for your pilot study to do via a questionnaire and a short interview.
The date/s that will suit the learning centre the best:
16th of March as the learners are then scheduled for accompaniment as follow:
8:00-9:30 (5-learners)
9:30-11:00 (4-learners)
11:00-12:30 (5-learners)
OR
20-24 April as all the learners are then scheduled in the clinical facility for work integrated learning
Kind regards
Doreen Bredenkamp
Head Nurse Educator
MEDICLINIC SOUTHERN AFRICA

Mediclinic Ltd. Learning Center Central Region
Quantum Building 2nd Floor
3rd Avenue, Westdene,
Bloemfontein, 9301
Suite 152, Private Bag x01,
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T +27 51 411 4101/02
M +27 82 821 9016
F +27 866811227
www.mediclinic.co.za<mailto:doreen.bredenkamp@mediclinic.co.za>

Addendum F

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.

| | | |

System support (continues) The preceptor:	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**		
17. orientated me the first day of my clinical placement in regards to the practice setting.						**21**
18. made every patient encounter a learning experience.						**22**
19. gave me a clear description of what was expected of me in the clinical practice.						**23**
20. negotiated learning outcomes for the placement.						**24**
21. clarified the relevance of the objectives.						**25**
22. was aware of my level of learning outcomes.						**26**
23. assisted me in planning activities to meet the set outcomes.						**27**
24. guided me through the routine of the clinical setting						**28**
Cognitive support: <u>clinical judgement</u> The preceptor:	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**		
25. guided me in assessing the patient.						**29**
26. guided me to notice pertinent information.						**30**
27. guided me in interpreting the patient information.						**31**
28. guided me to relate my knowledge with patient data.						**32**
29. guided me to formulate differential diagnoses.						**33**
30. guided me in making a final diagnosis.						**34**
31. guided alternative treatment options.						**35**
32. discussed treatment options with the patient.						**36**
33. guided me to choose the most appropriate treatment plan in collaboration with the patient.						**37**
34. promoted evidence based practices.						**38**
35. supported me to relate my theoretical knowledge to clinical practice.						**39**

Cognitive support: **Technique used during the facilitation process** The preceptor:	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**		
36. initiated discussions to enhance my learning.						**40**
37. asked clear questions to **probe my learning.**						**41**
38. explored my reasons for decisions.						**42**
39. took my preferred learning style into consideration during facilitation.						**43**
40. guided me in doing clinical skills.						**44**
41. gave me constructive feedback **in preparation for my assessment.**						**45**
42. guided my reflection on the clinical experience.						**46**
43. demonstrated various approaches to patient's problems.						**47**
Emotional support: **Self-directedness** The preceptor:	**Strongly agree**	**Agree**	**Disagree**	**Strongly disagree**		
44. stimulated me to see my strengths and limitations.						**48**
45. assisted me in identifying personal learning needs.						**49**
46. assisted me in meeting my learning needs by referring me to literature sources.						**50**
47. decreased the amount of guidance in order to promote my independence.						**51**

Emotional support The preceptor:	Strongly agree	Agree	Disagree	Strongly disagree		
48. encourages me to achieve my set outcomes.						**52**
49. was sensitive to my needs.						**53**
50. was approachable during my clinical placement rotation.						**54**
51. made me feel comfortable in asking questions.						**55**
52. encourages me to participate in patient care.						**56**
53. showed interest in me as a person.						**57**
54. showed interest in my learning.						**58**
55. supported me when I experienced difficulties in performing a task.						**59**
56. gave me individual attention during my clinical rotation.						**60**
57. reduced my anxiety by preparing me for patient encounters.						**61**
58. made me feel comfortable in discussions on patient care.						**62**
59. knows me by name.						**63**
60. helped me to establish rapport with other clinicians.						**64**
61. builds my confidence.						**65**