Nurse facilitators` perception regarding the facilitation of the development of clinical reasoning skills

by

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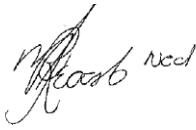
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Supervisor: Professor Lizeth Roets

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DECLARATION

I, Magdalena Elizabeth Jooste, hereby declare that NURSE FACILITATORS PERCEPTION REGARDING THE FACILITATION OF THE DEVELOPMENT OF CLINICAL REASONING SKILLS is my own work and that the sources I have used or quoted have been indicated and acknowledged by means of complete references.

14 January 2022

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    Signature   Date

Title: Nurse facilitators` perception regarding the facilitation of the development of clinical reasoning skills

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ABSTRACT

An important requirement for the professional nurse in South Africa is to formulate an individual care plan based on the presenting data of a patient. This plan aims to treat the current condition of a patient, as well as prevent further complications surrounding the condition. To rationalise the decision made, a professional nurse needs to apply clinical reasoning skills. A student nurse needs to acquire nursing skills during their training. The nurse facilitator is one of the role players to facilitate the clinical reasoning skills (CRS) of nurse students. It was, therefore important, to describe the nurse facilitator's perception regarding the facilitation of the development of CRS of nurse students.

The study aims to describe the nurse facilitator's perceptions, opportunities, experienced during the facilitation of the development of CRS of students as well as their recommendations for better support in their task to facilitate CRS of students. Describing these perceptions, contributed to the formulation of recommendations to support the nurse facilitator in their role, to develop CRS in nurse students.

A qualitative descriptive research design was utilised, using four open-ended questions embedded online through an organised file storage system developed by Google. A total of 53 nurse facilitators employed by a private nurse institute in South Africa were positively targeted. Data collection occurred over three weeks. The results uncovered four themes: Theory and practice integration; Resources; Student responsiveness and Facilitator competencies and eight (8) sub-themes namely: Theoretical knowledge; Scientific nurse process; Human resources; Physical resources; Lack of time for facilitation; Individual experience; Lack of like skills and Continuous Professional Development.

The findings revealed the nurse facilitators' accurate interpretation of the concept of CRS. The challenges experienced by the nurse facilitators that hinder the facilitation of the development of CRS of nurse students concurred with that described by the literature. The facilitators expressed creativity in the utilisation of opportunities when facilitating the development of CRS of students. Finally, they described needed support to assist them to facilitate the development of CRS of students.

KEY CONCEPTS: Clinical reasoning skills of student nurses, nurse facilitators, clinical setting, nurse education institutions, CRS.

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ABBREVIATIONS

Abbreviation	Explanation
CLE	Clinical learning environment
CRS	Clinical reasoning skills
NEI	Nursing education institute
PN	Professional nurse
REM	Regional education manager
RHM	Regional hospital manager
RNM	Regional nurse manager
SANC	South African Nursing Council

CHAPTER 1 OVERVIEW OF THE STUDY

1.1 INTRODUCTION

In South Africa, after completion of their education, a newly qualified professional nurse (PN) register with the South African Nursing Council (SANC) and have to work within a scope of practice, set up and controlled by the SANC, under Act 33/2005. SANC prescribes strict guidelines for both theoretical content, learning and clinical exposure. Nurse students have to be engaged for between 300 to 400 hours to cover the theoretical curriculum while they also have to be exposed to a variety of learning opportunities in an accredited clinical setting as prescribed by SANC (SANC, 2005a: Regulation 48). Nursing education institutions (NEI), therefore, have the responsibility to prepare a student for the role they need to resume after obtaining nursing qualification to ensure that they are competent and can practice within the scope of practice.

One of the outcomes of the nurse education program is the ability to provide 'comprehensive' care to patients in the hospital as well as in the community (SANC, 2005a: Regulation 2598:7.3(a)). The word comprehensive means: "including or dealing with all or nearly all elements or aspects of something" (Cambridge English Dictionary - online). For the South African PN this means collection and interpretation of the available data, formulating and implementing a nursing care plan, followed by reflection on the process to determine the effectiveness of patient care. To prepare the undergraduate nurse student for their role post qualification (Van Graan, Williams & Koen 2016:33-45) the NEI is expected to facilitate the development of their clinical reasoning skills (CRS). Nurse students have to be able to integrate knowledge into practice to achieve conceptual understanding that will assist them to make appropriate clinical decisions (Jarvelainen, Cooper & Jones, 2018:190) ultimately ensuring positive patient outcomes. When CRS is not acquired, it may not be possible to detect impending patient deterioration contributing to increasing numbers of adverse effects in patients directly associated with the inappropriate formulation of a nurse diagnosis and failure to institute appropriate treatment (Van Graan, et al., 2016:33-45).

The nurse educator, in this context, referred to as the nurse facilitator, responsible for teaching theoretical content as well as facilitating theory-practice integration, apply different strategies to develop CRS of nurse students. One of the methods available is high fidelity simulation. Simulation has proven useful for students to practice comprehensive care in a safe environment

under the direction and guidance of a nurse facilitator (Aleshire, Dampier & Woltenberg, 2019:5).

Facilitators rely on students taking responsibility for their learning. Due to the diverse abilities of students, nurse facilitators are often unaware of where a particular student was in terms of the development of his or her CRS. With the ratio of students to facilitator being 20-60:1 and a full curriculum, the nurse facilitator might revert to didactic teacher-centred learning where students passively accept information (Kaddoura, 2011:4). Teacher-centered learning could lead to failure to develop and stimulate CRS development because students need to interact with their environment to gain skills through lived experiences (Kaddoura, 2011:1).

To close the gap between classroom activities and clinical practice nurse, students are placed in the clinical practice for experiential clinical learning. In this environment, they need to be accompanied (mentored) by nurse facilitators (SANC: Regulation 48) and/or other role players. Clinical accompaniment refers to a structured process where students are assisted and supported to gain a deeper level of understanding of the condition of the patient. This could be done through meaningful discussions that would involve the complexity of the condition of the patient (Searl, Human & Mogotlane, 2009:345).

Nurse facilitators play an important role in the clinical learning experience (CLE) because they support nurse students to understand the relationship between theory and practice. They also assist the student to gain a deeper level of understanding of the condition of the patient, thus ensuring co-operation between NEI and clinical learning facilities (Borrageiro, 2014:20). Facilitators should lead the student through the process to develop the needed CRS, thus meeting the expected program outcomes as set out by the Nursing Education & Training standards, under Act 33 of 2005)(4.2.1) (SANC, 2005a).

1.2 PROBLEM STATEMENT

Nurse facilitators play a significant role in facilitating the development of CRS in student nurses during their training. CRS are essential to allow the professional nurse, after qualification (SANC, 2005a: Regulation 2598: 7.3(a)), to function effectively in practice and to enable them to provide quality care. To empower nurse facilitators to assist students in developing this most needed CRS, they need support (Carson, Laird, Reid, Deeny & McGarvey, 2018:20). The

perception of nurse facilitators pertaining to clinical reasoning skills development was therefore important, to determine how they can be supported.

1.3 RESEARCH PURPOSE

The study aimed to describe the perceptions of nurse facilitators regarding the facilitation of the development of CRS in student nurses including the challenges and opportunities experienced to formulate recommendations to support nurse facilitators to facilitate the development of CRS in nurse students.

1.4 RESEARCH OBJECTIVES

To achieve the aim of the study, the following objectives were applied:

   I.   Describe the nurse facilitators' perception of the concept, clinical reasoning skills (CRS).
  II.   Identify and describe the challenges experienced by nurse facilitators to facilitate the development of CRS in students.
 III.   Identify and describe the opportunities experienced by nurse facilitators to facilitate the development of clinical reasoning in students.
 IV.   Formulate recommendations to support nurse facilitators to facilitate the development of CRS in students.

1.5 RESEARCH QUESTIONS

The following research questions were relevant:

   I.   What were the nurse facilitators' perceptions of what is implied by the concept of CRS?
  II.   What were the challenges faced by nurse facilitators in the facilitation of the development of CRS of students?
 III.   What were the opportunities experienced by nurse facilitators when facilitating the development of CRS of students?

1.6 DEFINITIONS OF CONCEPTS

I. Accompaniment is a process which a facilitator uses to lead the student through the process to develop the needed CRS, thus the expected program outcomes (SANC: 2013b, Section 58(1)(g)).

II. Clinical practice is defined as the environment in which student nurses interacts with patients and their families. (Billings & Halstead, 2005:282).

III. CRS are a set of skills a nurse has to acquire over time, to make a judgement regarding the formulation of nurse diagnosis, creation and implementation of nurse care plans to identify and evaluate patient outcomes (Jooste, 2013:54).

IV. Comprehensive nursing refers to the integrated formulated nursing interventions that utilised the scientific nursing process as per Regulation 2598 Section 1 (SANC, 2013a).

V. Continuing competence means continuous improvement of professional's skills and knowledge, to enable effective application of CRS as per Regulation 2598 Section 1 (SANC, 2013a).

VI. Nursing refers to a regulated profession that requires a person to own specialised skills set as well as a well-developed body of knowledge as per Regulation 2598 Section 2 (SANC, 2013a).

VII. Nursing process refers to a dynamic process that requires amongst others, a nurse to make sound judgements as per Regulation 2598 Section 2.4.c. (SANC, 2013a).

VIII. Nurse facilitators refers to faculty (also referred to as nurse educators) responsible to teach and accompany student nurses (Billings & Halstead, 2005:287).

IX. Theory nurse facilitator: In this context to refer to the nurse facilitator responsible to teach theory, but also have the responsibility to accompany student nurses in clinical practice.

X. Clinical nurse facilitator: In this context are employed by clinical practice/hospital, and is responsible for the clinical accompaniment of student nurses.

XI. Nurse Student means a person registered as such in terms of Section 32 of the Nursing Act 33 of 2005, Section 5 (SANC, 2005a) in the context of this study, a learner nurse will be referred to as a student nurse or nursing student.

XII. Nurse Education Institution (NEI) refers to the institution that has been accredited by SANC (Education and Standards, SANC, 2005b), to provide theory content to nursing students.

XIII.   Scope of practice is the limitations prescribed by SANC, governing the scope nurses with specific qualifications is allowed to practice within Section 58 (1)(g) (SANC, 2013b).

XIV.   SANC is the official regulatory council in South-Africa, entrusted with maintaining standards, conduct and professional status in nurse practice and nurse education (SANC, under provisions of the Nursing Act, 2005).

1.7 RESEARCH DESIGN

The research design was utilised as a generic descriptive qualitative design. A qualitative design is described as a design that attempts to understand and describe the phenomenon under study, and not merely to focus on specific concepts (Brink, Van der Walt & Van Rensburg, 2012:11). This study was descriptive, as the researcher described (1) how facilitators themselves perceived the concept of CRS. (2) The challenges they experienced in facilitating CRS. (3) The opportunities they experience during the facilitation of the development of CRS of students.

1.8 STUDY SETTING

According to the Nursing Act 33, as amended, 2005, Section 42, there are 15 private NEI's in South Africa (SANC, 2005a), that obtained accreditation from SANC and permission from the department of higher education, to offer nurse education programs. The researcher purposively targeted one of the accredited private nursing institutions because the concern about CRS of nurse students and the possibilities on how to improve these skills was raised amongst the facilitators and researchers in this institution.

The nurse institution was readily accessible to the researcher. The specific private institution consists of seven learning centres. The three biggest learning centres were purposively chosen to participate, as they employed the majority of nurse facilitators.

1.9 POPULATION AND UNIT OF ANALYSIS

The target population for this study was nurse facilitators employed by the three learning centres of the selected private NEI. Learning centre one (1) had a total of fourteen (14) nurse facilitators. Learning centre two (2) has a total of twelve (12) nurse facilitators and learning centre three (3) has a total of twenty six (26) nurse facilitators (see Table 2.1). All available nurse facilitators

within the selected learning centres were recruited to volunteer to participate in the study, thus a total population sample was done (see Sections 2.6.1).

1.10 DATA COLLECTION TECHNIQUE

After ethical approval to conduct the study was received from the College of Human Sciences research ethics review Committee at the University of South Africa (see Annexures A) and from the National Health Research Ethics Committee at the Life Health Care Group (see Annexures B) data gathering commenced.

An online questionnaire consisting of four open-ended questions (see Annexure D) was developed and loaded on Google drive. A recruitment letter that included the relevant information about the study was shared via email to invite all nurse facilitators to participate (see Annexure C). For ethical purposes, a gatekeeper (see Annexure E) was recruited to email the recruitment letter (see Annexure C) to all the facilitators. The recruitment letter included a link to allow those who volunteered to gain access to the questionnaire (see Annexure D).

After completion of the questionnaire, and submitting the responses, the raw narrative data was retrieved from file storage and synchronisation service developed by Google, called Google drive.

1.11 RIGOUR IN RESEARCH

The strength of a research design, the researcher's self-understanding as well as the relevance of methods used to answer the research question (Brink, Van der Walt & Van Rensburg, 2018:110) was upheld to ensure that the data can be believed. The five principles as supported by Brink, et al., (2018:158) namely, Credibility: Dependability: Transferability: Conformability and Authenticity were adhered to (see Chapter 2, Section 2.8).

1.12 DATA ANALYSIS

All raw narrative data was retrieved from Google Drive, file storage and synchronisation service developed by Google. A thematic analysis was done by hand using the process described by Creswell (2014: 197) (see Chapter 2, Section 2.10). Data were coded by the researcher and then co-coded by an independent but context knowledgeable co-coder (see Chapter 3, Table 3.1 for identified themes, sub-themes and categories).

1.13 ETHICAL CONSIDERATIONS

Ethical principles are principles that need to be adhered too, to protect the human participants from harm (Brink, et al., 2018:27). The ethical principles as described by Polit & Beck (2018:77) upheld in this study were: Right to self-determination: Right to anonymity and confidentiality: Right to protection from discomfort and harm (see Chapter 2, Section 2.9).

1.14 CHAPTER LAYOUT

The dissertation will be presented in four chapters as is illustrated in Table 1.1.

Table 1.1: Chapter layout

Chapter 1	Overview of the study
Chapter 2	The research methodology
Chapter 3	Data analysis, interpretation and literature control
Chapter 4	Conclusions, recommendations, and limitations

1.15 SIGNIFICANCE OF THE STUDY

The outcome of the study could contribute to a better understanding of the challenges nurse facilitators face during the facilitation of the development of CRS of students. Research findings can provide evidence on how to better support the nurse facilitator during the facilitation of the development of CRS of students, improving the development of CRS of nurse students and ultimately enhancing positive patient outcomes.

1.16 CONCLUSION

A brief overview of the research project was discussed. The research objectives, research questions, methodology, population, unit of analysis and data collection processes were addressed. In Chapter 2 the research methodology, rigour in research and ethical principles upheld will be discussed in detail.

CHAPTER 2 METHODOLOGY

2.1 INTRODUCTION

An overview of the research study was described in Chapter 1. This chapter contains a description of the methodology applied. The research design, the setting, sampling method, data gathering technique, ethical principles adhered to, rigour in research as well as the data analysis was described in detail.

2.2 RESEARCH DESIGN

This researcher utilised a qualitative descriptive research design, based on the constructivism (Polit & Beck, 2018:9) approach to social science.

2.2.1 Qualitative descriptive research

Brink, et al., (2012:25) are of the opinion that qualitative descriptive designs emphasise the importance of understanding the participant's social realities and lived experiences. To realise this goal, the researcher should obtain their "viewpoints." A qualitative descriptive design was found appropriate for this study due to the advantages thereof. Qualitative descriptive research aims to describe the lived experiences of the participants (LoBiondo-Wood & Haber, 2014:92), taking into account their feelings and realities about the phenomena under study (Rahman, 2016:102), to provide the researcher with rich narrative data (Polit & Beck, 2018:414, LoBiondo-Wood & Haber, 2014:89). The participants in this study were given the freedom to express themselves regarding the phenomena under study. The nurse facilitators that participated in this study were employed in the role of nurse facilitation and was targeted for their experience in the phenomena under study (Rahman, 2016:104). The targeted participants have vast experience and qualifications in nurse facilitation.

Despite the advantages of qualitative research, there are some disadvantages. Small sampling sizes are often criticised as it raises issues of generalisability to the whole population (Rahman. 2016:105). The researcher applied the principle of saturation (Brink, et al., 2012:128) to overcome this disadvantage. The intention with the research is also not that the findings should be generalised, but rather to provide a comprehensive data trail to ensure that transferability to a similar context is possible. Data analysis in qualitative research can be complex and time consuming for the researcher (Brink, et al., 2018:180). The researcher allocated sufficient time

for data analysis, and to "connect the dots", by following the six (6) steps of data analysis described by Creswell (2014:197) (see Section 2.10).

2.3 RESEARCH PARADIGM

Constructivism refers to a human's ability to shape his/her reality (Polit & Beck, 2018:9) thus describing lived experiences within a specific context. Constructivism aims to understand the phenomena, rather than recount the phenomena (Polit & Beck, 2018:9). The constructivist paradigm applied to this research study, as the researcher attempted to understand the nurse facilitator's perception of the development of CRS of nurse students.

2.4 RESEARCH SETTING

The South African Qualification Association (SAQA) accredited fifteen private registered NEI's to offer nursing education programs that will lead to registration at the SANC (Nursing Act 33, as amended, 2005, Section 42).

The researcher purposively targeted one of the accredited private NEI, due to it being the largest learning institution in South Africa (SANC, 2020:1-6). The selected learning centre was also readily accessible to the researcher, motivating the selection thereof. The selected private NEI has seven learning centres throughout South Africa. Their learning centres are distributed in the following regions: East London, Gqeberha (Port Elizabeth), Cape Town, Durban, Pretoria and two in Johannesburg. The three largest learning centres within this large private NEI were purposively selected to represent the population of nurse facilitators as the largest number of nurse facilitators were employed in these three centres (Monthly report: Life Healthcare full-time equivalent (FTE), 2019).

2.5 DATA GATHERING TECHNIQUE

Due to a nationwide lockdown related to the COVID-19 pandemic in South Africa, research involving any personal contact between a researcher and participants was prohibited (Disaster Management Act 2002: no 312 & 998), an open-ended online questionnaire to gather narrative data from the participants were chosen as the method of data gathering. This proofed to have been an effective way to gather data in challenging circumstances.

2.5.1 The online questionnaire

An online questionnaire is described by Szolnoki & Hoffman (2013:57-66) as a set of questions, designed by the researcher, and made available through the internet. This online questionnaire, with instructions on how to complete the questionnaire (see Annexure D), was the instrument of choice to allow for data gathering. Four open-ended questions were phrased to determine the nurse facilitators understanding of the concept of CRS, the opportunities and challenges that they experienced in facilitation of the development of CRS as well as the support they needed to assist them to develop their students CRS. The four questions were:

Question 1: Please describe your understanding of the concept of CRS development of students.

Question 2: Please describe what you think are the opportunities/possibilities that you can use to contribute to the facilitation of CRS of students.

Question 3: Please describe any challenges that you faced (experienced) in the past that, in your opinion, may have hindered the development of CRS of students.

Question 4: Please describe the support you feel you would need, to assist you to develop the CRS of students.

Online questionnaires have advantages that motivate researchers to utilise it in a study (Szolnoki & Hoffman, 2013:57-66; Nachimuthu, Vijayalakshmi, Sudha & Viswanathan, 2020:579-582; Larenas-Linnemann, Fernández-Vega, Rodríguez Cano-Salas, Luna-Pech, Ortega-Martell, Del Rio-Navarro, López-Estrada, Romero-Lombard, Vázquez-García & Salas-Pérez. 2019:100084).

2.5.1.1 Advantages of online surveys / questionnaires

Nearly all adults in the world today have some form of electronic device which open up the world for research because it is possible to reach a bigger population group, expanding over a large demographic area, thus without the need to have personal contact (Szolnoki & Hoffman, 2013:57-66). This method of data gathering is relevant during a pandemic, such as COVID-19, where the movement of people is restricted and social distancing became a priority (Disaster act, 2020, no 998). The researcher could gather data from the two large demographic areas with

no movement from participants required and with the researcher not needed to have any personal contact with participants.

Literature provides contradictory information regarding the response rates of online surveys as it is indicated good response rates (Nachimuthu, et al., 2020:579-582), (Larenas-Linnemann, et al., 2019:100084), but also very low response rates (Saleh & Bista, 2017:63-74). In this study, the response rate was 40.7%. The average response rate for online surveys is 33%, and there is no agreed-upon minimum acceptable response rate (Lindemann, 2019). Morton, Bandara, Robinson and Carr (2012:106-108), argued that although it looks good to have a high response rate, low response rates did not automatically mean the study results have low validity. Data saturation was reached at participant no. 12, however, due to the nature of the data collection method, the data sets of all 22 participants were considered for analysis.

Another advantages, obtained from research, of online surveys are as follows (Szolnoki & Hoffman, 2013:57-66; Nachimuthu, et al., 2020:579-582; Larenas-Linnemann, et al., 2019:100084):

I. The researcher can cover a large demographic area without any personal contact. In this study nurse facilitator within the selected private NEI working within two large metropolitan areas was reached simultaneously.

II. Online questionnaires are a time-efficient manner to collect data. In this study, the gatekeepers (see Annexure E) shared the recruitment letter (see Annexure C) to all possible participants via email, all at the same time, and the first completed questionnaires (containing the raw data) was received within 24 hours after the recruitment letter was sent.

III. It is a convenient way to gather data. Those who volunteered could access the questionnaire from the comfort of their own home, in their environment and at a time when it was possible and appropriate.

IV. Online questionnaires allow for ease of data entry and analysis. Raw data can be shared in excel spreadsheets. In this study context file storage and synchronisation service developed by Google, called Google drive, was used to collect data. All raw data was retrieved in an excel spreadsheet, while the demographical data were presented in graphs and pie charts, with calculated percentages.

V.   Another advantage is diversity in setting the questions. The researcher made use of multi-choice questions to compile the demographic data. Questions under this section were set for the convenience of the participant, where they could apply a tick next to the options they chose and felt applied to them. The open-ended questions were set as comprehensive type questions with no limit to the number of words they could use.

VI.   Online questionnaires is cost-effective. In this study it was cost-effective for the researcher, although participants when they had to use their data, incurred costs. However, the questionnaire did not take longer than 30 minutes to complete, thus not more than 20 megabytes of data was at stake. Using their data to access the questionnaire, could have had a negative effect on the responsive rate of only 40.7%.

2.5.1.2 Disadvantages

Despite the advantages, online questionnaires also have some disadvantages that needed to be taken into consideration as was explained by Szolnoki & Hoffman (2013:57-66), Nachimuthu, et al., (2020) and Larenas-Linnemann, et al., (2019:100084).

I.   Emails can end up in spam or junk mail. To overcome this potential disadvantage the researcher engaged the gatekeeper to remind the participants to visit their private email sites, the junk as well as the spam sections to gain access to the recruitment letter.

II.   Slow Internet access can make the participants lose interest. Difficulties were experienced with the main internet server, of the private NEI, but fortunately, the participants communicate their challenges with the gatekeeper who then send all the recruitment letters to the private email addresses. This, as was mentioned, could have contributed to the less than expected response rate.

2.6 STUDY POPULATION AND UNIT OF ANALYSIS

2.6.1 Population

Brink, et al., (2012:116) define the population in research to be the entire group of people that share specific criteria, and that would be useful to the researcher in answering the research question while being accessible to the researcher (Polit & Beck, 2018:162). All 53 facilitators working in the three purposively selected learning centres and who were responsible to facilitate the development of CRS of nurse students, formed the accessible population.

2.6.2 Unit of analysis

Sampling involves selecting a few representatives from a specific population that would represent the entire population (Polit & Beck, 2018:162). In qualitative research, a subset of a population, also referred to as the unit of analysis is selected due to their knowledge and experience of the phenomena to be studied. (Gentles, Charles & Ploeg, 2015:1722-1789).

Table 2.1: Population and sample description

Population	S – sample description	A – sample size
Seven Life Healthcare Learning centres in South Africa. Nurse facilitators appointed for training and facilitation of students, both in the NEI as well as in the clinical practice. Nurse facilitators that work for the same company, thus follow the same micro-curriculum, goals and outcomes both from the NEI and hospital management.	The three purposively selected (the three with the most facilitators employed) learning centres within a private health group in South-Africa.	Three learning centres
Learning centre 1: A total of 14 nurse facilitators	Four (4) nurse facilitators, employed by the NEI and working in learning centre 1, responsible for the facilitation of the development of CRS in the clinical practice. A total of ten (10) Nurse facilitators employed by, the Life Healthcare hospital	14

Population	S – sample description	A – sample size
	group and based at the various hospitals in the region.	
Learning centre 2 A total of 13 nurse facilitators	Two (2) permanent nurse facilitators, and one contractual nurse facilitators, employed by the NEI and working in Learning centre 2, responsible for the facilitation of the development of CRS in the clinical practice. A total of ten (10) nurse facilitators employed by the Life Healthcare hospital group and based at the various hospitals in the region.	13
Learning centre 3 A total of 26 nurse facilitators	Six (6) nurse facilitators, employed by the NEI and working in Learning centre 3, are responsible for the facilitation of the development of CRS in the clinical practice. A total of twenty (20) nurse facilitators employed by, the Life Healthcare hospital group and based at the various hospitals in the region.	26

Participants that would provide data regarding the development of CRS of nursing students, were purposively selected, because of similar characteristics (Brink, et al., 2018:126), such as the responsibility to facilitate the development of CRS of nurse . An all-inclusive population sampling was done because all facilitators working in the selected NEI`s as well as in the hospitals (Life Healthcare Group) utilised for clinical practice, were selected to volunteer to

participate (see Table 2.1 for a breakdown of facilitators per learning centre). These 53 facilitators formed the unit of analysis.

A gatekeeper in each learning centre and knowledgeable about research were asked to send the recruitment letter (see Annexure C). This letter was distributed to the work email addresses of all nurse facilitators. These targeted facilitators were appointed by the nurse education institution or a hospital affiliated with the particular NEI into a role where clinical facilitation of students is part of their job description. This was done by a gatekeeper to enhance the confidentiality of information, and to prevent that participants from feeling coerced to participate in this study. The private nurse education institution experienced difficulties with their server during the data collection phase, resulting in the participants not being able to access the survey from their work emails. The gatekeepers then distributed the recruitment letter to all possible participant's private email addresses. The nurses facilitators recruited to participate must have been employed where facilitation of students is one of their responsibilities.

2.7 DATA COLLECTION PHASE

Data collection is a precise description of the process used by researchers to collect the needed evidence to answer their research questions (Brink, et al., 2018:134). Answers to, "What? How? Who? Where? And When?" need to be answered in the data collection phase.

After approval was obtained from the College of Human Sciences research ethics review Committee at the University of South Africa and Life Health Care's ethics committee (see Annexures A and B) the gatekeepers shared the recruitment letter with all 53 eligible participants. The participants could access the questionnaire with a click on the link in the recruitment letter (see Annexure E), to gain access to the questionnaire (see Annexure D). After completion of the questionnaire, participants submit their responses to the software program. Their narrative data was gathered through a file storage and synchronisation service developed by Google, called Google Drive over a three week period.

The narrative data as well as the demographic data was received as separate sets of data that were numbered 1 to 22. The demographic data was displayed in a pie chart format and the narrative data was displayed in an Excel spreadsheet, created by Google drive.

2.8 RIGOUR IN RESEARCH

Rigour in research refers to the strength of a research design, the openness of the researcher, the thoroughness in data collection and analysis (Brink, et al., 2018:110). This is to ultimately ensure that the data can be believed and that the methods used to answer the research question was correct (Jooste, 2013:318). In essence, a more rigorous research process will result in more trustworthy findings, thus the more confidence one will have that the research findings are true and believable (Brink, et al., 2018:158).

The five principles as described by Brink, et al., (2018:158) namely, Credibility; Dependability; Transferability; Conformability; and Authenticity were adhered to, to ensure trustworthiness.

2.8.1 Credibility

The data gathered must be convincing and indicate confidence in the truth to be regarded as credible. Credibility can be enhanced by applying the principles suggested by Brink, et al., (2018:158) namely; prolonged engagement, persistent observation and peer debriefing.

Prolonged engagement refers to the data collection process that should occur over a long period in time, or until data saturation is reached. Participants completed the online questionnaire once-off, thus the principles of prolonged engagements were not applicable in this context. The principle of data saturation, however, was applicable and saturation was reached after the narrative data from participant number 12, was retrieved from file storage and synchronisation service developed by Google. Due to the nature of the data collection methodology the data of all 22 participants was considered during theme description.

Persistent observation is the principle that refers to the fact that the researcher should consider all the data, and decide what matters and what does not matter. All the narrative information was taken into consideration for analysis, due to the nature of the on-line file storage system. Attentive analysis was done to identify important trends to identify themes and sub-themes. A co-coder, knowledgeable about the phenomenon, assisted with analysis.

Peer debriefing is another important principle used to enhance credibility and refers to a process where a researcher seeks input from fellow researchers. A co-coder, as well as the research supervisor, provide inputs until agreement on the themes and sub-themes were reached.

2.8.2 Dependability

The research findings must be consistent and repeatable (Brink et al., 2018:157). A thorough and complete data trail is described to ensure that the study could be repeated by another researcher, although the findings may differ due to a possible change in the unit of analysis over time.

2.8.3 Transferability

Transferability can be defined as the ability to apply the findings of one study to another context or select different participants (Brink, et al., 2018:157). The researcher provides a detailed report on the study context and setting as well as the methodology followed, to ensure that other researchers can decide on the possibility to transfer the data to a similar context (Botma, Greeff, Mulaudze & Wright, 2010:292).

2.8.4 Conformability

Conformably means that the results, deductions as well as commendations made, are derived from the data collected (Brink, et al., 2018:111). A detailed thematic analysis was done as described by Creswell (2014:197) to represent the voice of the participants regarding the facilitation of the development of CRS of students. An in-depth integrated literature search was done, to compare what literature states with how the nurse facilitator felt and was described in Chapter 3.

2.8.5 Authenticity

Authenticity means that all realities, including the range of emotions and experiences (Polit & Beck, 2018:296) must be considered during data analysis. Open-ended questions were used to give the participants the freedom to share their experiences in narrative format. A detailed report was written on thematic analysis (see Chapter 3).

2.9 ETHICAL CONSIDERATIONS

Researchers have an obligation towards society and the human research participant to protect them from harm and must therefore adhere to set morals and rules, to ensure that professional, legal and social obligations are met (Polit & Beck, 2018:403). LoBiondo-Wood & Haber,

(2014:236) suggested the following principles be upheld during a research project: Right to Self-determination: Right to Anonymity and Confidentiality: Right to Protection from Harm.

2.9.1 Right to self-determination

The right to self-determination implies that people should be treated as autonomous, and they must be allowed to make an informed decision (LoBiondo-Wood & Haber, 2014:236). All possible information, including the application of the ethical principles, was described in the recruitment letter (see Annexure C). Participants had the opportunity to provide informed consent by gaining access to the questionnaire (clicking on the link to open the questionnaire). By completing the questionnaire and submitting their answers was accepted as written consent.

2.9.2 Right to anonymity and confidentiality

To be anonymous means that the participant's identity cannot be linked to an individual reponse (LoBiondo-Wood & Haber, 2014:236). Confidentiality on the other hand means that the researcher will keep all information safe and private, and no unauthorised person will be able to have access to the information (LoBiondo-Wood & Haber, 2014:236). Gatekeepers were responsible for sharing the recruitment letter (see Annexure C) to all possible participants, thus the researcher only received raw data from a file storage and synchronisation service developed by Google. Data could not be linked to a participant, thereby ensuring anonymity. All data will be saved in a password-protected file on the computer, thus ensuring confidentiality.

2.9.3 Right to protection from discomfort and harm

The right to protection from discomfort and harm is based on the principle of beneficence, where researchers should strive to do "good" and to prevent any harm to participants (LoBiondo-Wood & Haber, 2014:236). Participants could access the questionnaire from any electronic device, in a place of their choosing. The questions asked were not sensitive in nature, thus by no means threatening.

2.10 DATA ANALYSIS

Data analysis is a process where a researcher's attempts to give meaning to the raw data they collected. (Brink, et al., 2018:166). During this process, careful consideration should be given regarding the type of data collected and how to best represent the data. Data were analysed

using Creswell's (2014:197) thematic analysis as a guide. From the data, three themes emerged, with their supporting sub-themes and categories. The identified theme, sub-themes and categories are displayed in Table 3.1 (see Chapter 3, Table 3.1)

Each of the four questions was analysed separately using the six steps as described in Creswell (2014:197):

Step 1: The narrative data was transferred to a one-word document. The text in word, thus all the narratives received from all 22 participants, were read to get a feeling of the data and to recognise similar words, phrases and concepts.

Step 2: The data was re-read to gain a deeper understanding of what the participants attempted to state as well as to take note of punctuation used in their responses.

Step 3: The data was then filtered and similar phrases grouped. Repeating concepts and words were thus grouped.

Step 4: The data was further compressed and similar and repeated concepts were colour coded and grouped to provide a better overview of the repeated words and phrases. The data was grouped under categories.

Step 5: Emerging categories were evaluated again to identify themes and sub-themes. Verification of findings was done with the assistance of a co-coder and the research supervisor.

Step 6: The researcher then integrated the findings with the available literature to either support or contradict the findings.

2.11 CONCLUSION

Chapter 2 described the research methodology, thus how a qualitative research design was utilised to describe the nurse facilitator's perception of the CRS of nurse students. Chapter 3 reflect the data analysis, the interpretation of the data as well as an integrated literature control in this study.

CHAPTER 3 DATA ANALYSIS, INTERPRETATION AND LITERATURE CONTROL

3.1 INTRODUCTION

In Chapter 2 the research design, population and sampling, rigour in research, ethical considerations and the process of data analysis as described. In this chapter the data analysis, the interpretation thereof, and the literature control will be presented in an integrative manner to ease reading.

Twenty-two participants' sets of responses (see Chapter 2, Section 2.5.1.) were retrieved from the synchronised service developed by Google, called Google drive, and analysed using the method described in Chapter 2 (see Chapter 2, Section 2.10). The themes, sub-themes and categories identified are displayed in Table 3.1. From the analysis done, the following four (4) themes emerged: (1) Theory and practise integration; (2) Resources; (3) Student responsiveness and (4) Facilitator competencies.

Upon further compression, the following subthemes and categories emerged. Under theme 1 two (2) sub-themes: Theoretical knowledge and the Scientific nursing process emerged with five (5) categories namely: a) Utilise theoretical knowledge; b) Assessment of patient data; c) Interpretation of patient data d) Formulation of a care plan and e) Evaluation of patient outcomes.

Under theme 2 three (3) sub-themes, Human resources; Physical resources required and a lack of time for facilitation emerged. Eight (8) categories underpinned the sub-themes, namely; f) Availability of patients; g) Structured clinical days; h) Unstructured student mentoring; i) Availability of role models and supervisors; j) Paper base scenarios based on real case studies; k) Simulation laboratory; l) Student availability and m) Facilitator's workload;

The individual learning experience and lack of life skills was the identified sub-theme under Theme 3. The four (4) categories underpinning the 3 sub-themes were; n) Students education habits; o) Language; p) Technology and q) Student inquisitiveness.

Under the last theme, only one (1) subtheme emerged namely; Continuous professional development, with one (1) category namely; r) Facilitator's knowledge and skills.

Participants highlighted propositions to support them in their allocated task of developing the CRS of nurse students. The direct quotations in italic text in Table 3.1, serves to illustrate the responses of participants that were grouped to form the categories. The biographical data is presented (see Section 3.2.1) to provide context to the research findings.

Table 3.1: Themes, Sub-Themes and Categories pertaining to the nurse facilitator perception regarding the facilitation of the development of CRS of nurse students.

Themes	Sub-themes	Categories/ direct participant statements
Theory and practice integration (3.2.1)	**Theoretical knowledge (3.2.1.1)**	**a)** **Utilise theoretical knowledge** • *"Clinical reasoning refers to using all knowledge to interpret the needs of a patient by comparing normal to abnormal findings,"* • *"The basis of clinical reasoning is therefore excellent foundational knowledge…."* • *"Clinical reasoning skills is the ability to apply knowledge to understand a situation…"* • *"Applying theory knowledge* (theoretical knowledge gained*) into practice* (into the clinical setting) *..."* • *"Clinical reasoning skills is the ability to apply knowledge to understand a situation …"* • *"The ability to correlate theory* (theoretical knowledge) *and practical in the clinical area …"*

Themes	Sub-themes	Categories/ direct participant statements
	Scientific nursing process (3.2.1.2)	**b) Assessment of patient data** • *"ability of the students to collect all the relevant information then to use all the data collected to integrate with the disease condition …"* • *"interpret the needs of a patient by comparing normal to abnormal findings, including a holistic assessment … and then determining the best, prioritised plan of action according to standardised and individualised interventions …"* • *"Process in which nurses collect cues and process information and conclude about the patient …"*
		c) Interpretation of patient data • *"use all the data collected to integrate with the disease condition."* • *"It is wear* (where) *the student must reason the* (collected information) *information in the clinical setting."* • *"identify the needs of a patient/situation through a process of deduction and analysis* (analysis)."

Themes	Sub-themes	Categories/ direct participant statements
		d) <u>Formulation of a Care Plan</u> • *"determining the best, prioritised plan of action* (treatment*) according to standardised and individualised interventions …"* • *"integrate knowledge from different aspects to develop comprehensive care plans …"* • *"Then they can formulate a nursing diagnoses, interventions and nursing care plan and interventions to assist the patient to get better in the shortest time ... "*
		e) <u>Evaluation of patient outcomes</u> • *"The consequences of the actions performed will be reflected on to determine whether they were most effective to achieve the desired outcomes for the patient, family and/or environment. Reflection/ judgement."* • *" … to evaluating* (evaluate) *the outcome of the interventions that were actioned to determine/analyse the efficacy and results of the interventions…."*

Themes	Sub-themes	Categories/ direct participant statements
		• *" … evaluating the consequences in relation to the beneficence of the patient and re-planning the treatment."*
Resources **(3.2.2)**	**Human resources** **(3.2.2.1)**	f) <u>**Availability of patients**</u> • *"In the hospital to bring the theory into the clinical area, through the actual cases of patients ..."* (Patients must be available.) • *"Bedside case studies to apply critical thinking and problem-solving skills on the spot, to develop rapid decision-making skills …"* • *"Opportunities/ possibilities presents itself with any patient, procedure, additional equipment used with the treatment of the patient in the department at a particular time …"* • *"In hospital, using actual patients to discuss their disease* (illness) *and to link it with what the student have* (has) *been taught in theory."*

Themes	Sub-themes	Categories/ direct participant statements
		g) <u>**Structured clinical days**</u> • *"Facilitation can be done in clinical setting during their clinical contact sessions with the NED/CTS* (nurse educator/ clinical training specialist)**."** • *"I take an opportunity especially within an OPP* (oral patient presentations) *practice session to encourage a lot of why 'questions'.* (Participant commenting on how she facilitates CRS development of students.) • *"Time in clinical practice, clinical facilitators having to share time between permanent staff and students."*
		h) <u>Unstructured student mentoring</u> • *"More on-the-spot teaching and learning opportunities in the clinical area"* (This participant stated the importance of guidance next to patient's bed whilst student is busy working with the patient). • *"Initially it could just be questioning with regards to what they think is happening at that particular time and that could inform us if they have developed the necessary skills, knowledge and understanding with regards to the treatment plan."* (This

Themes	Sub-themes	Categories/ direct participant statements
		participant explained how she guides students through the process of developing higher cognitive skills.)
		i) **Availability of role models and supervisors** • *"… these RN's become the type of role models who want the tasks done without creating enthusiasm for the in-depth understanding …"* • *"Many cases of bullying are still being reported and when students feel that they are unsafe they are seldom able to apply their full faculty to gain deeper understanding …"* (Students are humiliated and reprimanded by doctors, and senior nursing staff members, in front of patients and other staff members when they either do not know the answer or do something incorrect.) • *"Not all theatre staff including doctors willing to teach."* • *"Clinical experts and experienced staff to assit* (assist) *the student with on the spot training in the absence of the educator."* • *"Students should be supervised to understand why choices are made and they should contribute to the discussions regarding planned patient care."*

Themes	Sub-themes	Categories/ direct participant statements
		• *"The team nursing model is ideal to facilitate CRS if the leader of the team has the competences required to continually teach, discuss and demonstrate."*
	Physical resources **(3.2.2.2)**	j) <u>Paper base scenarios based on real case studies</u> • *"Moving from content to concept teaching, providing scenarios with the view to exercise critical thinking skills …"* • *" … scenarios, reflection, probing questions, problem-based learning …"* • *"… alternatively can a scenario be given to them pre-prepared by NED/CTS* (nurse educators/ clinical training specialist) *and they can analise* (analyse) *and discuss."* The participants listed resources they think is available to them to assist them to develop CRS of students. • *"Case studies that will allow us to integrate and discuss and make them practice their own reasoning skills by leading and guiding them to develop …"* • *"… documentation, patient records …" "They bring lab* (laboratory) *results, vital data, diagnostics, progress from pt* (patient) *report to the session."*

Themes	Sub-themes	Categories/ direct participant statements
		• *"Exposing students to problems intentionally, allowing them to handle it their way before intervening."*
		k) Simulation laboratory • *"Provide excellent foundational knowledge, then expose the student to case studies in simulation, theory and in the clinical environment"* • *"Good opportunities. Ending every theory week with one application into practise* (practice) *by using simlab* (simulation laboratory)**."** • *"Patients, clinical ward rounds, case studies, simulation manikins, documentation, patient records."*
	Lack of time for facilitation **(3.2.2.3)**	**l) Student availability** • *"Time in practice as theatre environment unpredictable, students part of workforce …"* • *"The wards can be very busy and the students are just doing what they have been allocated to and don't always have the time to stop and think why …"*

Themes	Sub-themes	Categories/ direct participant statements
		• *"Next to the bed, patient discussion can be very challenging at times, as post basic students are part of the work force. "*
		m) <u>**Facilitator's workload**</u> • *"Time in clinical practice, clinical facilitators having to share time between permanent staff and students …"* (participant referred to not have enough time to spend with the students) • *"More accompaniment allowing for discussions."* (Participant wanted more time with students.) • *"If I can get more clinical days where the students can be over and above and assist and learn at the bedside helping them to reflect in action."* • *"More time to spend with them in practice without them being* (part) *workforce…"* • *"Admin support and less pressure from business to give me more time to spend with students…"*

Themes	Sub-themes	Categories/ direct participant statements
Student responsiveness (3.2.3)	**Individual experience** (3.2.3.1)	n) <u>**Students Education habits**</u> • *"Lack of integrated learning, students have difficulty integrating different concepts as they are used to learning different modules in silo's."* • *"Students learn by rote and do not understand how to apply knowledge, teacher led teaching strategies - students are passive recipients of knowledge."* • *"Students that come from rote learning backgrounds struggle more with this concept."* • *"A student's past schooling has a direct impact on the inquisitiveness of the student."*
	Lack of life skills (3.2.3.2)	o) <u>**Language**</u> • *"Students are not confident in conversing in the English langue* (language).*"* • *"Students literacy levels and levels of understanding …"* (participant referred to the students that have poor literacy levels suggesting that it leads to poor understanding of complex concepts.)

Themes	Sub-themes	Categories/ direct participant statements
		• *"Students who are not able to read and communicate effectively, cannot gain comprehensive knowledge of the patients or of the theory to support their reasoning skills …"*
		p) <u>**Technology**</u> • *"Poor infrastructure* (in the hospital) *regarding information and communication technology, leading to time wasted and decreased effective teaching …"* • *"Fully functional and equipped simulation labs."*
		q) <u>**Student role in the learning process**</u> • *"To ask questions and be inquisitive, in order to find information to make an informed decision."* • *"Clinical reasoning requires and enquiring mind and should provide answers to why, when, who, where, what and how."* • *"Allows students to think through what they are doing and why they are doing it."*

Themes	Sub-themes	Categories/ direct participant statements
		• *:Questioning of why are interventions being done, eagerness for gaining knowledge and understanding…"* (The participant referred to the student's ability to question, and to be eager to learn). • *"Students/staff are not inquistive* (inquisitive). *They just do the job and never ask why am I doing it? why isa* (is a) *tablet sugar coated and not all in capsule format for example."*
Facilitator competency **(3.2.4)**	**Continuous Professional Development** **(3.2.4.1)**	**r) Facilitators' knowledge and skills** • *"I don't always have time to go and search for information to update my own theory knowledge, an article of interest from time to time would be very motivating."* • *"… proper guidance* (training) *on the objectives to be achieved …"* • *"Opportunity to update my own skill re CRS development, access to scientific website/internet. Discussion with training colleagues to reflect on successes and failures."* • *"How to assess/ describe pictures then scenarios then the pt* (patient) *scenario to develop communication skills. How To teach*

Themes	Sub-themes	Categories/ direct participant statements
		the student how to be observent (observant*).”* (This participant referred to what she needs to become competent.)
		• *“Clinical facilitators not fully competent in clinical skills.”* (Participant referred to clinical facilitators that teach outdated content, because they are not updating their own skills and knowledge.)
		• *“Practical worksessions* (work sessions) *on how one should plan / design a critical reasoning session …”*

3.2 FINDINGS

3.2.1 Demographic information

Twenty-two out of the 53 invited participants responded and agreed to take part in the study. A satisfactory response rate of 40.7% as the size of the sample was not important, because the principle of data saturation was used to determine sample size. All 22 participants were females. The demographic distribution of gender in the institution under study correlates with this finding, as only females were employed in the role of nurse facilitators at the time of data gathering (Monthly Life Healthcare FTE (full-time equivalent) report 2020.

The nurse facilitator's years' experience was described by literature as an important factor in the manner students are questioned and guided. Nurse facilitators that participated in this study's years of experience are displayed in Table 2.2. Nurse facilitators with little experience asked lower cognitive questions, as they may have not developed the needed skills to phrase questions correctly or give meaningful feedback (Phillips, Duke & Weerasuriya, 2017:4344-4352; Woolley, Deal, Green, Harhenbruck, Kurtz, Park, Pollock, Transtrum & Jensen, 2018:101-113). In this study eight (36%) of the participants have had less than four yours experience in a facilitation role (see Table 3.2). Fewer years of experience could affect how students are supported to develop CRS.

Facilitators with a formal nurse education qualification ask significantly higher-level questions (Phillips, et al., 2017:4344-4352) positively influencing facilitating CRS of students. The participants' qualifications are displayed in Table 3.3. Twenty-one (95.5%) nurse facilitators that participated in the study were registered with the SANC as a nurse with a qualification in nurse education (see Table 3.3). This may be indicative that they have developed the skills to stimulate higher-order thinking in nurse students, thus, are competent to support and facilitate the developing CRS of nurse students, despite eight of them having less than four years of experience.

Obtaining higher and better qualifications adds new skill sets and knowledge to improve the quality of teaching and learning. Obtaining a master's degree has been found to improve the way teachers develop their understanding through investigation, deconstruction and rebuilding of their professional practice knowledge and skills (Dixon & Ward, 2015:50-65). Improvement of the qualifications of nurse facilitators could improve their support to students, as teachers take the lead to support research-based inquiries. However, in some institutions, lack of

understanding, lack of emotional support, lack of financial support and a lack of time allocated for personal studies have been described, as major contributors discouraging staff on embarking in further higher educational studies such as Masters (Dixon & Ward, 2015:50-65). This could be the reason that only two (2) of the 22 participants (9.1%) holds a master's degree and one (4.5%) holds a doctorate (see Table 3.3).

Table 3.2. Years of facilitation experience. (N=22).

Years of experience:	n=	f=
0 – 4	8	36.3%
5 – 10	5	22.7%
11 – 15	3	13.6%
16 – 20	5	22.7%
More than 20 years:	1	0.05%

Table 3.3. Qualifications of the nurse facilitators

Qualification	n=	f=
Diploma or degree in General nursing science	22	100.0%
Post basic qualification in nurse education	21	95.0%
Master's Degree	2	9.1%
Doctorate	1	4.5%

3.3 THEMATIC ANALYSIS DISCUSSION

Student nurses should develop CRS, to prepare them for their role, after qualification, as a PN (Section 58(1)(g) (SANC 2013b). This role will involve patient assessments, the formulation of nursing care plans as well as evaluating outcomes after implementing the appropriate nurse actions as per Regulation 2598:7.3.a. (SANC, 2013a). The nurse facilitator is one of the important stakeholders that are responsible to facilitate the development of CRS of nurse students, therefore, their perception of the development of CRS of students is important to define possible interventions to support nurse facilitators to facilitate CRS. The first theme that derived from the thematic analysis was that of theory and practice integration.

3.3.1 Theme 1: Theory and practice integration

The effectiveness of health care is reliant on suitable analysis and integration of clinical data and on the quality of the judgement involving a risk versus benefit analysis of presenting patient data (Leibold, 2015:1689-1699). For PN, to conduct the mentioned assessment and develop an appropriate care plan, they need to develop CRS (Carvalho, Oliveira-Kumakura & Morais, 2017:4344-4352). A participant mentioned the integration of theory into practice as an important skill to enable nurses to conduct assessments and develop care plans. A Participant stated the type of questions students should ask to develop CRS:

> *"….to keep on asking/investigating why, what, when, where, how - which will enable them to identify early* (early) *warning signs and act appropriately."* (P2)

The nurse facilitator plays an important role in assisting with the application of theoretical knowledge learned in theory into the practical situation (Borrageiro, 2014:20), thus closing the gap between theory and practice. This theory-practice gap has been discussed for years, yet the separation between theoretical inputs and practised experience remains a problem (Greenway, Butt & Walthall, 2019:1-6). A participant mentioned the importance of theory and practice integration as part of CRS development:

> *"Critical thinking skills to relate theory to practice and deliver holistic care and to apply problem-solving skills to the clinical environment."* (P5)

To enable a nurse to close the gap, they need to apply theoretical knowledge gained throughout the nursing programs.

3.3.1.1 Sub-theme 1: Theoretical knowledge

Knowledge is acquired information that a person gains throughout a lifetime of education and experiences (Oxford Dictionary). All learners are capable of acquiring knowledge (Dumas, Torre & Durning, 2018:709-714). Nurse students must acquire and improve on their knowledge during their nursing program to allow them to apply their newly gained theoretical knowledge into practice, thus they have to gain an understanding of the complexity of the condition of the patient (Xie, Sun, Tang, Ding, Zhong, Zeng, Duan, Shang, & Cheng, 2020:66-73) to function effectively in the clinical setting after registration as a PN. Nurse students not only have to gain theoretical knowledge about anatomy, physiology and pathophysiology, but they have to retain the knowledge (Xie, et al., 2020:66-73). When planning care for a patient they need to integrate theoretical knowledge and apply that to assess the condition of the patient in practice. In a study done by Mathebula (2016:5-24), the majority of respondents also agreed that they had to retain theoretical knowledge so that the practices could be aligned to what they learned.

a) Category: Utilise theoretical knowledge

Adequate theoretical knowledge will enable students to act appropriately in clinical practice (Cura, Kocatepe, Yildirim, Küçükakgün, Atay & Vesile Ünver, 2020:158-167; Xie, et al., 2020:66-73), thus utilise theoretical knowledge gained to make sound judgements in practice (Havola, Koivisto, Makinen & Haavisto, 2020:46). According to participants CRS of students imply that they can utilise theoretical knowledge in practice:

"Clinical reasoning refers to using all knowledge to interpret the needs of a patient by comparing normal to abnormal findings." (P5)

"The basis of clinical reasoning is therefore excellent foundational knowledge …" (P3)

Gaining a high level of knowledge, and using this knowledge in practice can significantly contribute to better patient outcomes (Van Graan, et al., 2016:10019). CRS, thus the ability to apply relevant knowledge when dealing with a patient presenting illness will improve patient outcomes (Vredeveld, Everlein, Ramaekers, Coppieters, & Pool-Goudzwaard, 2020:102155).

As per participants CRS also imply that students can utilise theoretical knowledge in practice:

"Clinical reasoning skills is the ability to apply knowledge to understand a situation…" (P6)

"To be able to use in-bedded theoretical knowledge and apply it in the clinical field …" (P2)

"… all knowledge to interpret the needs of a patient and to relate theory to practice ...", "It is the ability to work out why." (P3)

If knowledge about health conditions are limited the student may incorrectly interpret patient data thus cannot integrate theory into practice. The lack of knowledge could cause adverse effects with negative patient outcomes (Van Graan, et al., 2016:10019), thus the importance of developing CRS.

Clinical reasoning can therefore be defined as the combination of theoretical knowledge and technical skills, thus applying theory in practice, to utilise the scientific nursing process to provide effective patient care (Harmon & Thompson, 2015:63-70).

3.3.1.2 Sub-Theme: The Scientific-nursing process

The scientific nursing process refers to the student ability to utilise patient data obtained through meticulous patient assessments, the interpretation of the data obtained and the application of findings to develop nursing interventions focused on enhancing positive patient outcomes (Booher, 2016:6; SANC, 2004: Chapter 3, Section 3.5.1; Brooker, Waugh, Van Rooyen & Jordan, 2016:298). The above-mentioned will guide the development of an individualised nursing care plan for every patient. After implementation of formulated nursing care plan the nurse, should be able to re-evaluate progress and re-plan activities, should the original care plan fail effectiveness.

Participants felt that CRS will enhance the nurse student's ability to implement the scientific nursing process, thus they reflected that CRS refer to the following:

"… ability of the students to collect all the relevant information than to use all the data collected to integrate with the disease condition …" (P7)

"The ability of the student to, taking all kinds of evidence in to (into) *consideration while critically thinking about this information and formulation of a nursing diagnosis."* (P18)

To be able to formulate a nursing care plan, a nurse must be able to assess not only the patient but also the presenting data of the patient.

b) Category: Assessment of patient data

Assessment is the first step in the nursing process (Brooker, et al., 2016:299) and entails collecting the data of the patient that involves a clear cognitive search of different sources to identify a patient's problem. Data collection must therefore be done in a systematic manner (Harmon & Thompson, 2015:63-73) and involves a) the utilisation of collected data b) application of theoretical knowledge to analyse and interpret the collected data, and c) formulating an effective holistic nursing care plan. Participants mentioned this assessment process as part of the skills sets that reflect CRS development:

"Process in which nurses collect cues and process information and conclude about the patient"
(P11)

"… interpret the needs of a patient by comparing normal to abnormal findings, including a holistic assessment ……….and then determining the best, prioritised plan of action according to standardised and individualised interventions …" (P3)

"… ability of the students to collect all the relevant information than to use all the data collected to integrate with the disease condition …" (P7)

After collecting all the relevant and applicable patient data, the nurse must interpret the patient data as part of the nursing process.

c) Category: Interpretation of patient data

Once all the relative data is collected, the nurse uses the data during the planning phase of the nursing process, to identify and prioritise problems. These identified problems will form the basis of assigning nursing actions to manage the identified problems during the implementation phase

(Brooker, et al., 2016:304; Harmon & Thompson, 2015:63-73). A participant also described the integration of data during the formulation of a care plan as proof of CRS development:

" … *use* (of) *all the data collected to integrate with the disease, decide with the correct nursing diagnosis and nursing care plan and interventions to assist the patient to get better in the shortest time"* (P7)

For nurses to design care plans, they need to display an understanding of the presenting illness of a patient. Unravelling the available patient data comprehensively requires CRS, to identify and prioritise problems (Brooker, et al., 2016:304; Harmon & Thompson, 2015:63-73). Participant's confirmed by indicating:

"It is wear (where) *the student must reason the information in the clinical setting."* (P10)

"… identify the needs of a patient/situation through a process of deduction and analysis." (P17)

After the integration of collected data, the nurse must specify and develop an individual care plan for the patient.

d) Category: Formulation of a care plan

The formulation of the care plan is the planning stage in the scientific nursing approach (Brooker, et al., 2016:304). Brooker, et al., (2016:304) continue by explaining that the formulation of a nursing care plan must incorporate physical, psychological, social and emotional interventions to provide holistic individualised care. The student must utilise CRS to make sense of collected data (Harmon & Thompson, 2015:63-73), to be able to formulate a nursing care plan. This plan forms the basis of the patient's care (Brooker, et al., 2016:304). Participants recognised the importance of utilising CRS when formulating a nursing care plan:

"*determining the best, prioritized* (prioritized) *plan of action* (treatment) *according to standardized* (standardized) *and individualized* (individualised) *interventions."* (P3)

"… integrate knowledge from different aspects to develop comprehensive care plans …" (P5)

"Then they can formulate a nursing diagnoses, interventions and nursing care plan and interventions to assist the patient to get better in the shortest time ..." (P21)

Retrograde assessment of formulated care plans done by other nurses can aid as a crucial tool for nurse students to assess the effective or ineffective application of theoretical knowledge into practice. By evaluating these formulated nursing care plans students have the opportunity to apply their own CRS and to think critically about the clinical judgements made by colleagues (Peixoto & Peixoto, 2017:125-138). Corrective actions are discussed on the spot, to avoid similar mistakes, if any, in the future. The participants in this study did not highlight the importance of assessment of already formulated care plans, in the development of CRS. A participant did mention she question students during the presentation of patients. This may include the formulation of a nursing care plan.

"Exposing the students to problems intentionally, allowing them to handle it their way before intervening. Stimulations play a significant role as well." (P 14)

Assigning nursing interventions to realise the goals specified in the nursing care plan, must be evaluated.

e) Category: Evaluation of patient outcomes

After implementation of the nursing care plan, nurses should continuously evaluate the effectiveness of the care plan, thus evaluating the outcomes. Evaluation involves discovering whether the adaptation reaction was successful or unsuccessful. The evaluation also involves concluding the set objectives against patient response to set objectives and determining whether or not the patient outcomes has been met or moving towards achieving them (Brooker, et al., 2016:306). The ability to evaluate outcomes requires CRS and a participant described evaluation as an important part of the nursing care process.

"… to evaluating (evaluate) *the outcome of the interventions that were actioned to determine/analyze* (analyse) *the efficacy and results of the interventions.…"* (P3)

If the suggested outcomes are not achieved within the set period in time, or the patient's response is unfavourable, CRS is applied to re-assess, re-plan, and set new goals and new interventions to ensure the best possible outcome for the patient (Van Graan, et al., 2016:33-45). The process of formulation of a nursing care plan starts over with re-planning and re-evaluation of assessment data (Brooker, et al., 2016:298). Participant's stated the importance of using CRS during the evaluation phase of the scientific nursing care plan.

" … evaluating the consequences in relation to the beneficence of the patient and re-planning the treatment" (to realise the goal), *"and deliver holistic care."* (P3)

"The consequences of the actions performed." (P21)

" … will be reflected on to determine whether they were most effective to achieve the desired outcomes for the patient, family and/or environment. Reflection/judgement." (P6)

A study by Mamseri (2012:113) revealed that although students received training on the utilisation of the nursing process, they did not fully implement the process due to a "lack of confidence" and inadequate guidance in utilising the nursing process, possibly due to limited CRS. The lack of confidence to implement the nursing care plan was not mentioned by the participants, most probably because the question that they had to answer was not about whether students have CRS or not, but what they see as CRS in nurse students.

The second theme uncovered was resources.

3.2.2 Theme 2: Resources

Resources are referred to as the money, material, staff, energy, expertise, time and management (Merriam-Webster Dictionary - online) available within an organisation. People within a specific organisation can utilise these resources to enhance their work experiences and allow them to work effectively. Nurse students depend on resources to facilitate the understanding of difficult concepts (Horntvedt, Nordsteien, Fermann & Seversinsson, 2018:1-11).

The study participants identified resources, they felt needed, in the development of CRS of students. The resources were: human resources; physical resources as well as the allocated

time that the nurse facilitators spend with students. Although the need for finances/money as a resource was not explicitly mentioned, participants mentioned the need for simulation laboratories to improve the development of CRS. A simulation laboratory however require money (fiscal resources) to obtain for example manikins and other expensive equipment (Powell, Scrooby & Van Graan, 2020:215-219). To develop CRS of students a participant emphasised that:

"The focus should be what is available or is going to be done today that I can use to assist the students to develop their skills and teach them something new." (P7)

The nurse facilitator needs to be creative in the utilisation of all resources available and plan activities accordingly. Resources is to be used to the maximum benefit for the development of CRS (Horntvedt, et al., 2018:1-11) in the student. A vast amount of resources is relevant and can be used, for example, retrograde scenarios, high fidelity simulation laboratories, case studies role-play (Peixoto & Peixoto, 2017:125-128; Carvalho, et al., 2017:662-668; Harmon & Thompson, 2015: 63-70; Shan & Lim, 2018:12) as well as patients and their records (Elcigil & Sari, 2011:69-70). Unfortunately, due to cost containment, some of these resources are not readily available to nurse facilitators (Horntvedt, et al., 2018:1-11). The COVID-19 pandemic in 2020 also negatively influenced teaching and learning in higher education (SANC circular 2/2020), thus hindering the development of CRS due to the unavailability of for example human resources, such as the nurse facilitator and adequate supervisors. With South Africa placed on lockdown level 5 (Disaster Act. 2020, no 312), all educational activities stopped for two months. The NEI closed their doors, and all nursing staff, nurse facilitators and nurse students, were deployed to work in the COVID-19 units for two months. As lockdown regulations and levels decreased, the educational activities gradually increased. A participant expressed how COVID-19 negatively affected the utilisation of important resources normally utilised to facilitate the development of CRS:

"During COVID pandemic utilization (utilisation) *of simlab* (simulation laboratory*) not aloud* (allowed)." (P4)

The importance of resources is emphasised in the literature as very important in the facilitation of the development of CRS and when not available it is challenging for both facilitators and students (Sibiya, 2012:57-77; Mathebula, 2016:5-24).

The lack of resources, specifically human resources namely the nurse facilitator to facilitate learning could negatively affect the students' development of CRS.

3.2.2.1 Sub-theme: Human resources

Human resources, thus the nurse facilitators, role models as well as patients are crucial to assist the student understanding of the application of theoretical knowledge in the clinical situation, thus in practice. In a study done by LaRosa and Dinsmore (2020:7), students conveyed the importance of being assisted to move from simple isolated memorisation to understanding and recognising the complexity of the condition of the patient. Therefore, students expect to be supported by nurse facilitators with enough time allocated for this purpose was emphasised (Tshabalala, 2011:36). The importance of clinical staff or nurses working in practice as part of the multi-disciplinary team cannot be underestimated. Working in a team can facilitate the development of CRS, and therefore it is a concern that nurse students, in a study done by Xaba (2015:95) voiced a poor relationship with PN's that can hinder the development of CRS.

Not only is the nurse facilitator an important resource, but without available patients, the development of CRS might be negatively influenced.

f) Category: Availability of patients

Student nurses should perform practical procedures in real-life clinical environments as per Section 58(1)(g) (SANC 2013b) for which patients need to be readily available as patients are the main focus in nursing practice. To provide quality care and ensure positive outcomes, the CRS of nurses are crucial (Van Graan, et al., 2016:35-45). To facilitate the development of CRS nurse facilitators and nurse students will need access to both the patient and the patient records (Elcigil & Sari, 2011:69-70). Participants confirmed the significance of assessing patients and patient records to facilitate the development of CRS:

"In the hospital to bring the theory into the clinical area, through the actual cases of patients they can be given the opportunity to decide why certain nursing care is given to the patients depending on needs and the theory behind the patient's condition." (P8)

"Bed side (beside) *case studies to apply critical thinking and problem-solving skills on the spot, to develop rapid decision-making skills …"* (P5)

"Opportunities/ possibilities presents itself with any patient, procedure, additional equipment used with the treatment of the patient in the department at a particular time …" (P7)

Assessing patients, without the guidance and support of nurse facilitators who guide and facilitate the development of CRS, could lead to incorrect interpretation of patients presenting symptoms (Van Graan, et al., 2016:33-45), thus an inability to correctly design the nursing care plan as part of the scientific nursing process. Nurse facilitators should have exclusive access to students during scheduled structured clinical days.

g) Category: Structured clinical days

Developing CRS of students is a structured learning process, driven by skilled nurse facilitators, that aims to develop CRS over a certain period in time (Baloyi & Mtshali, 2018:92-104; Shellenbarger & Robb, 2015:79-82). Whether the learning process is structured or unstructured, the main aim, to assist students in developing CRS, to become competent in their role as PN's after qualification (SANC, Regulation R425, Section1985) should always be the focus (SANC, 2005b). One method to facilitate CRS is to have structured clinical days for accompaniment as was identified from the narrative responses of a participant:

"Facilitation can be done in clinical settings during their clinical contact sessions (structured clinical days) *with the NED/CTS."* (NED – Nurse Educator. CTS – Clinical training specialist)
(P7)

SANC (2011:2) defines "accompaniment" as directed assistance and support to nursing students by a PN with the main focus on the development of the student. The aim is to assist nurse students to become confident, competent PN's who can provide quality nursing care to patients. This indicates that CRS is needed to provide optimal care. The advantage of structured clinical days is that nurse students are not allocated to a specific nursing team during the specific allocated day. Planned time allow the nurse facilitator to plan accompaniment activities aimed at developing CRS and to facilitate specific learning opportunities (Kgafele, Coetzee & Heyns, 2015:5222-5241). SANC, the regulatory body in South Africa prescribed eight hours of clinical accompaniment per student per month (SANC, 2005b .Education & Standards). The

students appreciate the presence of supportive nurse facilitators in the clinical environment as they decrease the students` anxiousness and enhance their learning experience (Mathebula, 2016:5-24; Xaba, 2015:96) that could contribute to the development of clinical reasoning. A participant explained that they see accompaniment as an important part of supporting students to develop CRS:

"I'm working with Bridging students. I take an opportunity especially within an OPP (oral patient presentation) *practice session to encourage a lot of 'why' questions. A ward round situation also lends itself to why questions."* (P11)

Similar to the study findings of a study conducted by Mathebula, (2016:5-24) and Motsilanyane (2015:74) nurse facilitators expressed their lack of time to spend with nurse students as a concern. The facilitator's stated that they have to share training time between students and permanent staff, further restricting available time for student facilitation to develop CRS. Dedicated time to facilitate the development of CRS was mentioned by participants in this study:

"Time in clinical practice (is needed), *clinical facilitators having to* (must) *share time between permanent staff and students."* (P12)

"Protected time during clinical accompaniment so that enough time can be spent (spent) *on feedback sessions."* (P4)

Participants also reflected on the role of unstructured mentoring in the development of CRS of students.

h) Category: Unstructured student mentoring

Unstructured learning requires collaborative inputs from many role-players to be successful and to contribute to the students' ability to rehearse clinical reasoning (Coetzee, Heyns, Bothma & Van Rensburg, 2018:12112). Unstructured learning refers to the learning support and assistance provided to nurse students whilst allocated in the clinical setting to gain experiential learning opportunities, while treated as part of the workforce for the day. This type of mentoring by the nurse facilitator is sometimes referred to as "on the spot" training, as it forces the student

to reflect on their thinking process and to identify gaps in the clinical reasoning process (Baloyi & Mtshali, 2018:98-106). Baloyi and Mtshali (2018:98-106) stated that this type of informal mentoring can also be referred to as bedside teaching, which proofed to be an effective way to enhance students CRS. Participants in this study support the importance of "on the spot" teaching or mentoring in the development of clinical reasoning of student nurses:

"More on-the-spot teaching and learning opportunities in the clinical area." (P8)

"Initially it could just be questioning with regards to what they think is happening at that particular time and that could inform us if they have developed the necessary skills, knowledge and understanding with regards to the treatment plan." (P7)

The nurse facilitator, in the role of facilitating the development of CRS heavily rely on other role players and their availability to support students.

i) Category: Availability of role models and supervision

Students gain clinical experience in the clinical setting under the direct supervision of an entrusted role player to guide and assist them to gain knowledge and skills and to apply it in practice (Ryan, Ellem, Heaton, Mulvogue, Cousins & De George-Walker, 2018:182-187; Jarvelainen, et al., 2018:188-193). Nurse facilitators are not always available to students in the clinical environment and therefore other role models are essential to support them. Adequate supervision is important for students to learn professional socialisation behaviour (Baloyi & Mtshali, 2018:92-104). Students mimic good and bad behaviour noticed in their role models (Brooker, et al., 2016:91). It is therefore important that role models embrace their teaching and mentoring role, and positively support the student to develop CRS. Participants mentioned the lack of role models, and their unwillingness to teach CRS.

"… would not have to teach students and these RN's (registered nurse in this study referred to a professional nurses) *become the type of role models who want the tasks done without creating enthusiasm for the in-depth understanding …"* (P3)

"Besides the absence of role models, mentors, and the willingness of other role-players to assist, the environment that learning must take place in is often unpredictable." (P7)

The unit manager plays an important part to promote the learning, teaching and support of students allocated to their units (Mathebula, 2016:5-24), as the managers foster a sense of belonging amongst all members of the health team. When the multidisciplinary team feel like part of the health team concerning clinical learning, they are useful supervisors for student clinical learning environment (CLE) (Mathebula, 2016:5-24). In this study, participants did not refer to the unit manager as such but rather stated the importance of supervision to augment the development of CRS.

"Students should be supervised to understand why choices are made and they should contribute to the discussions regarding planned patient care." (P3)

"The team nursing model is ideal to facilitate CRS if the leader of the team has the competences (competencies) *required to continually teach, discuss and demonstrate."* (P21)

Supervisors often question students in a directive manner that does not stimulate higher order thinking (Laverty & Thompson, 2020:61-77). This resulted in students` being taught, instead of being facilitated to think and solve problems (Laverty & Thompson, 2020:61-71) Students must become engaging learners and not passive listeners as that is the lowest level of learning, hindering the development of CRS and other important attributes such as building confidence and students' self-esteem. A lack of self-esteem and bullying in the workplace contribute to students unwillingness to participate in learning activities (Munro & Phillips, 2020:653-658; Awuah-Peasah, Sarfo & Asamoah, 2013:22-27), thus negatively impacting the development of CRS. A participant in this study identified bullying of students as hindering the facilitation of the development of CRS:

"Many cases of bullying are still being reported and when students feel that they are unsafe they are seldom able to apply (use) *their full faculty* (referring to the multi-disciplinary team) *to gain deeper understanding."* (P3)

The nurse facilitator should develop collegial working relationships with nurse students, faculty colleagues, and clinical facility personnel to promote positive learning environments for students

and permanent staff (SANC, 2014 (1.1.9); Wosiniski, Belcher, Dürrenberger, Allin, Stormacq, & Gerson, 2018:67-74). A participant mentioned the need for support from the theory facilitator in the development of CRS:

"With the colleagues in hospital and the education department (referring to theory facilitators) *to assist."* (P10)

As a new skill, the skill of clinical reasoning can be overwhelming (Leibold, 2015). Students expressed the need for mentors to start discussions around topics that will develop CRS, and to assist them to connect the dots (Wijbenga, Bovend'Eerdt & Driessen, 2019:126-135). A participant did not feel that she has acquired the needed skills to facilitate the reasoning process needed when facilitating CRS:

"Practical worksessions (work sessions) *on how one should plan /design a critical reasoning session."* (P17)

In conjunction with having adequate human resources, access to physical resources is just as important.

3.2.2.2 Sub-Theme: Physical resources required

Physical resources can be used to ease the entry of the student into the clinical field as well as to prepare them for the clinical environment. According to the Nursing Education & Training standards, under Act 33 of 2005 (SANC, 2005a), the role of the NEI is to prepare the student for the clinical environment and to alleviate their fears. The act prescribes the use of a variety of strategies to assess and evaluate learning in the cognitive and psychomotor domains.

Some of the more known resources are; case-based learning, case studies based on clinical simulations, scenario-based learning, problem-based learning, mind mapping and thinking aloud, (Peixoto & Peixoto, 2017:125-128; Carvalho, et al., 2017:662-668; Harmon & Thompson, 2015:63-70; Shan & Lim, 2018:12). Facilitators of classroom activities should utilise physical resources in a meaningful way to stimulate higher order of thinking in the students (Laverty & Thompson, 2020:61-77). Participants declared how physical resources assist the student to develop CRS:

"… and then we can start assisting them with reasoning and critical thinking to get to understand and or group discussion to assist them." (P7)

"Student prepare a pt. (patient) *as for an oral pt.* (patient) *presentation. They bring lab* (laboratory) *results, vital data."* (P17)

Paper base scenarios based on real patient events are a useful strategy to use to develop CRS.

j) Category: Paper base scenarios based on real case studies

Paper base scenarios and case studies are descriptive details based on real-life situations (Billings & Halstead, 2005:247). Billings and Halstead (2005:247) describe the purpose of using scenarios in teaching is to assist students to develop critical thinking skills, by stimulating problems solving skills and CRS. Scenarios provide in-depth details of a real situation that a student may encounter in the clinical setting (Billings & Halstead, 2005:247; Kaddoura, 2011:15-16) and allow them therefore to have a "real-life" situation to assess and plan nursing care for. A participant explained the usefulness of using scenario's and case studies when facilitating the development of CRS in nurse students.

"to do a case study on adverse events to identify what could have been done differently." (P2)

Nurses apply higher-order CRS when a patient presents with a problem, but do not conclude until they have all the needed information to formulate an individualised nursing care plan (Leibold, 2015:1689-1699). Participants noted how case studies and real-life scenarios assist them with stimulating higher-order thinking in the development of CRS of nurse students:

"Exposing students to problems intentionally, allowing them to handle it their way before intervening." (P14)

"Case studies that will allow us to integrate and discuss and make them practice their own reasoning skills by leading and guiding them to develop critical thinking by asking them why, to allow them to try and interpret and integrate all the relevant information collected." (P7)

Student participation is further enhanced when a nurse facilitator guides the student through a case scenario based on real patient health problems (Baloyi & Mtshali, 2018:98-106). Active student participation is advantageous as demonstrated by Baloyi and Mtshali (2018:98-106) for the development of CRS as the student is allowed to work through presenting data themselves, but with the guidance of a nurse facilitator, to have the opportunity to make sense of the data. A participant discussed the importance of assisting and guiding students through case scenario questions to develop CRS:

"… alternatively can a scenario be given to them pre prepared by NED/CTS (nurse educator/ clinical nurse specialist) and they can analise (analyse) and discuss." (P17)

Paper-based scenarios as well as case studies can reflect and mimic complex problems, allowing students to find solutions to the health problems of patients in a safe environment. The amount of information that is included in the scenario is dependent on the level of higher-order thinking the nurse facilitator wants to stimulate (Baloyi & Mtshali, 2018:98-106) in a particular year group. Participants itemised case studies and paper base scenarios as an important method to enhance CRS:

"Moving from content to concept teaching, providing scenarios with the view to exercise critical thinking skills …" (P9)

"Opportunites (opportunities to enhance CRS development) will also be the use of the text book signs and symtoms (symptoms) vs the real pt (patient)." (P17)

The role of the nurse facilitator is to raise relevant and higher-level questioning about the clinical scenarios among the students, to assist them to make sense of collected patient data, give meaningful feedback and correct misconceptions, encourage group participation and assist individual students develop their learning skills (Wosiniski, et al., 2018:67-74). A participant indicated that they use the patient data to assist with the development of CRS.

" … documentation, patient records …" "They bring lab (laboratory) results, vital data, diagnostics, progress from pt (patient) report to the session." (P17)

A paper-based scenario, thus a scenario executed on paper or in a simulation laboratory, is proofed to be a useful physical resource to stimulate the development of CRS of nurse students.

k) Category: Simulation laboratory

Simulations help solve complex problems and develop problem-solving skills by applying analytical skills and supporting the student in analysing the situation as it unfolds in real-time (Soto, Calvo, Contreras & Lizama, 2020:1-49; Conzol & Newby, 2013:265-267). When nurse facilitators create virtual case scenarios in simulation, they support nurse students in visualising the actual complications unfolding before them in a safe environment (Aleshire, et al., 2019:37-43). Within this safe environment students can be guided to manage fears they may have about the clinical setting (Blum, Borglund & Parcells, 2010:2-12). When developing a simulation scenario or case study, the nurse facilitator should allow sufficient time for debriefing or meaningful feedback (Ryan, et al., 2018:182-187) to improve understanding and correct interpretations of the given data. Participants confirmed the usefulness of simulation laboratories to stimulate the development of CRS:

"Good opportunities. Ending every theory week with one application into practice by using simlab (simulation laboratory)." (P4)

"Giving them more time to practice in simulation with virtual cases, I think it will assist me to develop their clinical reasoning skills." (P21)

In a recent study an increase in knowledge levels of students was observed after simulation, (Cura, et al., 2020:158-164) however, the researchers also observed an increase in students stress levels especially in the presence of the nurse facilitator (Farzi, Shahriari & Farzi, 2018:110-115). The concern is that despite the advantages of simulation, a study done by Harmon and Thompson (2015:63-70) revealed that the students who practised in simulation lacked confidence in the clinical situation. Another study revealed that students who practised in clinical situations lacked skills (Blum, et al., 2010:9). Participants felt that simulation would improve the development of CRS of student nurses:

"Provide excellent foundational knowledge, then expose the student to case studies in simulation, theory and in the clinical environment." (P21)

"case studies, simulation manikins, documentation, patient records." (This participant described opportunities to develop CRS by using the given examples.) (P15)

"Clinical cases, simulation, scenarios, reflection." (This participant described opportunities to develop CRS by using given examples.) (P6)

Participants in this study did not identify other instructional strategies in developing nurse students CRS. However, a review of the literature revealed other strategies and ways to promote the development of CRS. These strategies include but are not limited to;

I.   The Outcome-Present-State Test (OPT) model

It is believed that the OPT model as a strategy develops students' clinical reasoning and ultimately develops CRS where a student must work through a complex patient problem, to learn to "think like a nurse" (Kuiper, Pesut & Kautz, 2009:76-85). Kuiper, et al., (2009:76-85) showed in their study that students improved in developing CRS but at the same time needed more thinking activities and guidance to develop cognitive and metacognitive awareness.

II.   Collaborative learning activities and collaborative teaching strategies CRS

Collaborative learning is described by Harmon and Thompson (2015:63-73) as learning activities that aim to involve students from other disciplines working together to solve given problems. Collaborative learning, utilising a strategy such as a cooperative clinical reasoning activity (CCRA) has been proofed effective in the development of CRS of nurse students (Neethling, 2021).

III.   Grand rounds

Grand rounds are explained by Peixoto and Peixoto (2017:127-138) as a discussion activity that takes place alongside the patient where all members of the multidisciplinary team have input into the health problems of patients. Students who participated in grand rounds, also called multidisciplinary ward round, showed an increase in problem-solving skills and thus improved CRS development.

Nurse facilitators primarily direct all teaching strategies that support student CRS development, but due to work distribution and allocations, they are not always available to students, which could be a challenge in the development of CRS of students.

3.2.2.3 Sub-Theme: Lack of time for facilitation

In a study by Sibiya (2012:56) nurse students, identified the benefits they experienced from clinical accompaniment to enhance CRS development, through meaningful feedback and guidance from the nurse facilitators (Wijbenga, et al., 2019:126-135). Due to staff shortages, demanding patients and students who are often included in the workforce, students are not always available to the nurse facilitator, mentor or supervisor. This makes a simple task, to get the student to just stop for a while and think, impossible, hindering bedside teaching (on the spot teaching) and learning (Baloyi & Mtshali, 2018:92-10; Van Graan, Scrooby & Bruin, 2020; Sibiya, 2012:56, Schneider & Good, 2018:16-17) that could hinder the development of CRS of students. In contrast to the student not being available, newly qualified staff members do not always feel comfortable in leading and supporting students in the learning process (Mathebula, 2016:5-24). Participants specified that when students do not have meaningful input and guidance from skilled nurse facilitators, supervisors or mentors, possibly due to a lack of time, the student may not develop CRS:

"More time with students, time when they are not allocated any patients. To go on ward rounds, do case studies." (P8)

"More time to spend with them in practice without them being (part of the) *workforce."* (P12)

The importance of spending time with the students have been highlighted, for this to occur the student must be available to the facilitator.

I) Category: Student availability

Nurse students have the responsibility to integrate and absorb what they have learned in theory and apply this information in the clinical setting (Xie, et al., 2020:66-73) they, however, need guidance and support to achieve this goal. The permanent nursing staff should help students achieve this goal. A study done by Sibiya (2012:57-77) revealed a concerning proclamation from participants, stating that the permanent staff disregard their role as a student, thus hindering the development of CRS, when they are treated as permanent staff. Disregarding the student role will lead to failure in providing the needed support to students (Sibiya, 2012:57-77). Participants

expressed the difficulty they experience to do "on the spot training" next to the bed to facilitate CRS development of students because the student is part of the workforce and not available to be taught or supported:

"Next to the bed patient discussion can be very challenging at times, as post basic students are part of the work force." (P16)

"Time in practice … environment unpredictable, students' part of workforce." (P4)

SANC Regulation 175 states that a student may not be registered under the Act until all set objectives have been met (SANC, 2013b). The NEI assign specific objectives to each student as part of the learning process to prepare them for their role after qualifying as per Section 58 (1) (g) (SANC, 2013b). Many of these specified objectives require CRS. An example of an objective identified (SANC, R2598, Section 4.3) is to develop individualised care plans and to oversee the execution of care plans for all health problems. The nurse facilitator dedicated to the role of teaching and learning plays an important role by providing guidance and support (Henderson, 2011:288-292) to assist students to gain skills they need to achieve set objectives. Due to time constraints and a busy curriculum, students are only assigned to clinical sites for short periods at a time. For them to gain the full benefit of the clinical setting, they should be treated as students and not as permanent staff (Mathebula, 2016:5-24). In other words, they should not be part of the workforce but should be available to the nurse facilitator to gain CRS. Coupled with the fact that nurse students are kept away from the nurse facilitator due to staffing allocations, the nurse facilitator's heavy workload often prevent them from spending time with students.

m) Category: Facilitator's workload

The nurse facilitator fulfils a multifaceted role as they are required to teach both nurse students and permanent staff employed by the clinic/hospital. They also have duties assigned by management that must be completed (Shahhosseini, & Hamzehgardeshi, 2015:183-193). With a high workload from management and a high staff vs. facilitator ratios' (Dağ, Kilic & Görgülü, 2019:389-399; Shahhosseini & Hamzehgardeshi, 2015:183-193), the student may not receive the support and guidance they need from the nurse facilitator (Henderson, 2011:288-292) due to their unavailability. The unavailability of nurse facilitators therefore negatively impact the

development of CRS. Participants revealed their heavy workload as a barrier to student development CRS of nurse students:

"A different work load distribution which … focus on the needs of the students." (A participants asked for her workload to change so she can spend more time with students.) (P3)

"Time constraints and continually increasing workloads are also contributing to less real teaching and mainly create anxiety." (P13)

Students need to make sense of what they learn (Cappelletti, Engel & Prentice, 2014:456-458) and benefit from the guidance and support of a dedicated nurse facilitator (Mathebula, 2016:5-24). Nurses are attracted to the role of nurse facilitator because of their passion for teaching (Laurencelle, Scanlan & Brett, 2015:135-140). They become despondent and frustrated due to the lack of time spent with students (Kgafele, et al., 2015:5222-5241) due to other responsibilities as mentioned. These frustrations could lead to a high turnover of nursing staff employed in the role of a nurse facilitator (Dağ, et al., 2019:389-399), hindering the development of students CRS. Participants shared this frustration of lack of time due to their workload to facilitate CRS of students:

"If I can get more clinical days where the students can be over and above and assist and learn at the bedside helping them to reflect in action." (P21)

"Admin support and less pressure from business to give me more time to spend with students." (P19)

In addition to lack of time, miscommunication between the clinical setting and the NEI (DeBruyn, Ochoa-Marin & Semenic, 2013:9-21), hinders the development of CRS of students. Baloyi and Mtshali (2018:92-104) describe the benefits students experience from both the nurse facilitator in the clinical setting and the nurse facilitator employed as academic staff referred to as theory facilitators in this study. Greenway, et al., (2019:1-6) highlight the benefits that clinical nurse facilitators experience when receiving guidance and support from theory nurse facilitators. Theory nurse facilitators are responsible for developing and communicating curriculum goals for the practice and should share responsibility for ensuring nurse students develop CRS and other

objectives (Greenway, et al., 2019:1-6). A participant voiced a need for support from theory nurse facilitators to help her understand her role:

 *"Time and proper guidance (*from theory facilitators) *on the objectives to be acheived* (achieved) *and outcones (*outcomes*) that are SMART." (*Smart, Attainable, Achievable, Realistic, Time)(P20)

If the nurse facilitator develop collegial working relationships with nurse students, theory nurse facilitators, clinical nursing staff and members of the multidisciplinary team, it may foster a positive learning environment for students and permanent staff (SANC, 2014: Section 1.1.9; Wosiniski, et al., 2018:67-74). It is important to gain the support of all role players so that the nurse facilitator can be confident that appropriate support is provided to students in their absence. Due to the multi-faceted nature of the role of the nurse facilitator, they rely the support of the multidisciplinary team's assistance to develop students' reasoning skills. Unfortunately, not all role players are prepared for this role, and participants identified this failure to work and guide students as a barrier to student development CRS of students.

 "*Support from all stakeholders in practice. All CEM* (Clinical education module) *stakeholders."* (CEM includes management, unit managers, nurse managers, infection prevention specialists.) (P11)

 " … greater acceptance of the presence of the facilitator in the wards and forward staff to take responsibility for their clinical, educational role we should work as a team." (P15)

Although participants in this study did not mention high turnover as a problem, a look at the demographic data (see Table 3.2) shows that the majority of participants have been employed for less than four years, indicating a high turnover rate. New nurse facilitators employed in the service place an additional burden on existing nurse facilitators further limiting the time they spend with students (Shaban, Al-zubi, Ali & Atalla, 2017). A study by Shaban, et al., (2017:1-7) explained that high turnover causes low morale and shows a decrease in productivity of existing staff. New staff demand time and mentorship to learn company policies and procedures and new nurse facilitators must become familiar with these policies and procedures before they can

teach and guide students towards developing CRS (Xie, et al,. 2020: 66-73). The responsibility to support and guide new staff is then time-consuming and comes at the expense of time available to support and guide students. A participant voiced that she did not identify any challenges as she was new to the post. This may indicate that she has not yet grasped the complexity of her position and that she may not be aware of all the expectations that come with her position.

"None, I am still very new in CTS." (Participants response to a question about challenges experienced.) (P5)

This response may be another indication that this participant may need guidance from an established nurse facilitator regarding realising the diversity of her role. In conjunction with the availability of the nurse facilitators and the availability of mentors and supervisors, students themselves should be active participants in their learning process (Walker, Dwyer, Broadbent, Moxham, Sander & Edwards, 2014: 94-103; Mamseri, 2012:11-129; Horntvedt, et al., 2018:1-11; Wosiniski, et al., 2018:67-74). For the development of student CRS to be effective it is important that they are responsive towards their training, as identified under Theme 3.

3.2.3 Theme 3: Student responsiveness

For a person to develop CR skills, they must become reflexive and critical in their thinking to be able to problem-solve (Kuiper, et al., 2017:424) to embed the needed skills into nurses (Wosiniski, et al., 2018:67-74). The adult learner needs to move from dependency to self-direction, thus mature in their thought processes to make sense of their previous experiences (Tønseth, 2015:3330-3341). For effective learning, students should play an active role in their development (Walker, et al., 2014: 94-103). Unfortunately, not all students entering higher education are ready and responsive to the learning process and do not take responsibility for their learning (Leibold, 2015: 93-104). Participants mentioned the importance of students being responsible for acquiring a new skill such as CRS:

"Clinical reasoning requires and enquiring mind and should provide answers to why, when, who, where, what and how." (P3)

"Questioning of why are interventions being done, eagerness for gaining knowledge and understanding is necessary for development of students." (P7)

How adults learn new content is based on their previous experience within the educational system.

3.2.3.1 Sub-Theme: Individual experience

Students' participation in learning activities is closely related to their reason for entering the higher education system and directly influences their motivation and willingness to learn (Tønseth, 2015: 3330-3341). Tønseth (2015: 3330-3341) mentions theorists for example Havinghurst (1953), Erikson (1959), Maslow (1972) and Knowles (1988), who have attempted to describe at what point in an adult's life they are ready to learn and agree when certain events occur at a stage in their life. When students enter a higher educational program, it is expected that they should have an equal chance of success because the same learning opportunities are available to all (Egizii, 2015:1740-1749). However, the reality is that a student may not have the skills to succeed in the current program due to their previous experiences within an educational system (Xie, et al., 2020).

n) Category: Student educational habits

In South Africa, unequal regulation of the education system began with the creation of segregated schools in 1948, for students of different racial backgrounds (McKeever, 2017:114-131). A study by McKeever (2017:114-131) explained that the effects of this unequal system can still be felt and seen in South Africa today. Some schools were regulated and funded under federal control, while others operated under the Bantu Education Act of 1953, which mandated a different curriculum and funding. McKeever (2017:114-131) goes on to describe that it was not only the education system that was a failure, but also the regulation of who was allowed to teach in different types of schools as well as how many pupils was allowed in one classroom. Overcrowded school classrooms can be seen as a barrier for pupils to develop CRS at the school level, negatively affecting their readiness for tertiary education, especially understanding complex situations that require CRS (Shirley, 2017:1-23). Although the education system in South Africa began to align after 1990, some of the students who experienced this unequal system are now enrolled in higher education programs including programs pursued by nurses, to obtain a higher qualification. Participants identified nurse students' prior experiences and the way they were taught in school as a barrier to developing CRS in their current studies:

"A student's past schooling has a direct impact on the inquisitiveness of the student."(P17)

"Students that come from rote learning backgrounds struggle more with this concept"
(Participant referring to CRS.) (P17)

"If they came from better schools that encouraged questioning then the student has a dynamic attitude and does well." (P13)

In conjunction with good quality primary education, a person needs well-defined life skills to ensure success in adult education programs.

3.2.3.2 Sub-theme: Lack of life skills

Lack of life skills greatly contributes to the attrition rate of higher education institutes (Kanyane, Pophiwa, Masiya, Wentzel, Viljoen, Mdlongwa & Zikhali, 2017:78-81). Life skills help a person to cope with everyday life expectations. For students, life skills assist in finding new ways of thinking and assist with problem-solving, thus the development of CRS (Prajapati, Sharma & Sharma, 2017:1-6). The South African government recognised the impact that poor life skills had on the economy and introduced the National skills development act (Act 97 of 1998), the skills development levy act (Act 9 of 1999) that catered for the creation of Sector Education and Training Authorities (SETAs), in an attempt to improve skills, training and obtaining higher qualifications in the country.

Seeking a higher qualification can originate from desiring a higher position or financial security (Tønseth, 2015: 330-3341). A very diverse set of post basic qualifications are available to nurses in South Africa (SANC, 2005b, Education and Standards). The motivation behind the student willingness to enrol for an additional qualification may not be enough to guarantee successful completion of the program. This might lead to a decrease in the students' willingness to learn new skills (Shahhosseini & Hamzehgardeshi, 2015:183-193) ultimately hindering the development of CRS. A participant in this study felt that some nurse students enrol into a nursing program to have a job and not because they are passionate about nursing as a career, thus negatively impacting the motivation to develop the needed CRS.

"Some students are in our facilities for the purpose of employment rather than the passion for people which contributes to a lack of interest to apply clinical reasoning, these students just wish to perform skills with the minimum personal involvement." (P3)

Xie, et al., (2020:67-73) described the benefits and positive effects a higher educational qualification has on a person's work life. The development of CRS also improved the manner they interact with others (Xie, et al., 2020:67-73). A person must acquire the needed knowledge to develop a certain skill, and it is necessary to understand what they need to learn to benefit from it (Scotland, 2012:9-16).

o) Category: Language

Students in the educational system have no other option than to converse, train and learn in English. Companies adopt an "English" only language policy, to overcome the diversity of the 11 official languages spoken in South Africa, but due to the diversity of the student background, not all are conversant in English (Masutha, 2019:4-32).

Understanding what is learned to contribute towards gaining understanding and retaining knowledge (Scotland, 2012: 9-16) to ultimately develop CRS. Language literacy plays a very important role in the learning experience and can promote or inhibit learning (Wijbenga, et al., 2019:126-135).

For some students and nurse facilitators in South-Africa, English may be the 3rd or 4th spoken language (McKeever, 2017:114-131) possibly contributing to miscommunication between the nurse facilitator and the nurse student. Miscommunication in health care, due to whatever reason, can have serious consequences for patients and can be life-threatening (Meure, Gallois, Segalowits, Rhyder & Hocking, 2015:1-5). The fact that education, including nursing education, offered in a language other than students mother tongue greatly hindered understanding of difficult concepts (Bostand, Cwikla, Kienzle, 2015:8-49), thus hindering the development of CRS. It is therefore beneficial for both the student and the nurse facilitator to be fluent in English. Although the facilitators did not mention their own difficulties in conversing in English, they did notice the difficulty nurse students experienced because they are not fluent in English as mentioned by participants:

"Students are not confident in conversing in the English langauge (language). *They struggle to describe their assessmenst* (assessment) *findings correctly. Expression of findings verbally is also a problem."* (P17)

"Students literacy levels and levels of understanding." (This participant described what she felt the student ability to develop CRS) (P18)

"Lack of exposure to some problems." (Referring to past exposure). (P14)

Language literacy, school background and previous knowledge gained were not the only aspects mentioned. Facilitators mentioned that students often lack technological skills.

p) Category: Technology

Technology became dominant after 1994 (Flowerday, 2015: 4-31) and nursing like other professions, gradually became reliant on technological advances, to be able to move into the 21st century. Incorporating technology in the classroom is important to provide students with the opportunity to move from receiving new information to experiencing new learning opportunities and knowledge and skills like CRS (Shellenbarger & Robb, 2015:79-82). Students however experience some challenges using technology, blaming their lack of technological skills as the main reason for struggling with technology and by doing so, wasting time (Carayon, Hundt & Hoonakker, 2019:240-247). Only one participant in this study referred to the lack of technological support within the clinical and theory settings that hindered the development of CRS:

"Poor infrastructure regarding information and communication technology, leading to time wasted and decreased effective teaching, learning and assessment opportunities." (P3)

Nurse facilitators themselves, sometimes experience difficulties in utilising technology to facilitate activities (Button, Harrington & Belan, 2016:1311-1323) especially the older nurse. Considering that 40.1% of the participants in this study has more than 10 years of experience (see Table 3.2) placing them in the category of the "older" nurse that may experience difficulty in utilising technology to enhance the development of CRS of a student. In a study done by Brown,

Morgan, Mason, Pope and Basco (2020:2801-2819) it was discovered that although the older nurse struggled to incorporate technology into the classroom, they did have the ability to acquire the needed skills with the correct support and training.

Lack of confidence with technology could lead to the nurse facilitator avoiding the use of technology (Powell, et al., 2020:215-219) or using technology incorrectly seen as hindering the development of CRS (Button, et al., 2014:1311-1323). The participants in this study did not mention their inability to utilise technology in the learning processes, probably because this study did not focus on the technological ability of the nurse facilitator. One participant mentioned that she does not have time to search for the most appropriate literature online to facilitate the development of CRS.

"Personally, I don't always have time to go and search for information to update my own theory knowledge, an article of interest from time to time would be very motivating." (P16)

Although the use of technology was not elaborated on as part of CRS development by the participants, it remains an important and well-described aspect to consider (Kim, Kim, Lee, Spector & DeMeester, 2015:604-611; Leibold, 2015: 1689-1699). SANC (2014:1-61, Section B.1.6.7)) dictates the use of technology in the field of nursing as an important aid in teaching. Nurse facilitators should embark on using different teaching strategies by incorporating technology in their designed strategies, to assist students to gain detailed and updated information as well as to facilitate the development of CRS of students (Elo, Kääriäinen, Kanste, Pölkki, Utriaine & Kyngäs, 2014). The student readiness to learn plays a big role in how quickly, if at all, they acquire CRS.

q) Category: Student role in the learning process

Facilitators strive to produce adaptive learners that are willing to take responsibility for their learning (LaRosa & Dinsmore, 2020:7). Although a student takes a step toward furthering their education, they may not be successful in the learning process, because of social factors that come with being an adult learner (Tønseth, 2015:3330-3341). Learner accountability toward their learning is crucial for success in studying (LaRosa & Dinsmore, 2020:7). A participant was of the opinion that nurse students are not inquisitive, displaying a lack of accountability towards

their learning and therefore they do not ask relevant questions that will assist them to develop CRS: 17

"Students/staff are not inquisitive. They just do the job and never ask why am I doing it? why isa
(is a) *tablet sugar coated and not all in capsule format for example."* (P17)

Students who take accountability for their learning (Coetzee, et al., 2018:12111-12117) stimulate lifelong learning and adopt a positive attitude toward the learning process. This could mean acquiring a new skill like CRS would be easier. Students with a negative attitude towards the learning process could have detrimental effects on the quality care they deliver to clients or patients (Quaye, Alatrash & Metoyer, 2020:1-10) this could be due to failure to acquire CRS. This study revealed that the nurse facilitators believed that nurse students negative attitudes act as a barrier in their development of their CRS as conveyed by participants:

"Immaturity of students not taking responsibility and accountability for their own learning." (P7)

"… redirect their inability to perform as not having received enough support or the blame is shifted to educators, facilitators and mentors. " (P5)

Facilitators are of the opinion that some students display "short cuts" during their career. They also felt some students are set in their "old ways" and that they often find it difficult to change. A participant stated that some do change their ways.

"…….some adjust their way of thinking." (P6)

Whilst another participant felt that when a student is under pressure, they revert to previously learned habits.

"Some just default to their 'old ways'." (P2)

Reflection can be used to assist students to obtain a profound understanding of their actions. Reflection is an active conscious process in which an individual examines their experience, with

their own belief system, morals, conduct and knowledge, and may lead to new considerations and appreciation of the situation that occurred (Brooker, et al., 2016:82-83; Carvalho, et al., 2017: 662-668; LaRosa & Dinsmore, 2020:7). Reflection is thus a powerful tool to get rid of negative attitudes and enhance one's learning experience by examining one's behaviour (Kim et al., 2015: 604-611). Utilising CRS in reflection is important, as reflection requires a systematic approach when analysing previous actions. (Harmon & Thompson, 2015:63-70). Participants supported reflection in the development of CRS in this study:

"The consequences of the actions performed will be reflected on to determine whether they were most effective to achieve the desired outcomes for the patient, family and/or environment. Reflection/ judgement." (P3)

" … to evaluating the outcome of the interventions that were actioned to determine/analize (analyse) *the efficacy and results of the interventions …"* (P19)

To be able to develop CRS of nurse students, nurse facilitators themselves must have the needed knowledge and skills on how to facilitate the development of CRS of students, as uncovered in theme 4.

3.2.4 Theme 4: Facilitator competence

As with every other profession, nurse facilitators have a responsibility to undertake professional development to ensure that they obtain current and recent information to provide quality facilitation and support (Shahhosseini & Hamzehgardeshi, 2015: 184-193). Unfortunately, some nurse facilitators do not adhere to this and do not continue improving current knowledge and skills (Bitner & O'Connor, 2012:251-254; Rogan, 2014:59-79; Price & Reichert, 2017:17). Bitner and O'Connor (2012:215-254) stated that ageing nurses in particular do not see the need to upskill. Participants specifically expressed that ageing nursing professionals do not stay abreast with changes and teach old content that may not help facilitate the development of CRS of nurse students:

"Out of date course content." (This participant explained that old nurse facilitators teach outdated content.) (P5)

"Freedom to teach and facilitate by using my own methods." (Participant did not want to use current content of guidance from NEI.)(P22)

Nursing education is considered as a specialised field that requires that a PN can only become a nurse educator (in this study referred to as nurse facilitator) after obtaining an additional post basic qualification in nurse education (SANC, 2014. Act 2005) The qualification dictates that a qualified nurse facilitator employed into the role of nurse facilitator, should implement evidence-based assessment and evaluation strategies, directed to achieve learning goals (SANC, 2014, Section 2.2.2). A participant in this study was aware of their responsibility to promote evidence-based practice.

"Promotion of evidence based practice." (P21)

Scientific research findings provide evidenced-based practice guidelines or educational programs to allow nurses to make well-founded decisions and form the framework for nursing practice, models and education (Stevens, 2013:18-20). Nurse facilitators should be intrinsically motivated (Valerio, 2012:30-35) to actively pursue continuous quality to improve his/her knowledge, and skills, as to effectively assist the student (SANC, 2014. Domain 7) to develop CRS. Nurse facilitators in a study expressed eagerness to participate in educational programs that will enhance their knowledge and skills (Shahhosseini & Hamzehgardeshi, 2015:184-193). Participants also requested programs or support to enable them to facilitate the development of CRS of their students:

"We must first learn to think differently and then we can teach them!!" (P17)

"Opportunity to update my own skill re CRS development, access to scientific website/internet." (P19)

"Discussion with training colleagues to reflect on successes and failures." (P20)

Nurse facilitators, like all other professions registered under the Skills Development Act (Act 97 of 1998) can update their skills and knowledge through participation in continuous professional development workshops (CPD'S) or programs with the purpose to develop the CRS of students.

3.2.4.1 Sub-Theme: Continuous Profession Development

To keep up with the demand of technological progression, globalisation and to obtain economic freedom, governments in developed and developing countries alike focus on skills development as a key strategy for economic effectiveness and progress (For & Human, 2013:8). A comparative study done by Sabavala & Kajuria (2015:67-77) highlighted the benefits CPD programs had to uplift skills in a third world country to enable them to compete globally with first world countries within three months. South Africa is not different. With the promulgation of the Skills Act in 1998 (Act 97 of 1998), most companies are abided by law to provide upskilling for their employees. The onus is on the nurse in South Africa to uphold professional development, undertake CPD training and provide proof of such CPD's to the SANC, to retain registration (SANC, 2005a. Act 33, Section 6.1). This prescription by the SANC is not realised, as there are no consequences towards nurses who do not participate in CPD's yet. Within the health-related environment in the South African context, thus the study context, there are many associations available to join, for example, Nurse Education Association (NEA) that provide upskilling workshops for nurses who wish to improve their skills and competencies. Individual companies attempt to fill this gap and provide CPD's for their staff. Unfortunately, the literature revealed that the older nurse and the nurse who recently completed their master's degree showed disinterest in seeking out CPD programs (Rogan, 2014:42-45).

Fortunately, participants communicated the need for CPD programs to specifically focus on developing their own CRS as to allow them to effectively support students with CRS development:

"I need to reflect more onto the effectiveness of my own clinical support to improve the students' clinical reasoning skills and make it a focus area." (P21)

"Skills updating of clinical facilitators is needed." (P5)

"Workshops regarding development of CRS." (P9)

Nurse facilitators expressed what they need to improve their knowledge and skills.

r) Category: Facilitator knowledge and skills

Despite CPD programs, participation in research (Nursing act, 2005 (4.4)(d)(k)(7.4)(c)), by either conducting research or serving on research committees is needed. Pursuing a masters and or

doctoral degree in nursing is another opportunity for nurses to upskill their knowledge and skills about the development of CRS of students. Research requires an inquisitive mind that assists to develop new knowledge and skills such as CRS (Dixon & Ward, 2015:50-65). Although nurse facilitators expressed a desire to stay abreast of changes within the profession very few nurse facilitators seek out additional masters or doctorate.

Some reasons that hinder the nurse facilitator from seeking out additional degrees has been described as; lack of support from management; poor funding; advanced age of nurse facilitator and lack of personal time (Dixon & Ward, 2015:50-65; Shahhosseini & Hamzehgardeshi, 2015:184-193; Price & Reichert, 2017:17).

The participants in this study did not mention the negative aspects that may hinder their skill and knowledge development, participants rather uttered a need to be upskilled to better support the development of CRS of their students:

"Opportunity to update my own skill re CRS development, access to scientific website/internet. Discussion with training colleagues to reflect on successes and failures." (P19)

"Workshops to CTS's (clinical training specialists) *with help and support from experts in guiding me on how to develop Clinical reasoning skills would be wonderful."* (P21)

How to assess/ describe pictures then scenarios then the pt (patient) *scenario to develop communication skills. How To* (to) *teach the student how to be observant. e.g.* (example) *they will do a waterlow* (assement done to determine pressure risks) *assessment obtain a high score and will not know what to do with it. they can not descibe* (describe) *their findings the can not make the deduction.*" (P15)

(Participant stated the type of continuous professional development she needs.)

Colleagues refusal to participate in research studies, may give nurse facilitators the subtle message regarding the importance of research toward professional practice (Dixon & Ward, 2015:50-65). The participants in this study did not mention problems perusing a master or doctoral degree, however, from the demographic information obtained (see Table 3.3), only 9.1% of participants held a master's degree and 4.5% holds a doctoral degree. It can be deduced that the participants in this study did not seek out masters and doctoral degrees that

could contribute to them developing their CRS, and in turn assist them to develop CRS of nurse students.

3.3 CONCLUSION

This chapter discussed the data analysis, the data interpretation and the literature control to support or contradict the findings.

From the findings and the literature control, it was evident that nurse facilitators perceived clinical reasoning to be the ability to utilise and apply gained knowledge in practice, thus the importance of theory-practice integration to ensure individual quality nursing care is planned and delivered.

Factors that hinder the development of CRS of nurse students concentrated on lack of both human and physical resources, lack of time to facilitate students, as well as student unpreparedness for high education.

The participants stated many positive methods used to assist nurse students to develop CRS. This included case studies, real patient case scenarios, on the spot questioning, retrospective analysis of set care plans and simulation.

The participants expressed a need to improve their competencies and skills, although this was not the focus of this study, this concept could not be ignored and is addressed in the recommendations.

In the next chapter, recommendations for practice as well as the limitations of the study will be discussed.

CHAPTER 4 CONCLUSIONS AND RECOMMENDATIONS

4.1 INTRODUCTION

In Chapter 3 the findings from the data collected, the interpretation thereof, as well as a comprehensive literature control, was presented. This chapter focus on conclusions made from data received, and recommendations suggested regarding the perception of nurse facilitators concerning the facilitation of CRS of nurse students. This chapter will also include the limitations of the study as well as suggestions for future research.

In this descriptive qualitative study, data was gathered using an online open-ended questionnaire with the support of file storage and synchronisation service developed by Google, called Google Drive over a three-week period. Data saturation was reached by participant number twelve (12), however, due to the nature of the data collections process, all data received from 22 participants were considered for analysis.

Nurse facilitators, as the participants in this study, had an opportunity to voice their opinion of what CRS development facilitation involves, the opportunities available to them to facilitate CRS development, the challenges they experienced hindering the development of CRS of nurse students as well as recommendations that will assist them to facilitate CRS development of students.

4.2 CONCLUSIONS MADE FROM DATA ANALYSED

Analysis from the data to address the four objectives namely 1) describing what the nurse facilitator perceived under the concept of CRS; 2) identifying the challenges experienced with facilitation of the development of CRS: 3) describing the opportunities experienced with facilitating the development of CRS as well and 4) the recommendations to assist nurse facilitators with developing CRS of nurse students.

4.2.1 Objective 1

Perception of clinical reasoning skills of nurse students

Nurse facilitators perceived that the concept of CRS refers to the principle that nurse students should demonstrate that they can integrate the theory taught to them into practice. CRS will enable the nurse student to develop a scientific nursing care plan applying the process involved

in formulating these individualised nursing care plans. The application and utilisation of theoretical knowledge were emphasised, as a foundational indication of CRS development. Although not directly linked to what the concept entails; nurse facilitators indicated patients and patient records as a useful strategy to evaluate whether nurse students have developed CRS.

4.2.2 Objective 2

Challenges experienced by nurse facilitators hindering the development of clinical reasoning skills of nurse students

The challenges, expressed by participants have been highlighted by research as valid reasons that hinder the development of CRS, as well as reasons that create an unfortunate environment for the nurse facilitator (Mathebula, 2016:5-24; Motsilanyane, 2015:74). Some of the most repeated challenges identified were: lack of human resources, this included mentors and supervisors; lack of physical resources, including simulation laboratories and lack of time to facilitate for the nurse facilitator and for the nurse student, to receive facilitation. Some participants stated that they do not have the desirable skills to formulate questions that will stimulate high order thinking, needed to stimulate the development of CRS, thus they felt this hindered the development of CRS in their students.

4.2.3 Objective 3

Opportunities experienced in facilitating the development of CRS of nurse students

The participants describe various opportunities, thus tools and techniques, they use to stimulate the development of CRS of nurse students.

They mentioned resourceful ways in how to utilise present resources, for example, spot checks on nurse students whilst the student are allocated as part of the nursing team/ work force, retrospective evaluation of formulated care plans, providing the student with bed side case studies and scenario's based on real patient presentation and the application of scenarios and case studies in a simulation laboratory.

4.2.4 Objective 4

Recommendations identified by participants to assist with the facilitation of developing CRS of nurse students

The participants suggested the availability of various resources needed to assist them with the facilitation of the development of CRS. One of the important recommendations was the restructuring of the facilitator's workload, to allow for more dedicated structured time with nurse students in the clinical facility. Ultimately more time allocated for structured facilitation will require the support and intervention of management and intervention of management. Time allocated for facilitation will enhance the development of CRS. Simulation laboratories to assist with demonstrations and simulations in a safe environment is recommended. Despite the high-cost implications of acquiring simulation equipment, simulation has been demonstrated as an important aspect in improving student outcomes, thus the development of CRS (Powell, et al., 2020:215-219).

Some facilitators exclaimed a need for training to improve their skills and competencies. Some of the topics suggested was: the development and use of clinical reasoning development strategies; effective questioning skills that will stimulate the development of CRS and; assistance from theory facilitators on how to interpret nurse students objectives; to allow them to be better equipped to facilitate the development of CRS of nurse students.

The focus of this study was not on determining the nurse facilitator's knowledge and skills, however, the participants recommended training needs and that cannot be ignored. Training, broadly seen can improve the facilitator's competency in facilitating CRS of nurse students and most probably the reason for expressing this need.

4.3 RECOMMENDATIONS

The recommendations will be presented to the following key role-players or stakeholders within the NEI being studied, but the principles can be applied and/or adapted to other institutions with similar contexts. The research findings and recommendations will be made available to other NEI that identified similar challenges with the facilitation of CRS. An invitation to the forum of university nursing deans of South Africa (FUNDISA) to present the findings at an annual meeting will be requested to ensure that the findings are shared with the wider nursing fraternity.

4.3.1 The Nursing Education Institution (NEI)

The research findings specifically highlighting evidence to illustrate the challenges experienced, the existing opportunities, as well as suggestions to further support nurse facilitators with the facilitation of the development of CRS, will be electronically shared with the regional education

manager (REM) as well as the national education manager (CEM). A request to have a formal meeting (online or in-person) to discuss and share the recommendations will be communicated with the REM as well as the CEM. The recommendations to share are:

4.3.1.1 Placement plan for experiential learning

The NEI should devise and formulate a detailed clinical experiential learning placement plan that is aligned with theory periods aimed to close the theory-practice gap. This plan must be carefully planned to ensure that theory taught in class are directly followed by appropriate experiential learning opportunities. This plan should highlight the required 8 hours of clinical accompaniment by a nurse facilitator, per student per month as is prescribed by the SANC (SANC, 2005b. Education & Standards). This plan should precede placement into the clinical facility, to the person tasked with the responsibility to allocate students into the appropriate hospital ward/unit. To reach the expected outcomes the plan must indicate the time the student should spend with the nurse facilitator, the time the student should spend in simulation, as well as with other members of the multi-disciplinary team (see example in Table 4.1). The nurse facilitators tasked with clinical accompaniment must receive student expected outcomes in advance. The nurse facilitator should plan the equal distribution of his/her time between different activities to ensure that all nurse student expected outcomes are reached (see Table 4.2 for an example of a weekly plan).

Table 4.1 Example of a clinical placement plan (CPP)

Theory block and clinical block in hours The student will spend 120 hours in theory on covering the elimination system, the renal system and the GIT system. Three weeks theory block will be followed by one week in clinical setting total 40 hours. Theory block: Weeks 1 – 3 : Total hours 120 Elimination – 30 Theory hours Renal – 30 Theory hours GIT systems – Theory hours 30 Nursing dynamics & Professional practice – Theory hours 30		
Setting Private hospital settings in the East region comprises of six hospitals. Each hospital hosts accredited amount of students. Each hospital has a medical and surgical ward. The below learning activities can be achieved in either a medical or surgical ward.	Hospitals Hospital A – five students Hospital B – seven students Hospital C – seven students Hospital D – six students	Example of a weekly planner (see Table 4.2)

	Hospital E – five students			
R171: DIPLOMA IN NURSING: 1st year.	Activity		Hours	Date Achieved
Clinical Week 4: Total hours 40

Student shall be able to demonstrate skills and knowledge in meeting the needs of patients as per activities of daily living. | SIMULATION

Student to attend a demonstration on:

Catheter care including bundle applications:

Obtaining a urine sample with urine analysis and interpretation. | | 4 | |
| SPECIFIC OUTCOMES

Student to be able to manage the following:

Catheter care

Urinary catheter care

Emptying and changing of urinary bags

Record keeping

Calculation of intake and output charts | IN PRACTICE

Observe the following then perform under supervision of the EN / ENA.

Emptying of catheter

Changing a catheter bag/ connecting a bag to a ureteral catheter

Catheter care: observing bundles

Document on related to intake and output | | 4 | |

Identifying and interpretation of abnormalities Recording and reporting.	Reporting and recording of abnormalities Collection of a urine sample for laboratory testing		
Assessment criteria Formative assessment: Urine analysis and interpretation	CLINICAL ACCOMPANIMENT	1	
	Review policy on catheter care with students		
	Arrange an appointment with Infection Prevention Nurse, to allow student to accompany them on a catheter round	2	
	Practice for formative assessments	4	
	Conduct formative assessment	1	
	ROLE TAKING Students to work in a medical/ renal/ or surgical ward. Main allocation is to be with patients whom has a urinary catheter insertion.	22	
Total hours		40	

Table 4.2 Example of a daily planner for 5 nurse students.

Date	Time	Student 1	Student 2	Student 3	Student 4	Student 5
22/11/2021	07:00 - 08:00	CTS	CTS	CTS	CTS	CTS
Day 1 Monday	08:00 – 09:00	SIM	SIM	SIM	SIM	SIM
RT = Role taking	09:00 – 10:00	SIM	SIM	SIM	SIM	SIM
Prac = practice/Observe	10:00 – 10:30	TEA				
SIM = Simulation	10:30 - 11:30	SIM	SIM	SIM	Surgical ward Prac	Medical ward Prac
CTS – Clinical accompaniment	11:30 – 12:30	SIM	SIM	SIM	Surgical ward Prac	Medical ward Prac
IPP – Infection prevention Nurse	12:30 – 13:30	Surgical ward Prac	Medical ward Prac	Surgical ward Prac	CTS	CTS

Date	Time	Student 1	Student 2	Student 3	Student 4	Student 5
P Form = Practice Formative	13:30 – 14:00	LUNCH				
Ass = Assessment	14:00 – 15:00	Surgical ward Prac	Medical ward Prac	Surgical ward Prac	SIM	SIM
M = Medical S = Surgical	15:00 – 16:00	Surgical ward Prac	Medical ward Prac	Surgical ward Prac	SIM	SIM

4.3.1.2 Collaboration between NEI and practice

To address the theory-practice gap, identified by participants as a non-alignment between what is taught to nurse students in theory and how it transpires into clinical practice, it is recommended that all nurse facilitators attend a compulsory monthly professional development training session. The responsibility to offer this opportunity must be alternated between theory facilitators and clinical facilitators.

4.3.1.3 On-line short programs

Due to the requirement in Section 4 (4.4)(f)), that all nursing staff have a teaching responsibility, nurses in clinical practice must be motivated to assist nurse facilitators to facilitate the development of CRS of nurse students (SANC, 2013a). The student also needs to be prepared and equipped to effectively develop their CRS to provide quality care.

It is recommended that the national education manager, under the guidance of the continuous professional development committee, appoint an ad-hoc committee with the task to develop a short program for PN and students. The developed program material should be quality checked and approved by the continuous professional committee before implementation. Suggested programs are 1) mentoring program for all PN to support the facilitation and development of CRS of nurse students as well as 2) an orientation program for potential nurse students to optimise their potential for developing CRS (see Section 4.3.3.1 and Section 4.3.3.2 for details).

4.3.1.3.1 Mentoring program

Mentors should be appointed in each unit/ward within the clinical practice environment to assist students with unstructured learning in the development of CRS because the nurse facilitators are not readily available to assist nurse students. These mentors must then attend the approved mentoring program as mentoring has proofed to be one of the methods used to assist students with developing CRS (Coetzee, et al., 2018:12112).

The approved program should be part of the professional development opportunities, thus time must be made available for all PN's currently employed and willing to act as mentors. It is suggested that all newly appointed PN's must attend this program as part of their induction program.

This program must aim to empower all PN's regarding the educational needs of students and amongst others the phrasing of questions to stimulate the development of CRS of nurse students, ultimately supporting the nurse facilitator to develop CRS of students. As part of normal allocated responsibilities, mentors must support students to make sense of the presenting data of patients, thus developing CRS. This will alleviate the nurse facilitator concerns as to not spending enough time with students, thus hindering students development of CRS.

4.3.1.3.2 Student orientation program

Student unpreparedness was identified as challenging in the development of CRS. Challenges about life skills, technology skills as well as language literacy about English as the language of instruction, need to be addressed to enhance the development of CRS. An orientation program should be developed to prepare nurse students for the requirements expected from them and ultimate improve success in developing CRS.

If an orientation program already exists, it must include Basic English language literacy exercises and assessments, addressing important concepts related to nursing, thus concepts that will allow a better understanding of the outcomes to achieve in the nursing program. Technology skills training must be included, specifically for older students not familiar with the technology. It is Important to include written online assignments and assessments to teach, motivate and improve technology skills as well as English language literacy skills. Clear and concise expected outcomes must be formulated and assessed after completion of the program. Assessment must be formative in nature so that students can improve until they reached the expected outcomes.

Meeting the expected outcomes can be a part of the selection criteria for nursing programs to ensure that students have the best possible chance to succeed and develop the needed CRS to ensure quality patient care.

4.3.1.3.3 Training workshops on different learning strategies for example: Corporative Clinical Reasoning Activity for students (CCRA)

A strategy such as a cooperative clinical reasoning activity (CCRA) has been proofed effective in the development of CRS of nurse students (Neethling, 2021), thus nurse facilitators must be

trained and motivated to implement such activities within the training program to enhance the development of CRS of their students.

4.4 PROFESSIONAL DEVELOPMENT WORKSHOPS FOR NURSE FACILITATORS

Professional development programs must include workshops specifically focused on the facilitation of the development of CRS. Strategies that need to be addressed include:

The Grand ward rounds; cooperative clinical reasoning activities, and outcome-present-state test modules; effective planning of clinical reasoning activities and questioning skills aimed to stimulate the development of clinical reasoning.

It is suggested that the regional education training manager task experts in the above-mentioned topics, to develop these workshops. Time must be made available for attending these workshops to ensure attendance.

4.5 RECOMMENDATION TO CLINICAL PRACTICE

The research findings relevant specifically to clinical practice will be shared online with the regional hospital managers (RHM's), of the hospital under study, in all the provinces in South Africa. A formal request to discuss the recommendation made will be formalised and shared with these regional managers as mentioned above.

The following recommendations apply:

4.5.1 Different workload distribution

The participants expressively mentioned the need for different workload distribution, one that will focus more on student development and less on businesses requirements (see Section 3.2.2.3 (m)).

In this study context clinical nurse facilitator's job profile (also referred to as job description), did not prescribe the number of hours per student that must be adhered to. It is therefore recommended that when specific hours are not prescribed that must be added. By specifying these hours, the nurse manager will be aware of the time needed to facilitate the development of

CRS of nurse students. The required hours should be individually planned per facility, as the number of students placed in each facility may vary.

4.5.2 Implementation of the clinical placement plan

It is recommended that the CPP as broken down in Table 4.1 must be respected in clinical practice. This will entail that the student remains in the allocated clinical area where theory and practice integration can transpire and CRS can be developed. Students are not considered for movement to other areas where staff shortages are experienced as set outcomes/objectives will be jeopardised. Nurse students must not be used as the primary workforce whilst they are expected to reach their training outcomes to become competent PN that can provide quality care and improve patient outcomes.

It is further recommended that should the unit manager experience difficulties with placement options, these difficulties are communicated in person to the nurse facilitator, to allow the nurse facilitator to re-plan student placement to assist the student to develop CRS by utilising all possible learning opportunities.

4.5.3 The unit manager's role in the development of CRS of nurse students

The unit manager plays a role in influencing the multi-disciplinary team and setting the culture for training (Mathebula, 2016:5-24), which include CRS development, and is, therefore, a useful resource for both the student and the nurse facilitator. The unit manager further has the authority in his/her unit to ensure team participation with the development of the students CRS. In this study context, the job profile of the unit manager addresses students under a small component.

The recommendation is that the regional nurse manager (RNM), in conjunction with the national education manager, critically evaluate the unit manager's job profile, and align the set objective (if any) as to include the development of CRS of nurse students.

4.5.4 Simulation laboratories

Simulation is one of the identified resources that can assist in improving the CRS of students. Although simulation laboratories are available it has to be maintained and more recent

equipment must be made available for student support and training. NEI's should ensure that instructional videos or demonstrations are available to all nurse facilitators.

High fidelity simulation is expensive and not always readily available (Maloney & Haines, 2016:4-9) although the value has proofed as a relevant resource in the development of CRS, as high fidelity is based on real patient situations. It is recommended when possible for all nurse facilitators and students to have access to high fidelity simulation manikins. It is suggested that in the absence of high fidelity simulation equipment, nurse institutions work collaboratively with private companies, to gain access to high fidelity simulation equipment.

4.6 LIMITATIONS

The research findings and recommendations are context-specific and cannot be generalised to all nursing institutions in the South African context or the world offering nursing programs. The purpose however was never to generalise, but rather to provide context-specific recommendations for the specific NEI that identified obstacles experienced by the nurse facilitators, hindering the development of CRS of nurse students. This limitation is lessened by ensuring that the themes identified and evaluated were done with a comprehensive literature review that accompanied information from other countries, on the topic, to be able to mention common ground. It will therefore be possible to adopt or adapt the recommendations to other contexts experiencing similar challenges to the development of CRS of nurse students.

4.7 RECOMMENDATIONS FOR FUTURE RESEARCH

I.   This study is to be duplicated in another context to be able to make recommendations for nursing education in general.
II. Identify the needs of facilitators, preceptors and educators to support them with the development of CRS of students.
III. Identify the needs of nurse students to assist them in developing CRS.

4.8 CONCLUSION

Nurse students should be facilitated to develop CRS to prepare them for their role after obtaining a nursing qualification and practice as a PN. Many role-players are involved in teaching and facilitating these skills, of which the nurse facilitator is of utmost importance. It is

essential to implement the recommendations to support the nurse facilitator in their role of developing clinical reasoning skills of nurse students.

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ANNEXURE A: UNISA ETHICS APPROVAL

UNISA | university of south africa

COLLEGE OF HUMAN SCIENCES RESEARCH ETHICS REVIEW COMMITTEE

Date 25 May 2020

Dear Magdalena Elizabeth Jooste

NHREC Registration # : REC-012714-039
ERC Reference # : HSHDC/983/2020
Name : Magdalena Elizabeth Jooste
Student #: 49916599

Decision: Ethics Approval from 25 May 2020 to 25 May 2023

Researcher(s): Magdalena Elizabeth Jooste

Address 23 Austen Street, Tulisa Park, JHB

E-mail - mads.jooste@gmail.com , Tel- 071 279 5867

Supervisor (s): Name Prof L Roets

E-mail - roetsl@unisa.ac.za , Tel- 012 429 2226

Title: *Nurse facilitators` perception regarding the facilitation of the development of clinical reasoning skills*

Degree Purpose: Masters Research Project

Thank you for the application for research ethics clearance by the Unisa College of Human Science Ethics Committee. Ethics approval is granted for three years.

The *Low risk application was reviewed* by Sub-committee of URERC on **25 May 2020** in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

The proposed research may now commence with the provisions that:

1. The researcher will ensure that the research project adheres to the relevant guidelines set out in the Unisa Covid-19 position statement on research ethics attached
2. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.

3. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the Health Studies Research Ethics Committee HSREC@unisa.ac.za.

4. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.

5. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.

6. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.

7. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data require additional ethics clearance.

8. No fieldwork activities may continue after the expiry date (25 May 2023). Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

The reference number HSHDC/983/2020 should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.

Yours sincerely,

Signature : PP

Chair of HSREC : Prof JM Mathibe-Neke
CHS Ethics Chairperson
Email: mathijm@unisa.ac.za
Tel: (012) 429 6443

Signature : PP

Prof K. Masemola
Executive Dean : CHS
E-mail: masemk@unisa.ac.za
Tel: (012) 429 2298

ANNEXURE B: LHC ETHICS APPROVAL

National Health Research Ethics Committee registration: **REC 251015-048**

REF: 07312020/1

31 July 2020

Dear Magdalena Jooste

RE: APPLICATION TO CONDUCT RESEARCH

Title of study: Nurse facilitators' perception regarding the facilitation of the development of clinical reasoning skills

The Health Research Ethics Committee of Life Healthcare Group hereby grants permission with no conditions for your study to be conducted at **LIFE EAST RAND, WEST RAND & PRETORIA COLLEGES OF LEARNING.**

Due to COVID-19, access to Life Healthcare hospitals, offices and staff may be restricted. Please contact the Hospital Manager at the facility/ facilities prior to beginning your research, and ensure that you have made appropriate arrangements to carry out your study in a manner which ensures your safety, that of your participants, and both Life Healthcare patients and staff. The Hospital Manager may refuse to allow your research to take place until the COVID-19 pandemic has resolved. Please pay careful attention to points 5, 6 and 7 below.

1. If patient or institutional confidentiality is breached, Life Healthcare is entitled to withdraw this permission immediately. The Company reserves the right to take legal action against you, should Life Healthcare feel that this is warranted.

2. An electronic copy of the research report or compiled results, in the case of a clinical trial, must be submitted to the Life Healthcare Research Ethics Committee on completion of the project or trial. This copy of the research report, and any publications which may develop from it will be placed on the Company's Gateway research page for reference purposes. The researcher is required to make these documents available in PDF format.

3. No direct reference may be made to Life Healthcare, its subsidiaries or any of its facilities or institutions in the research report or any publications thereafter. The Company and its facilities, patients and staff must be de-identified in the study, and remain so for any other studies which may utilise this information. Any abstracts submitted or presentations given which will utilise the results of any research done in a Life Healthcare facility, must comply with the same conditions.

4. Research being done for educational purposes must be completed within the time allotted by the higher education institution. If the research is being done in an individual capacity by an employee of the life Group, the research must be conducted within one year of permission being given by the Company, OR must be completed in the proposed time period specified in the approved proposal. Permission may be withdrawn if the research extends beyond the approved time period.

5. Life Healthcare will not take responsibility for any unforeseen circumstances within its institutions which may materially change the context and potential outcomes of a student research. Should this occur, the student will be required to approach their Higher Learning institution for guidance around alternatives.

6. Life Healthcare will not be liable for any costs incurred during or related to this study.

7. In cases where a researcher is found to be guilty of misconduct, or in contravention of any national or international legislation or Life Healthcare policies or guidelines, permission to continue with the research will be withdrawn immediately pending investigation. In the case of student research, the higher education institution under which the researcher is registered will be notified. In the case of a clinical trial, The South African Health Products Regulatory Authority (SAPHRA) will be notified, as well as the trial sponsor and any other necessary parties.

Yours sincerely,

On behalf of the Life Healthcare

Health Research Ethics Committee

ANNEXURE C: RECRUITMENT LETTER

Dear Colleague

I, Madeleen Jooste, am enrolled as a masters` degree student at UNISA. I am conducting the study with the aim to determine your perception regarding the facilitation of the development of clinical reasoning skills in students. I also want to determine how you as a facilitator can be supported to facilitate the development of clinical reasoning skills in students.

Why are you selected to participate in this study?

As a nurse educator and facilitator, you are responsible to facilitate clinical reasoning skills in practice. Your experiences in practice can provide valuable information to in-future support the development of clinical reasoning skills in students.

Participant requirements:

If you agree to participate in this study, please click on the link at the end of this letter to obtain access to the four open-ended questions. After completing the questions, you must please click on "submit" and the raw data, without any reference to you as an individual will be captured on google forms.

Ethical considerations.

This research study received ethical approval from the Health Studies Research Ethics Committee (HSHDC/983/2020) as well as from Life HealthCare ethics committees (REC 251015-048: REF: 07312020/1)). The answers that you submit in the online questionnaire will not be able to be linked to you. The software program only gives the researcher access to the raw narrative data and not any identifiable information that can be linked back to you.

You should not feel coerced to participate**.** You can either chose not to get access to the questions, by not opening the link or if you started with the questionnaire you can still opt out by not clicking on the submit button. You can therefore withdraw from the study without any negative implications. You will not be remunerated because your participation is voluntary. There are no risks foreseen when participating,

The study findings (without any identifiable data) will be shared with Life Healthcare to improve student learning and patient outcomes. The findings will also be published in scientific journals to ensure that the results are disseminated.

Upon completion of the study, I undertake to provide all participants with an electronic copy of the full research report, should you request it. You can request a copy via e-mail as my e-mail address is available to each of you, but I will not be able to know who of you did participate or wish to receive a final report.

Please feel free to communicate with me, Madeleen Jooste (mads.jooste@gmail.com / madeleen.jooste@lifehealthcare.co.za) if you enquire any more information. You can also contact the ethics committee (NHREC@unica.ac.za) if you have any concerns.

I would appreciate your contributions by participating in this study. If you agree to participate please click on the link (https://///docs.google.com/forms/d/e///1FAIpQLScmPn1OfYwOV9vhJKbrQWNfcEeSX26Bl7NpJ bhhd0vfn9OY-Q/viewform?usp=pp_url..//) to give you access to the 4 questions.

Your participation will be appreciated

Kind regards

Madeleen Jooste

Telephone: 071 279 5867

Research supervisor

Professor Lizeth Roets

roetls@unisa.ac.za

HSREC: HSREC@unisa.ac.za

ANNEXURE D: ONLINE QUESTIONNAIRE

Nurse facilitators' perception regarding the facilitation of clinical reasoning skills in students

Dear Colleague

Thank you for your willingness to participate in this descriptive study.
The first 5 questions deal with general information, to allow me to describe the setting and the participants in general. The next 4 questions are open-ended questions that focus on your opinion regarding the development of clinical reasoning skills of student nurses.
Please be as descriptive and honest as you possibly can. You can give as much information as you deem important to describe your opinion.

Remember to click on the submit button at the end of these questions.

Thanking you in advance.
Madeleen Jooste

Please indicate your answer to the following 5 questions with a tick next to your choice.

*Required

Please indicate your gender *

- o   Female

- o   Male

How long are you involved in nursing education? *

- o   0 - 4 Years

- o   5 - 10 Years

- o   11 - 15 Years

- o   16 - 20 Years

o   More than > 21Years

Where are you teaching students? *

☐   Hospital

☐   College

Please indicate your qualifications *

☐   Diploma in General Nursing Science

☐   Degree in General Nursing Science, Midwifery, Psychiatry, and Community Nursing

☐   Post basic degree

☐   Post basic diploma

☐   Nurse Education

☐   Masters Degree

☐   External Assessors Training

☐   External Moderators Training

☐   Doctorate

Indicate the group of students you are currently teaching *

☐   Basic Nursing Students

☐   Post Basic Nursing Students

Please describe your understanding of the concept of clinical reasoning skills (CRS) development of students. *

Your answer

[text input box]

Please describe what you think are the opportunities/ possibilities that you can use to contribute to the facilitation of CRS of students *

Your answer

[text input box]

Please describe any challenges that you faced (experienced) in the past, that, in your opinion, may have hindered the development of CRS of students. *

Your answer

[text input box]

Please describe the support you feel you would need, to assist you to develop CRS of students. *

Your answer

[text input box]

ANNEXURE E: LETTER TO THE GATEKEEPER

Dear Gatekeeper

I, Madeleen Jooste, am enrolled as a masters` degree student at UNISA. I am conducting the study with the aim to determine your perception regarding the facilitation of the development of clinical reasoning skills in students.

Why are you selected to assist me as an official gatekeeper?

As a nurse educator and researcher, my, interaction with the participant could be viewed as an unequal relationship. The participants may feel pressurized to participate due to the working relationship between them and myself. To ensure consequence free participation, you will be required to be the gatekeeper. The participants will still be able to see who is conducting this research, however, because the researcher is not communicating with the participants directly, they may feel less pressurized to comply, and more free to choose not to participate

Gatekeeper requirements:

If you agree to be the gatekeeper in this research study, you will be required to forward the "recruitment" letter, to all nurse educators/facilitators actively involved in the teaching and learning process, in your region.

The data collection document is set up to "not collect" email addresses, therefore, the researcher will have no way to assess who participated and who did not.

Due to issues with the companies' computer system, the researcher requests that you please forward the letter to their respective private email addresses.

The researcher will on a continuous basis evaluate the data received, and will inform you to resend the recruitment letter if the response rate is not satisfactory. If data saturation has been achieved, the researcher will ask you to inform the participants that the data phase has been concluded.

Ethical considerations.

This research study received ethical approval from the Health Studies Research Ethics Committee (HSHDC/983/2020) as well as from Life HealthCare ethics committees (REC 251015-048: REF: 07312020/1)).

You should not feel coerced to accept the responsibility of gatekeeper.

The study findings (without any identifiable data) will be shared with Life Healthcare to improve student learning and patient outcomes. The findings will also be published in scientific journals to ensure that the results are disseminated.

Upon completion of the study, I undertake to provide all participants as well as you as the gatekeeper with an electronic copy of the full research report, should you request it. My e-mail address is available to each of you, however, I will not be able to know whom participated, nor whom would like to receive a final report.

Please feel free to communicate with me, Madeleen Jooste (mads.jooste@gmail.com / madeleen.jooste@lifehealthcare.co.za) or my supervisor Prof Lizeth Roets (roetsl@unisa.ac.za) if you enquire any more information. You can also contact the ethics committee (NHREC@unica.ac.za) if you have any concerns.

Your agreement to assist me in the recruitment of possible participants, will be highly appreciated

Kind regards
Madeleen Jooste
Telephone: 071 279 5867
Research supervisor
Prof   Lizeth Roets
roetls@unisa.ac.za
HSREC: HSREC@unisa.ac.za

ANNEXURE F: LANGUAGE EDITOR: CURRICULUM VITAE

LANGUAGE INK

Jansie Matthee

Language practitioner

Translation, text editing, proof reading, project management, copy writing & document design

19 Wessel Street, Avondale, Parow, 7500

jansie.matthee@gmail.com

083 461 8175

Member of South African Translator's Institute (SATI)

06/12/2021

Confirmation of text editing

I, Jansie Matthee, professional, qualified and practicing language editor, hereby confirm that the thesis of Magdalena Elizabeth Jooste, student number 499165994, titled *Nurse facilitators' perception regarding the facilitation of the development of clinical reasoning skills* was edited by me in preparation for submission.

This thesis is submitted in accordance with the requirements for the degree of MASTERS OF ARTS in teh subject HEALTH STUDIES at UNISA.

Should you have any queries, kindly contact me on the above contact details.

ANNEXURE G: TURNITIN DIGITAL RECEIPT

Turnitin No Reply <noreply@turnitin.com> | MAGDALENA ELIZABETH JOOSTE

This is your Turnitin Digital Receipt

Dear M E JOOSTE,

Paper ID: 1706703369

You have successfully submitted the file "Nurse facilitators' perception regarding the facilitation of the development of clinical reasoning skills" to the assignment "Complete dissertation/thesis submission for examination" in the class "CHS M&D Students" on 18-Nov-2021 06:33PM (UTC+0200). Your full digital receipt can be downloaded from the download button in your class assignment list in Turnitin or from the print/download button in the document viewer.

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