

Development of Neonatal Nursing Care Clinical Competency-Based
Assessment Tool for Nurse-Midwife Technicians in CHAM Nursing
Colleges, Malawi

Student Name: Ellemes Everret Phuma

Student Number: 3315124

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Supervisor: Professor Brian van Wyk

Co-Supervisor: Professor Oluyinka Adejumo

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Keywords

Competence

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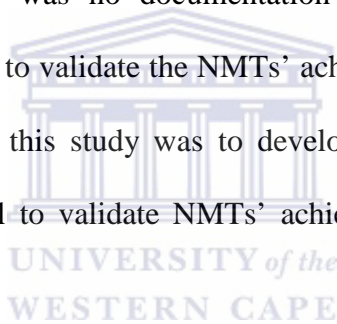
Competency-based education

Criterion-referenced assessment



Abstract

Literature has shown that Malawi is experiencing a shortage of qualified healthcare providers, with the greatest burden on maternal and neonatal health. The majority of health service providers are Nurse-Midwife Technicians (NMT), contributing to 87% of the nursing and midwifery workforce. However, research has shown that the NMTs lack the ability to transfer skills into different clinical settings. It was not known what competencies were taught in Christian Health Association of Malawi colleges to equip the NMTs with clinical competence in neonatal nursing practice and how the clinical teachers assisted these NMTs to acquire the competencies. Furthermore, there was no documentation on the availability of a clinical competency-based assessment tool to validate the NMTs' achievement of clinical competence in neonatal nursing. The purpose of this study was to develop a neonatal nursing care clinical competency-based assessment tool to validate NMTs' achievement of clinical competence in CHAM nursing colleges.



The competency, outcomes and performance assessment (COPA) model and the skills acquisition model were the conceptual frameworks used as the foundation of the study. The study adopted a sequential mixed method approach in which both qualitative and quantitative methods were utilized. Data collection was conducted using focus group discussions, document review and cross-sectional survey. The design and development model developed by Reeves (2006) and steps to development of assessment tools identified by the Department of Training and Workforce Development (2012) guided the study and development of the competency-based assessment tool. The study was conducted in eight CHAM nursing colleges. The researcher employed purposive, convenient and proportional stratified sampling to select the participants.

Ethics clearance was obtained from the University of Western Cape and the National Health Sciences Ethical Research Committee in Malawi, prior to data collection.

The data collection involved 31 midwifery clinical teachers and 140 third year students for the FGD and 48 midwifery clinical teachers and 195 third year students for the cross section survey. Document analysis was conducted at all the eight nursing colleges. The qualitative data was analysed using content analysis with Atlas.ti 7 and the quantitative data was analysed using descriptive analysis with SPSS 22. The research findings showed that the NMTs were taught basic nursing skills to enable them provide basic care to the health newborn baby. However, there were inadequate clinical assessments done to validate the NMT's achievement of clinical competence in this setting. In addition, the clinical teachers used skills checklists to evaluate the NMTs clinical performance on specific procedures.

The outcome of this study was the establishment of neonatal nursing clinical competencies, and development of a neonatal nursing care clinical competency-based assessment tool for the validation of NMT's achievement of clinical competence. The tool provides a framework for neonatal nursing clinical teaching and assessments as well as tracking of the NMT's clinical performance in this setting. It is recommended that training institutions should reinforce mechanisms to track the students' clinical experience and performance assessments using this tool to ensure quality student outcomes. Furthermore, the clinical teachers should be oriented on the use of the developed assessment tool for familiarisation; thereby enhancing consistency and objectivity in the students' performance assessments.

Declaration

I declare that *development of neonatal nursing care clinical competency-based assessment tool for Nurse-Midwife Technicians in CHAM nursing colleges, Malawi*, is my own work, that it has not been submitted for any degree or examination in any other University, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Ellemes Phuma

Date 25th November 2015



Signed:

A handwritten signature in black ink, appearing to be "Ellemes Phuma".

Dedication

I dedicate this work to the Almighty God for giving me wisdom and courage. To my late father Benson Ngaiyaye, how I wish you had lived to this day to see how grown and responsible your children have become. To my Uncle Mr A.F. Phuma, for the guidance and support, his words of encouragement and hope have been a source of my success. To my mother, sisters, brothers and nieces for their endurance during my absence, your support will always be cherished.



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The completion of this work has been a result of many people's contributions who tirelessly worked with me throughout my studies. Special thanks should go to my supervisors, Professor O. Adejumo and Professor B. van Wyk, for all the support and guidance at every stage of the research project. This work could not have been completed in time without your endless support. I am also grateful to Professor N. Mbombo, for taking me through the first stages of my research project. The guidance she provided during the proposal development helped me to shape this work into what it is today.

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I am also grateful to the Principal tutors, clinical teachers and students from the CHAM nursing colleges who participated in the study, as well as the consensus workshop participants for their contribution toward the development of the assessment tool. Their contributions are not taken for granted.

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May God bless you!

Table of Contents

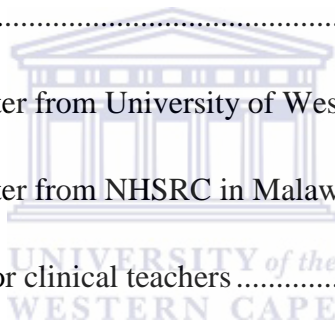
Keywords.....	i
Abstract.....	ii
Declaration.....	iv
Dedication.....	v
Acknowledgement.....	vi
Table of Contents.....	vii
List of tables.....	xii
List of figures.....	xiv
List of boxes.....	xv
Acronyms.....	xvi
Operational definitions of key concepts.....	xviii
CHAPTER ONE: Introduction.....	1
1.1 Background.....	1
1.1.1 Pre-service training for Nurse-Midwife Technicians in Malawi.....	2
1.1.2 Maternal and neonatal health status and health care delivery in Malawi.....	4
1.1.3 Neonatal nursing competencies, teaching and assessment for NMTs.....	5
1.2 Problem statement.....	7
1.3 Justification.....	8
1.4 Purpose of the Study.....	9
1.5 Research questions.....	9
1.6 Objectives.....	10
1.7 Significance of the study.....	10
1.8 Outline of the thesis.....	11

1.10 Summary	12
CHAPTER TWO: Literature Review	13
2.1 Introduction	13
2.2 Competence.....	13
2.2.1 Approaches to competence	15
2.3 Competency-based education.....	19
2.4 Conceptualising competence in neonatal nursing practice	23
2.5 Assessment of clinical competence.....	25
2.5.1 Approaches to assessment of clinical competence.....	27
2.5.2 Clinical competency-based assessment frameworks and tools	31
2.5.3 Psychometric properties of the assessment tools	39
2.6 Theoretical framework	40
2.6.1 The competency outcomes and performance assessment model	41
2.6.2 Skills acquisition model.....	46
CHAPTER THREE: Research Methodology	49
3.1 Introduction.....	49
3.2 Research paradigm.....	49
3.2.1 Design and development research approach.....	52
3.2.2 Steps to development of assessment tools	53
3.3 Phase one: Situation analysis to clarify evidence required for clinical competenc	56
3.3.1 Research design for phase one	56
3.3.2 Study setting.....	57
3.3.3 Study population	58

3.3.4	Data collection phases.....	58
3.3.5	Ethical considerations	83
3.4	Phase two: Development of solutions informed by existing design principles	84
3.4.1	Phase two research design.....	85
3.4.2	Study setting.....	85
3.4.3	Population	85
3.4.4	Sampling and sampling technique	86
3.4.5	Data collection procedure: Choosing assessment methods and approach	87
3.4.6	Data analysis	91
3.4.7	Design and development of clinical competency-based assessment tool	92
3.4.8	Review and refinement of assessment tool.....	93
3.5	Summary	93
CHAPTER FOUR: Presentation of findings		95
4.1	Introduction	95
4.2	Phase one findings: Neonatal nursing clinical competencies taught to NMTs and approaches to facilitate and assess clinical competence.	95
4.2.1	Data from the focus group discussions	96
4.2.2	Findings from the document review	133
4.2.3	Findings from the cross-sectional survey.....	138
4.2.3.6	Summary for phase one findings	164
4.3	Phase two: Development of the neonatal nursing care clinical competency-based assessment tool.....	170
4.3.1	What competencies should be included for clinical assessment in neonatal nursing for the NMTs?	171

4.3.2	How would these competencies be assessed in the clinical area?.....	179
4.3.3	Who would be involved in assessing the NMTs' clinical competence?	195
4.3.4	Where will the assessments for clinical competence be conducted?	196
4.3.5	When will the assessment be conducted?	196
4.4	Stakeholders review and validation of the competency-based assessment tool ...	198
CHAPTER FIVE: Discussion.....		200
5.1	Introduction.....	200
5.2	Reflection on research objectives	200
5.2.1	Objective one: To explore and describe neonatal nursing clinical competencies taught to the NMT in CHAM.....	201
5.2.2	Objective two: To explore how clinical teachers assist the NMT in acquiring competencies in neonatal nursing.	205
5.2.3	Objective three: To explore and describe how the NMT's clinical competence in neonatal nursing is assessed.	214
5.2.4	Objective four: To develop a neonatal nursing care clinical competency-based assessment tool for NMTs.	224
5.3	Summary	234
CHAPTER SIX: Conclusions and Recommendations.....		236
6.1	Introduction	236
6.2	Conclusion.....	236
6.3	Contribution of the study	238
6.3.1	Theoretical contribution.....	238
6.3.2	Practical contribution.....	239
6.4	Implications for research.....	240

6.5	Limitations of the study	241
6.6	Recommendations.....	242
6.7	Summary.....	245
	References.....	246
	Appendices.....	278
	Appendix 1: Focus group discussion guide.....	278
	Appendix 3: Clinical teachers' questionnaire	280
	Appendix 4: Students' questionnaire	284
	Appendix 5: Likert Scale.....	287
	Appendix 6: Ethics clearance letter from University of Western Cape	288
	Appendix 7: Ethics clearance letter from NHSRC in Malawi	289
	Appendix 8: Information sheet for clinical teachers	290
	Appendix 9: Information sheet for students	293
	Appendix 11: Individual review and consensus agreement form	297
	Appendix 12: The Neonatal nursing care clinical competency-based assessment tool for Nurse-Midwife Technicians.....	306



List of tables

Table 2.1: Summary of the different approaches to competence.....	17
Table 2.2: A comparison of the traditional and competency-based framework.....	21
Table 2.3: Summary of the assessment tools.....	37
Table 3.1: Reeves design-based phases versus steps for designing assessment tools.....	55
Table 3.2: Participants for the focus group discussion.....	61
Table 3.3: Sample for student respondents.....	77
Table 3.4: Workshop participants.....	86
Table 4.1: Themes and sub-themes generated from the FGD.....	97
Table 4.2: Competencies taught to the Nurse-Midwife Technician.....	144
Table 4.3: Approaches used to assist the Nurse-Midwife Technician to acquire clinical competence.....	149
Table 4.4: Approaches used to assess clinical competence.....	153
Table 4.5: Clinical teachers' perception of NMCM assessment approach.....	155
Table 4.6: Clinical teachers' perception of OSCE.....	156
Table 4.7: Clinical teachers' perception of direct observation.....	158
Table 4.8: Assessment tools.....	159
Table 4.9: Clinical teachers' perceptions of the checklist.....	161

Table 4.10: Clinical teachers’ perceptions of the green book.....162

Table 4.11: Clinical teachers’ perception of NMCM tool.....164

Table 4.12: Summary of findings.....167

Table 4.13: Summary clinical competency areas agreed by consensus.....173

Table 4.14: The criterion-referenced rubric for NMTs’ neonatal nursing practice.....185

Table 4.15: Skills to be demonstrated to NMT prior to clinical placement.....192



List of figures

Fig 2.1: Lenburg's concept of COPA Model and associated study objectives.....45



List of boxes

Box 4.1: Competency standards agreed by consensus.....182

Box 4.2: Roles and responsibilities of the student agreed by consensus.....193

Box 4.3: Roles and responsibilities of the clinical teacher agreed by consensus.....194



Acronyms

ANMC	Australian Nursing and Midwifery Council
APGAR	Appearance, Pulse, Grimace, Activity, and Respiration
BEMOC	Basic Emergency Obstetric Care
CBE	Competency-based Education
CHAM	Christina Health Association of Malawi
COPA	Competency, Outcomes and Performance Assessment
CPD	Continuing Professional Development
DHS	Demographic Health Survey
DWTD	Department of Training and Workforce Development
ENM	Enrolled Nurse-Midwife
FGD	Focus Group Discussion
HBB	Helping Babies Breathe
ICM	International Confederation of Midwives
KMC	Kangaroo Mother Care
MDG	Millennium Development Goals
NHSRC	National Health Sciences Research Committee
NMC	Nursing and Midwifery Council
NMCM	Nurses and Midwives Council of Malawi
NMT	Nurse-Midwife Technician
OSCE	Objective Structured Clinical Examination

SOAP	Subjective, Objective, Assessment and Plan
SOAPIER	Subjective, Objective, Assessment, Plan, Evaluation, Intervention and Review
SPSS	Statistical Package for the Social Sciences
SRN	State Registered Nurse
SRNM	State Registered Nurse and Midwife
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
WHO	World Health Organisation



Operational definitions of key concepts

Approaches to assist acquisition of competence: Refers to the methods or strategies used by clinical teachers to facilitate the students' acquisition of clinical skills or competence.

Approaches to validate competence: Refers to the methods used by clinical teachers to evaluate the students' achievement of clinical competence, or to define the students' level of competent practice in neonatal nursing.

Attributes: Refers to the characteristics which underpin the competent performance of an NMT. The clinical teacher uses these characteristics to determine the NMT's level of clinical competence in neonatal nursing.

Clinical mentor: Refers to a registered nurse and/ or midwife or registered nurse/midwife who has undergone formal or informal training to facilitate student learning in the clinical area. The mentor guides and supports student learning through coaching and supervision, and assesses student performance in the clinical setting.

Clinical teacher: Refers to a nurse-midwife professional, including tutors involved in student teaching, theory and practice, in neonatal nursing. The clinical teacher follows students from the classroom experience to clinical practice during the period of training.

Competence: Refers to the ability of the NMT to integrate and apply the knowledge, skills, attitudes and personal behaviour in the provision of basic neonatal care with minimal supervision.

Competency: Competency refers to the characteristics that an individual uses to render services to meet the client's needs. It refers to the knowledge, skills, values, attitudes and social roles

required for the NMT to provide basic neonatal nursing care. **Competency areas:** Refers to an organised cluster of competencies in neonatal nursing practice. All the professional activities the NMT carries out can be clustered under each or across all the competency areas.

Competency area: A competency area is a unit of performance organized for practitioners to understand how work items are organised within practice. In this study the competency areas represents the units of practice organised for the NMT's achievement in neonatal nursing practice. The term has been used interchangeably with competency in some sections.

Competency-based assessment: refers to the process of collecting evidence and making judgements on whether competence has been achieved; with the aim of confirming whether the NMT can perform to the expected standards for the provision of basic neonatal nursing care.

Competency standard: This is an outcome statement describing the expectations or minimum requirements for the NMT's effective performance in neonatal nursing practice.

Neonatal nursing care: Refers to nursing activities provided to infants 0-28 days old and their families, and are directed towards cure, health promotion and maintenance as well as the prevention of complications.

Nurse-midwife technician: Refers to a student undergoing a three year nursing and midwifery diploma program leading to qualification as an assistant nurse-midwife.

CHAPTER ONE

Introduction

1.1 Background

The global shortage of skilled health care providers is a major barrier to achieving the health related Millennium Development Goals (MDG). The World Health Organisation (WHO) (2014:37) estimates a shortage of skilled health workers of 7.2 million globally. The African region experiences 1.8 million of the global shortage, yet accounts for 25 percent of the global burden of disease (Bangdiwala, Fonn, Okoye & Tollman, 2010:298). Malawi is one of the countries facing a critical shortage of skilled healthcare providers in Africa. As of 2009, the health worker-to-patient densities were 0.019 physicians and 0.343 nursing and midwifery personnel per 1,000 population (Chimwaza, Chipeta, Ngwira, Kamwendo, Taulo, Bradley & McAuliffe, 2014:1); which is far below the WHO recommended standards for developing countries of one physician/5,000 population and one nurse/1,000 population (European Union, Global Health Workforce Alliance & WHO, 2009:34). As such, the Malawi Government planned to increase the number of key healthcare providers in its 2011-2016 health sector strategic plan (Ministry of Health, 2011). These include physicians, nurses and midwives as well as mid-level technical healthcare providers, clinical officers and nurse-midwife technicians (NMTs). The nurse-midwife technicians are the majority frontline providers and play a significant role in the provision of general patient care as well as obstetric and neonatal health services.

1.1.1 Pre-service training for Nurse-Midwife Technicians in Malawi

In Malawi, nursing training was started as early as 1889 by missionaries. This was not a formal type of training and candidates of such training became nurse auxiliaries (Msiska, 2012:7). Later, the training was formalised and candidates qualified with a certificate, and were designated as enrolled nurse-midwives (ENM). The ENMs were trained according to a program that no longer exists, in Mission Schools run by the Christian Health Association of Malawi (CHAM); an ecumenical, non-governmental umbrella organization of Christian owned health facilities.

Currently, there are 15 training institutions offering pre-service nursing and midwifery education with two active pathways, registered nurse and midwife, and nurse-midwife technician. Both pathways of training focus on general nursing and midwifery practice. Five training institutions offer level one nursing and midwifery education to post-secondary school students who complete a four year university study leading to their designation as state registered nurses (SRN) or state registered nurse and midwife (SRNM). Upon graduation, the SRNM and SRN assume a supervisory role (Kadango, 2009:3) in addition to the provision of bedside nursing.

The second pathway is level two integrated nursing and midwifery education which is offered through a three year college diploma programme leading to nurse-midwife technician (NMT); an existing equivalent of the enrolled nurse-midwife cadre. The NMT programme is offered to post-secondary students who have a good '0 level' but have not achieved a university education, and who practise as mid-level technical practitioners. Currently, nine institutions coordinated by CHAM and one parastatal nursing college offer the NMT training programme. The CHAM training institutions produce about 80% of the nurse-midwife technicians in Malawi; making the NMTs the majority in the health care delivery system.

The Nurse-Midwife Technicians are the major workforce in the delivery of healthcare services; contributing to more than 87% of the nursing and midwifery workforce in the public health service (USAID, 2006:4). The NMTs enter into practice as nurse-midwife assistants, to provide basic nursing as well as maternal and neonatal health services, albeit under supervision. However, in most settings, they often practise independently, with little or no supervision from professionals (WHO, 2008:29). Similar cadres of nursing practitioners have been reported to provide basic health services in other countries. For instance, in Australia, the enrolled nurse is an associate to the registered nurse, and carries out delegated duties in health care interventions (Australian Nursing and Midwifery Council (ANMC), 2002:1). Similarly, in Tanzania, Zambia and Mozambique, similar cadres have been reported to improve access to emergency obstetric care, post-operative care, post-abortion care (PAC) and reproductive health care (WHO, 2013: Brown et al., 2011; Bangdiwala et al., 2010). In Malawi, the NMTs form the backbone of basic services proven to have contributed in the reduction of maternal and neonatal mortality, such as family planning, antenatal and postnatal care, neonatal care and skilled birth attendance (Darmstadt et al., 2005:985; Campbell & Graham, 2006:1285).

Despite being the largest health service providers, Kadango (2009:5) observes that NMTs lack the ability to transfer skills into different clinical settings. Lack of adequate skills has been correlated with neonatal mortality (Freberg et al., 2012:2) as the NMTs fail to monitor and identify complications, and provide lifesaving interventions. Similarly, WHO (2012:8) reported an association between neonatal mortality and the availability of skilled birth attendants; countries with very high neonatal and maternal mortality rates had very low numbers of births supported by skilled birth attendants. Brown et al. (2011:308) argue that the mid-level healthcare providers' shorter training of 2-3 years and lower qualifications might be a contributing factor to

the provision of low quality care. On the other hand, Fulton et al. (2011:10) observe that adequate training of mid-level healthcare providers increases access to quality healthcare at a lower cost.

As such, the training of competent nurse-midwife practitioners is critical to the delivery of quality neonatal health services. Unlike in other countries where competency standards for this cadre have been prescribed (ANMC, 2002:1-13), there are no competency standards specifically prescribed for the training and practice of NMTs in Malawi. However, the NMTs remain the major providers of healthcare services, calling for the improvement and strengthening of pre-service nursing and midwifery education for this cadre of practitioners. WHO (2013:22) recommends a competency-based approach to the training of healthcare practitioners to enable them to acquire a minimum set of scientifically based knowledge and skills, needed to deliver health care upon entry into the workforce. In view of this, in 2010, the Nurses and Midwives Council of Malawi (NMCM) in collaboration with CHAM, reviewed the NMT syllabus to incorporate a competency-based approach to enable the NMT to acquire the necessary skills for provision of quality care. Currently, NMCM works with the training institutions to promote nursing and midwifery education with an emphasis on enabling the nursing students to attain the essential competencies for entry level practice (NMCM, 2012:6).

1.1.2 Maternal and neonatal health status and health care delivery in Malawi

Malawi is one of the poorest countries in the world and is experiencing a high disease burden. Despite having a number of challenges in meeting the MDGs, Malawi is one of the low-income sub-Saharan African countries to meet the Millennium Development Goal (MDG 4) for child survival (United Nations, 2015:35). However, the neonatal deaths remains on the higher side,

with 23 deaths per 1,000 live births in 2013 (UNICEF et al., 2014:21) - requiring continued strategies and interventions to improve neonatal health status in Malawi.

In addition, the maternal mortality ratio, according to all national data and estimates published most recently by WHO, is estimated at 460 per 100 000 live births (WHO et al. 2012:34) while the 2010 Demographic Health Survey (DHS) suggests 675 per 100 000 live births, indicating a reduction from 984 in 2004 (NSO, 2011:221). Despite the efforts towards achieving the health MDGs, Malawi continues to face challenges such as high population growth rate, high fertility rate, high human immunodeficiency virus (HIV) prevalence and low health worker density. These challenges, especially the low health worker density, would affect the long term implementation of strategies to further reduce maternal and neonatal deaths. Although the proportion of births attended by skilled health personnel has seen a modest rise (Lunan, Clements, Mahony & Hope-Jones, 2011:11), a good proportion of the babies are still delivered without the support of a skilled healthcare provider, making it hard to treat complications quickly and efficiently (The Health Foundation, 2008:2). Lack of well qualified nurses and midwives is one of the contributing factors to the quality of the neonatal health services (Kadango, 2009:3), with the majority of health services being provided by the mid-level technical practitioners (NMTs).

1.1.3 Neonatal nursing competencies, teaching and assessment for NMTs

In Malawi, the neonatal health nursing course for NMTs, also referred to as neonatology, comes as a component of the midwifery module in the NMT syllabus. It is taught during the third year of the NMT diploma programme. The NMT is expected to cover 220 hours of learning neonatology both theory and clinical practice (Nurses and Midwives Council of Malawi, 2010: course outline 3). According to NMCM syllabus (2010) the NMT is expected to acquire

knowledge, skills and attitudes as core competencies to enable him/her to provide neonatal health care. An emphasis on the acquisition of essential competencies for midwives' training is important for the provision of quality and safe neonatal health services (Fullerton et al., 2011:401). While NMCM has provided the syllabus to guide the training of NMTs, nursing colleges are mandated to develop their own teaching and assessment tools incorporating the core competencies. However, there is a dearth of literature on what competencies are taught to the NMTs in the CHAM nursing colleges in relation to the NMCM core competencies in neonatal health nursing or neonatology.

Furthermore, there is no documentation on the approaches used to assist the NMTs to acquire and validate their achievement of the clinical competence. Tveit et al. (2009:5) observe that the delivery of the nursing courses to the NMTs use traditional approaches to student learning, with demonstrations as a commonly used clinical teaching strategy. However, NMCM advocates for the use of adult learning approaches, singling out self-directed learning and simulation (NMCM, 2012:9), to assist the NMT in acquiring clinical competence. Self-directed learning, as one of the competency teaching and learning approaches, has been associated with improvement in acquisition of competence in all the three domains of knowledge, skills and attitude, and the development of lifelong learning skills among students (Murad, Coto-Yglesia, Varkey, Prokop & Murad, 2010:1057). Acquisition of skills can be influenced by the nature of learning and assessment procedures. Adegoke et al. (2013:69) argue that the competency-based approach to student learning and assessment facilitates critical thinking and the ability to transfer the skills into various clinical settings, thereby, enhancing the acquisition of skills.

However, the assessment of skills acquisition among the NMTs has focused on performance, using skills checklists which focus on psychomotor skills (Tveit et al., 2009:29) and knowledge,

leaving out the affective domain. This is a challenge when it comes to acquisition of skills as the NMT may memorise the procedures and show the desired performance without the application of knowledge and critical thinking (Oranye et al, 2012:240; Mulder et al., 2009:765). As such, the NMT enters into practice without attaining the expected level of competence. This leads to an inability to transfer skills in complex neonatal care situations. In view of this, NMCM advocates for the development of competency-based assessment tools that provide evidence of the student's performance and progress towards the achievement of the required clinical competencies (NMCM, 2012:9; NMCM 2002:13).

1.2 Problem statement

Malawi experiences a shortage of skilled healthcare practitioners, with the greatest burden on maternal and neonatal health services (Kalipeni, Semu & Mbilizi, 2012:153-171). The majority of health service providers in the public health sector are NMTs. However, it has been reported that the NMTs lack the ability to transfer skills into different clinical settings (Kadango, 2009:5) making it a challenge for the delivery of quality care. To improve the quality of care by NMTs, NMCM reviewed the NMT syllabus to incorporate a competency-based approach emphasising the demonstration of knowledge, skills and attitudes as the core competencies required for the NMT. However, it is not known what competencies are taught in the nursing colleges to equip the NMT with adequate skills to provide basic neonatal care and how the clinical teachers assist the NMTs to acquire the clinical competencies. Furthermore, there is no documented competency-based assessment tool to validate the NMT's achievement of clinical competence in neonatal nursing. As such, this study seeks to describe the competencies taught to the NMTs in CHAM nursing colleges; explore how clinical teachers assist the NMTs to acquire the competencies and how the NMT is assessed to validate achievement of the required clinical

competencies. The study, thereafter, would develop a comprehensive clinical competency-based assessment tool for the assessment of NMTs' clinical competence in neonatal nursing.

1.3 Justification

Clinical assessment for NMT focuses on task performance using checklists despite the syllabus' focus on the competency-based approach. However, checklists have been unreliable in improving students' competence because of the failure to facilitate the students' application of critical thinking when carrying out the tasks (McWilliam & Botwinski, 2012: 38; Oranye et al, 2012:240). This is because the students memorise the skills as presented in the checklists to pass the procedure (Fastre et al., 2010:518). This leads to failure to transfer these skills in diverse clinical situations. As major healthcare providers in Malawi, the NMTs need adequate skills to ensure their ability to provide quality neonatal care upon entry into practice. Hence, the researcher developed a comprehensive clinical competency-based assessment tool which integrates the NMTs learning experience to validate clinical competence in neonatal care. Unlike other tools which have focused on general competencies targeting registered nurses in other countries (Liu et al., 2009:893; Mulder et al., 2009:756; Marshburn, 2009:427; Gulikers, 2008:173) or teachers as observers (Klein, 2006:382), the developed tool covers required clinical competencies in neonatal nursing at the level of the NMTs to enable them to provide quality nursing care to neonates and their families. The tool will work as a holistic framework to provide the NMT with a diversity of learning experience through self-assessment, reflection and continuous feedback; with the clinical teacher as a coach and an assessor at different points of the assessment process. It is believed that the development of a competency-based assessment tool for pre-service training, to validate neonatal nursing clinical competency achievement

among NMTs, will promote sustainable efforts in the training of skilled mid-level healthcare providers to help reduce neonatal mortality further in Malawi.

1.4 Purpose of the Study

The purpose of the study was to develop a neonatal nursing care clinical competency-based assessment tool to validate NMTs' achievement of clinical competence in CHAM nursing colleges.

1.5 Research questions

The following questions guided the study:

1. What competencies are taught to the NMT in neonatal nursing in the CHAM Nursing Colleges?
2. What approaches do clinical teachers use to assist the NMT to acquire clinical competence in neonatal nursing?
3. What approaches do clinical teachers use to validate achievement of clinical competence among NMTs?
4. What tool would be appropriate for assessment to validate the achievement of clinical competence among NMTs?

1.6 Objectives

The study objectives were:

1. To explore and describe neonatal nursing clinical competencies taught to the NMT in CHAM nursing colleges
2. To explore how clinical teachers assist the NMT to acquire the clinical competencies in neonatal nursing
3. To explore and describe how the NMT's clinical competence in neonatal nursing is assessed
4. To develop a neonatal nursing care clinical competency-based assessment tool for NMTs.

1.7 Significance of the study

Considering the review of the NMT syllabus to adopt a competency-based approach, NMCM advocates for nursing and midwifery education that will enable the NMT to acquire the core competencies for entry level practice (NMCM, 2012:6). In addition, NMCM advocates for the development of assessment tools that will provide evidence for the students' achievement of clinical competence. It is in view of this that the findings from this study may help nurse educators to understand the expected clinical competencies for neonatal nursing for NMTs, thus enhancing effective approaches to assist students in acquiring these competencies.

Since there is no documented competency-based assessment tool for clinical neonatal nursing for NMTs, the development of such a tool would help the clinical teachers understand the levels of skills acquisition among students, hence promoting the attainment of required clinical competencies for practice in neonatal nursing. This may also help to ensure consistency of skills

assessment in both skills laboratories and the clinical setting, and the validation of the students' level of clinical competence in neonatal care practice thereby improving the quality of nursing education. Furthermore, carrying out this study would generate new knowledge and assessment procedures to guide students as they acquire clinical competence in basic neonatal nursing care hence improving the number of skilled health workers. This could lead to quality care and patient safety and in so doing contribute to further reduction of neonatal mortality.

1.8 Outline of the thesis

The thesis has been organised into six chapters as follows:

Chapter one highlights a general background to the status and level of competence for midlevel healthcare practitioners and their contribution towards healthcare delivery in Malawi. It also highlights the need for strengthening the mid-level healthcare providers, the NMTs and training through a competency-based teaching and assessment approach to assist them in acquiring the expected level of clinical competence with a focus on neonatal health nursing.

Chapter two of the thesis presents a review of the literature on competence, competency-based nursing education and assessments. The chapter also highlights the conceptual frameworks that guided the study and the development of the clinical competency-based assessment tool.

Chapter three presents the research methodology, providing information on the qualitative and quantitative approaches used for the study and the design and development approach. The chapter has two phases; phase one is the situation analysis and phase two is the development of the assessment tool, review by experts and refinement of the assessment tool.

Chapter four presents the findings of the study, both the qualitative and quantitative findings and the development of the clinical competency-based assessment tool.

Chapter five discusses the results in relation to the available literature. The discussion includes the developed neonatal nursing clinical competency-based assessment tool.

In chapter six the researcher presents the contribution of the study and recommendations

1.10 Summary

The chapter started by providing a background to the global status with regards to the shortage of skilled healthcare providers and the utilization of mid-level healthcare providers to improve healthcare delivery, especially in low-resource countries. Then an overview of the nursing and midwifery training for the NMTs, in Malawi, as mid-level healthcare providers and their contribution to the healthcare delivery system was presented with a focus on neonatal health nursing. It has been noted that the NMTs are the major health care providers despite a reported lack of skills for the provision of comprehensive basic nursing care. The chapter continued with an overview of the maternal and neonatal health status and healthcare delivery in Malawi. It has been noted that Malawi still experiences a high neonatal mortality rate despite being on track for the achievement of the MDG 4. Hence, the chapter has also looked at the neonatal health nursing competencies, teaching and assessment for the NMTs, making an observation on the absence of competency-based assessment tools despite the focus of the NMT syllabus on competency-based education. A justification for the development of the assessment tool has been provided and the problem statement given. The chapter concludes with the research questions and objectives, significance of the study and the thesis outline.

CHAPTER TWO

Literature Review

2.1 Introduction

Competency in nursing has a direct influence on the health and safety of all patients. Health professional training exists to assist health care providers acquire knowledge, skills and attitude needed to provide quality patient care. In fulfilling this goal, educational institutions have focused on incorporating a competency-based approach to the training of healthcare providers to bridge the gap between what students learn in the classroom and what they need to know for work (Hsu & Hsien, 2012: 492). With this approach to training, there is need to employ effective assessment approaches to ensure that nurses and midwives acquire the expected competencies to meet the standard of care and achieve the best patient outcomes. This chapter presents and discusses the literature on competence and competency-based education as well as the clinical assessment of competence. The researcher used CINAL, Google Scholar, Pubmed and PsychInfo data-bases to search the information related to the topic under study. The chapter also discusses the conceptual frameworks that guided the study and the development of the clinical competence-based assessment tool.

2.2 Competence

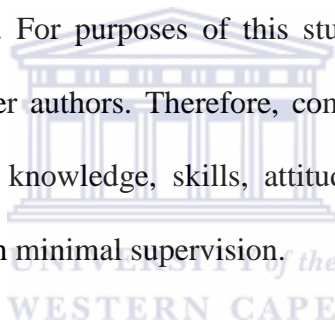
Despite the wide use of the concept competence, there is no consensus definition. Several attempts have been made by researchers, educators and practice-based nurses to establish a framework and definition for competence (Hsu & Hsien, 2012: 492; Axley, 2008:215). In some cases, the concept of competence has been confused with competency. Competency refers to the

knowledge, skills, values, social roles, and other characteristics that an individual uses, in appropriate ways, to produce a product or render a service to meet the needs of a client (Dubois & Rothwell, 2000:3). According to Dubois and Rothwell, not all human characteristics are competencies. A human characteristic is a competency only if it can be shown to be required for successful performance. Competencies are based on what a person does. They are behavioral and observable. If one is competent then the result is effective or possibly outstanding job performance (Barbazette, 2005:14). Thus, an individual must possess and apply these competencies to perform effectively in a job. On the other hand, competence denotes a set of knowledge, abilities, skills, capabilities, judgement, attitudes, and values demonstrated by an individual in the provision of a service (Banta, 2001:1).

McMullan et al. (2003: 284) make a distinction between competence and competency stating that competence is focused on the description of the action or behavior that a person should demonstrate in performance while competency is focused on the individual's behavior that underpins the competent performance. In other words, competence is job related and refers to the person's ability to meet the requirements. On the other hand, competency is person related and refers to the person's knowledge, skills and abilities that make it possible to effectively function in a job (Anema & McCoy, 2010:5). Competence denotes all the attributes required to function independently. It is a set of behaviours built on the components of knowledge, skills, attitudes and personal ability (Carracio et al., 2002:362). It signifies both the person's ability and entitlement to act and judge professionally. Thus, competence can never be demonstrated until it is actually achieved in a sustained independent way in practice.

In nursing practice, competence has a direct influence on patients' health and safety. Lack of competence among healthcare providers may lead to serious errors resulting in patient harm or

loss of life (Axley, 2008:215). The Nurses and Midwives Council of Malawi (NMCM, 2010:145) define competence as a set of knowledge, skills and attitudes required to practise safely and effectively without direct supervision. It entails the level of mastery of performance requirements resulting from integrative learning experiences that are relevant to the task being performed. In addition, competence entails transferable general attributes essential for effective performance which include problem-solving and critical thinking capacity (McMullan et al., 2003:283-294). It describes an action, behaviour or outcome that a person should demonstrate in performance. But the acquisition of technical skills in itself does not guarantee effective performance. A practitioner needs to be proficient in all the three domains; knowledge, skill and attitude, to be deemed competent. For purposes of this study, the researcher summarises the description of competence by other authors. Therefore, competence refers to the ability of an individual to integrate and apply knowledge, skills, attitudes and personal behaviour in the provision of basic nursing care with minimal supervision.



2.2.1 Approaches to competence

McMullan et al. (2003:285) identifies three normative conceptualisations of competence which form the basis for assessment approaches. These include the behaviourist approach, the generic approach and the holistic approach. The behaviourist approach, also known as the performance based approach to competence, describes an action, behaviour and outcome in a form that can be demonstrated, observed and assessed (McMullan et al., 2003:285). It focuses more on performance than on knowledge and is concerned with ‘what people do than what they know’ (Fordham, 2005:45). In this approach a successful performance is only possible when the necessary knowledge and understanding are present. Thus, there is no need to assess these separately. However, this approach has been criticised for its lack of transferability in a variety

of situations (Fordham, 2005:45). Relying on performance for professional competence does not guarantee that the person would perform appropriately in a variety of context. In view of this, other researchers have proposed the generic approach to competence. This approach considers competence as clusters of abilities which are conceptually linked and concentrates on the general attributes associated with expert performance. Such attributes include knowledge or critical thinking capacity (McMullan et al., 2003: 287) believed to be applicable in different situations. In whatever circumstances, competent practitioners will do well in the presence of these attributes. But, how can these competency-attributes, critical thinking and affective skills be best assessed using the generic approach?

Acknowledging the challenges with the other approaches to competence, other researchers (Fahy, 2011:42; Fordham, 2005:42; McMullan et al., 2003:287) suggest a holistic approach to integrate the behaviourist and generic approaches. This approach combines the general underlying attributes of the practitioner with the context in which these attributes might be applied rather than ignoring this context as in the generic approach. Competence is dynamic with different meanings and interpretations. As such a combination of different aspects of attributes; knowledge, attitudes, values and skills are necessary for an intelligent performance in different situations (table 2.1 provides a summary of the strengths and limitations to the approaches). According to Gonczi (1994 cited in McMullan et al., 2003: 287) a holistic approach to competence allows the incorporation of ethics and values as elements in competent performance and the need for reflective practice while promoting professional judgement.

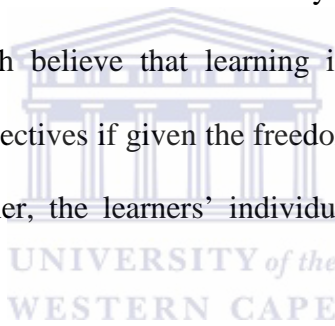
Table 2.1: Summary of the different approaches to competence

Competence Approach	Description	Strengths	Limitations
<p>Behaviourist (McMullan et al., 2003:285; Fordham, 2005:45)</p>	<p>Also known as performance based Specifies what needs to be done to fulfill the job requirement Concerned with what people can do, rather than what they know</p>	<p>Provides an assessor with statements by which judgement about an individual's ability to perform a specified activity to an acceptable level can be made Practice is judged against a number of discreet elements</p>	<p>Complex professional skills are reduced to a list of tasks Disregards underlying attitudes, performance in real life settings and complexity of professional judgement</p>
<p>Generic (McMullan et al., 2003:285)</p>	<p>Concentrates on a person's attributes for effective performance The attributes, critical thinking, problem solving and self-confidence will equip a person with transferable skills applied in different settings</p>	<p>Assessment incorporates underlying knowledge, understanding and skills</p>	<p>Attributes required may differ depending on the area of expertise, hence the competencies may not be applied in all situations Difficulty to measure adaptability/self-confidence objectively</p>

Competence Approach	Description	Strengths	Limitations
Integrated/Holistic (Fahy, 2011:42; Fordham, 2005:42; McMullan et al., 2003:285)	A combination of the behaviorist and generic approaches with the belief that there is more than one way of demonstrating professional competence Focuses on knowing how as opposed to knowing what	Considers the importance of professional judgement and clinical reasoning Allows the integration of knowledge, attitudes, skills, values and ethics when assessing competence	Assessment is complex, not all values may be applicable in all situations.

2.3 Competency-based education

Competency-based education (CBE) was introduced in America towards the end of the 1960s in reaction to concerns that students are not taught the skills they require in life after school (Gregg, 2001: 26). Since then, the approach has been widely used in adult education, nursing and other disciplines. Gruppen et al. (2012:43) describe CBE as a framework which focuses on desired performance characteristics that a learner must attain to be considered competent. It is an outcome-based approach to the design, implementation, assessment and evaluation of an education program using an organised framework of competencies (Jhpiego, 2012:16; Weinberger et al., 2010:752). CBE has been favoured by researchers based on its focus on principles of adult learning which believe that learning includes trust, and that adults can determine and achieve learning objectives if given the freedom and opportunity to do so (Anema & McCoy, 2010:4). In this manner, the learners' individual learning styles and abilities are recognised and appreciated.



Competency-based education contrasts with the traditional educational frameworks as presented in table 2.2. The traditional and didactic frameworks define the training experience by exposure to specific contents for specified periods of time, e.g. four weeks of neonatal nursing, while the competency-based framework defines the desired outcome of training outcome driving the educational process (Carracio et al., 2002:361). Thus, the focus of the traditional and didactic educational approach is on objectives to determine cognitive achievement and what the learner should know resulting in structured problem solving. Using this approach for instruction, the student is passive while the teacher provides the learner with knowledge. In addition, Weinberger et al. (2010) observe that in traditional frameworks, assessment of the learner focuses on demonstration of knowledge acquisition with the learner striving to complete the

training by meeting time, process and curriculum requirements. As such, students work to understand the concepts and memorise the material, in readiness for assessments, without internalising the information for application in diverse situations (Kember, 2000:105). On the other hand, CBE focuses on competencies; what the student should be able to do (Fastre et al., 2010:518). It defines the competencies that the student must demonstrate, having mastered them at specific stages of training. Competency-based frameworks use demonstration of skills, knowledge and attitudes to evaluate performance potential of a student, thereby contributing to the preparation of competent practitioners. Thus, competency-based frameworks focus more on objectives and direct measures of whether the learner can apply what has been learnt, thereby enhancing the acquisition of essential cognitive, psychomotor and affective skills as well as continued development of skills (Anema & McCoy, 2010:7).

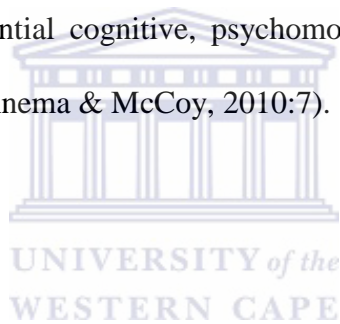
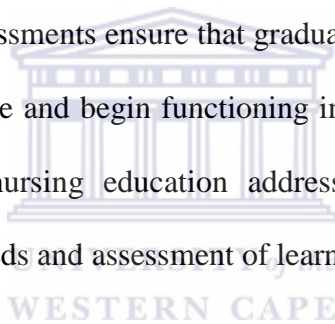


Table 2.2: A comparison of the traditional and competency-based framework (Adapted from Carricio et al., 2002).

Variable	Educational Framework	
	Traditional	Competency-based
Driving force of curriculum	Content: acquisition of knowledge	Outcome: Application of knowledge
Goal of education encounter	Knowledge acquisition	Knowledge application
Responsibility for educational process	Teacher	Learner
Path of learning	Hierarchical: Teacher \longrightarrow Student	Non-hierarchical: Teacher \longleftrightarrow Students
Responsibility for content	Teacher	Both teacher and student
Assessment	Emphasis is on summative (high stakes for final evaluation)	Emphasis is on formative, with on-going feedback facilitating improvement
Assessment tool	Indirect assessment; single subjective measure	Direct with observation of real tasks of profession; multiple objective measure
Evaluation standards	Relative to peers (norm-referenced)	Relative to objective measures (criterion-referenced)
Programme completion	Fixed time (depends on meeting the curriculum requirements)	Variable time (depends on learner outcome)

In nursing education, CBE refers to an approach to instruction and assessment that emphasises the identification and measurement of specific outcomes or competencies (Tilley, 2008:59). The aim is to produce skilled nurses and midwives to ensure high quality care and patient safety. While there is an increased demand for competent and safe practitioners in the nursing and midwifery professions, Liou et al. (2013:358-359) argue that nurse education has placed more emphasis on developing students' technical skills in the skills laboratory, to develop the proficiencies needed for clinical practice. Yet students are not adequately prepared to face the real clinical settings with confidence. This is attributed to the fact that students' skills performance is assessed independently from the required competencies. Anema and McCoy (2010:2) observe that in CBE, assessments ensure that graduates have essential knowledge, skills and attitudes to enter the workforce and begin functioning in entry-level positions. Therefore, a competency-based approach to nursing education addresses accountability for educational outcomes and aligns workforce needs and assessment of learners' competence.



The focus of CBE is on identifying and measuring specific learning outcomes for initial and continuing competence, done at each level of training using different approaches. The learners are expected to demonstrate competence at each level. Advancement to the next level of training is based on demonstration of appropriate competence (Weinberger et al. 2010: 752). Van der Horst and McDonald (1997:10-11) identify six critical components important in CBE which include: explicit learning outcomes with respect to the required skills and related proficiency (standards for assessment), a flexible time frame to master these skills, a variety of instructional activities to facilitate learning, criterion-referenced testing of the required outcomes, certification based on demonstrated learning outcomes and adaptable programmes to ensure optimum learner guidance. In view of this, Gruppen et al. (2012:43) stress that competency-based nursing

education should emphasise a holistic approach to student learning and assessment focusing on the students' ability to use their learning experience in problem solving, performing procedures, communicating effectively and making good clinical decisions. Furthermore, pre-service nursing education should strive to assist the learner in attaining entry-level competencies through the provision of practice-based learning opportunities, promotion of individualised learning experiences and involvement of learners in performance assessment and accountability (Tilley, 2008:59). Emphasis is on practice-based learning to provide the students with opportunities to practice and internalise the skills and develop professional competence in nursing. However, Löfmark, Thorkildsen, Råholm, and Natvig (2012:165) observe a link between the practice-based learning environment and students' clinical competence or learning outcome; in that, the absence of clinical teachers to assist the students integrate the knowledge and skills learnt in class into practice affect clinical competence. As such, clinical teachers should strive to create practice-based learning opportunities by clearly clarifying the clinical competencies, be present to guide and assess the students and provide feedback to improve clinical competence.

2.4 Conceptualising competence in neonatal nursing practice

Although emphasis has been placed on the competency approach to nursing education recently, determining which competencies are most critical, at what level they should be demonstrated and how to teach and validate them remains a challenge (Tilley, 2008:59). A search for clear and specific expectations for nurse practitioners has prompted educators to break down complex tasks involving knowledge, skills and attitudes to more specific and observable areas in practice. Fullerton et al. (2011:400) and Benner (1982:36) observe that clinical competence is not only the performance of skills but rather includes the integration of cognitive skills like clinical reasoning, critical thinking and the reflection of professional attitudes and behaviours in the delivery of

services. It involves unobservable attributes including values, judgemental ability and personal disposition, not only the performance by capability (Benner, 1982:34). In a quest to ensure a comprehensive clinical performance Lenburg (1999) identifies eight core competencies essential for practice, underlying the three domains which include assessment and intervention, communication, critical thinking, human caring relationships, management, leadership, teaching and knowledge integration. A competent nurse and midwife must possess these attributes, have the ability to utilise them and must strive to effectively integrate them to provide safe, effective and professional nursing care to the patient.

Similarly, the Institute of Medicine (Greiner & Knebel, 2003:259-260) in the USA, suggests core competencies which include working in interdisciplinary teams, providing patient-centred care, employing evidence-based practice, and the use of informatics and quality improvement to enable nurse practitioners in providing quality patient care. In Malawi, the Nurses and Midwives Council has identified some competencies specific to the training of nurse-midwife technicians. These include professional knowledge, skills, appropriate behaviour and attitude, collaboration, provision of comprehensive care, communication and responsibility and accountability. To attain these competencies, the learner is expected to assess the patient with sensitivity to patient differences and preferences, teaching patients and their families, and advocacy to promote and maintain health and safety. However, despite the efforts to integrate these competencies, the challenge has been the learners' ability to transfer skills learned in one situation to another. Carraccio (2009:57) attributes this to deficiencies in knowledge and/or differences in the learning environment in which the knowledge is applied and skills are practised as well as lack of consistency in the areas of competency which are being emphasised.

To practice safely in neonatal care, Cates and Wilson (2011:324) recommend that the practitioner must strive to acquire and maintain knowledge and skills that are central to the delivery of quality neonatal care services. The International Council for Midwives (ICM) (2010 cited by Fullerton et al., 2013: 404) identifies the neonatal nursing clinical competence to include the provision of high quality comprehensive neonatal care. Specific knowledge and skills are needed to ensure that the neonate receives the required care possible. In lieu of this, ICM identifies the basic skills to be included in the training with a high emphasis on knowledge and technical skills. However, clinical competence does not entail the acquisition of knowledge and skills but rather its application as well as attitude and critical thinking. Hence, in addition to knowledge and technical skills, the National Association of Neonatal Nurses, Canada (2010) includes interpersonal relationships, professionalism, patient management and collaboration as some of the clinical competencies required for safe and quality neonatal care services. Thus, health professionals and educators should strive to develop programmes that put emphasis on specific essential competencies based on the expected level of professional training (Ellard et al., 2012:8).

2.5 Assessment of clinical competence

The assessment of clinical competence is vital for determining the ability and readiness of health workers to provide quality services. Assessment refers to any process that appraises an individual's knowledge, understanding, abilities or skills (Hulse, 2013:933). It is a systematic collection, review and use of information about educational programmes undertaken for the purpose of improving student learning and development (Palomba, 2001:13). Assessment aims at examining the quality of evidence generated from students' clinical competence and to use that evidence to improve the learning of students, thereby contributing to professional standards.

Thus, assessment works as a tool to ensure quality training to motivate students and to direct learning. In view of this, the assessment of student clinical competence is critical to identifying areas for professional development and educational needs to ensure quality nursing education and patient care (Marshburn et al., 2009:427).

The assessment of clinical competence helps the faculty to determine whether or not students are acquiring the knowledge, skills, and values needed to enable them to provide quality patient care (Ahmad et al., 2013:33). It provides the basis for the decisions on whether the student is ready to proceed or to demonstrate competence for practice. In addition, assessment enhances the students' learning process as the learner becomes motivated and gets involved in the identification of strategies to improve his own learning experience as well as promote self-evaluation and reflection (Joughin, 2009:13; Norton, 2007:94). For instance, through assessments students get feedback for their own learning and performance which help them to think through complex clinical situations. Furthermore, the assessment provides the teacher with information illustrating the students' performance and informs the identification of appropriate strategies as remedial for student learning improvement (Ahmad et al., 2013:32; Oermann & Gaberson, 2009:249).

The assessment of clinical competence can either be formative or summative. Formative assessment takes place during the clinical learning process to modify teaching and learning (Emanuel, Robinson & Korczak, 2013:14). It is an important aspect in promoting student reflection and reinforcing the students' motivation to learn as it builds on individualised learning experiences. Formative assessments provide feedback to learners about their progress in meeting the outcomes of the clinical experience or in developing the clinical competence (Cant & Cooper, 2011:41). In contrast, summative assessment takes place at the end of the clinical

learning process or programme to determine mastery of the skills and for accountability purposes. For instance, determining clinical grades or summarising the competencies which the student has achieved in clinical practice. This helps the teacher to make an overall judgement about the students' competence for purposes of progression or certification.

2.5.1 Approaches to assessment of clinical competence

Clinical competence assessment approaches are strategies used for assessing learning outcomes in clinical practice. Despite the need to facilitate students' professional development, there is no uniform or systematic approach to assessment of clinical competence, making it a challenge to measure all the attributes of clinical competence (O'Connor et al., 2009:493). Previously in the 1960s, assessment was based on a list of the student characteristics and behaviours thought to influence performance (Kirschbaum et al., 1994, cited in Oermann & Gaberson, 2009:372). Using this approach, judgements were made against course objectives which were measurable and observable. Recently, researchers have utilised various approaches to distinguish students' level of performance. Anema and McCoy (2010:40) suggest that assessment can either be objective or performance related. According to Anema and McCoy objective assessment focuses on what learners know and comprises predetermined correct responses; for example, oral responses to questions. The focus of objective assessment is on knowledge, concepts, and basic skills in the cognitive domain. Palomba (2001:18) observes that the objective approach to assessment focuses on factual knowledge rather than higher-order thinking skills hence learners lack the ability to apply such knowledge to the real world.

On the other hand, performance related assessment focuses on what learners can do with their knowledge. It involves the assessment of critical thinking, synthesis, affective domains, and

psychomotor skills. Examples include simulations, portfolios, essays, journals and skills demonstrations and direct observations (Anema & McCoy, 2010:41). The assessments aim at evaluating the learners' ability to demonstrate foundation knowledge in relation to concepts and basic skills. For example, learners will need to have foundational competency in maternal conditions affecting neonatal development in order to make clinical decisions related to providing care to neonates with congenital anomalies. This will allow the learner to rethink, revise and reflect on their work. It also provides choices for the learner in how the competence would be demonstrated. In turn, the learner can advance his/her level of competency to critically analyse what he knows, synthesise the information and apply it to different situations in the clinical setting.

An example of a performance related approach commonly used in nursing practice is objective structured clinical evaluation (OSCE) (Oranye Ahmad, Ahmad & Bakar, 2012:233-241; El-Nemer & Kandeel, 2009:1265-127). Jahan et al. (2013:94) describe OSCE as an approach to student assessment in which the clinical competence is evaluated in a comprehensive, consistent and structured manner. During OSCE students are exposed to different clinical scenarios specifically designed in a structured environment, and are expected to demonstrate their competence under these simulated conditions (Einion, 2013:893; Sharma, Chandra & Chaturvedi, 2013:299). In OSCE, teachers use direct observation to assess the students' performance. The OSCE provides the students with opportunities to demonstrate interpersonal skills, problem solving abilities and application of basic clinical knowledge (McWilliam & Botwinski, 2012:38-39) while the teacher observes performance and records the observed skills and behaviours. OSCE has been perceived as a useful and effective method for assessing clinical competence as well as for enhancing the knowledge required for clinical work when compared to

other assessment approaches (Noonan, Bradshaw & Murphy-Tighe 2012:690). In addition, the approach has been effectively used in undergraduate nurse curricula to assess safe practice in terms of performance of psychomotor skills as well as the declarative and schematic knowledge associated with their application (Mitchell et al., 2009:398).

However, the approach is not as comprehensive as has been thought in assessing students' level of clinical competence in all the domains. The approach is a form of performance-based assessment (Rouse, 2010:26-30; McWilliam & Botwinski, 2012:35-39) as well as a means for summative assessment (Einion, 2013:893) focusing more on objective assessment of knowledge and skills than most practice-based assessments. Fastre et al. (2010:518) argue that the performance-based assessment approach is task dependent and focuses on the learner's current behaviour; what the learner can do. Student desired performance tasks are specified in advance, step by step and chronologically, describing what needs to be done to fulfill the requirements. This limits the focus and content for targeted skills as only certain components of the total skills are included for assessment. As such, not all domains may be assessed using this approach. In addition, students memorise the steps without applying critical thinking (Rouse, 2010:26-30; McWilliam & Botwinski, 2012: 35-39) making it a challenge for them to transfer the skills in diverse situations. Furthermore, the approach has been reported to generate uncertainty and stress among students with regards to objectivity (Muldoon, Biesty & Smith, 2014:468; Einion, 2013:896; Rouse, 2010:27; El-Nemer & Kandeel, 2009:1272; McWilliam & Botwinski, 2012:38). This can negatively affect the students' performance as they may not demonstrate their capability because of the stressful environment.

In addition to OSCE, nurse educators have used the students as assessors of their own performance through self- and peer assessments. Student self-assessment refers to the process by

which the student gathers information about and reflects on his or her own learning in relation to personal progress in knowledge, skills, and/or attitudes (Andrade, 2008:60). During self-assessment, the student reflects on the quality of his/her work and judge the degree to which it reflects the stated goals or criteria. Self-assessment approaches include reflective diaries and portfolios which encourage the student to reflect upon and judge his/her own performance and abilities. On the other hand, peer assessment is an arrangement, by the teacher, in which individuals consider the amount, quality, level of success or outcomes of learning of peers of similar status (Taylor, Grey & Satterthwaite, 2013:26). It involves groups of students assessing their colleague's achievements. Taylor et al. (2013:27) observe that both self- and peer assessment promote active learning as the students get motivated and are involved in the learning process. In addition, there is an increased amount of feedback and reflection enabling the students to identify their own limitations and strategies to improve their knowledge and skills. However, using students as assessors may sometimes be challenging as students may either underscore or over score their performance or that of a colleague because of fear of failure.

Despite having a number of approaches, McCready (2007:147) observes that there is no comprehensive and effective approach to assess clinical competence. McCready argues that most of the competence assessment approaches measure only a quarter of the nurses' clinical competence because they focus on technical skills. But the integration of cognitive, psychomotor and affective skills is paramount to the development of a safe and competent practitioner. Nicholson et al. (2013:1093) observe that assessment of clinical competence becomes more challenging because of the complexity of nursing practice and human interaction which requires sufficient evidence to make a sound judgement about an individual's level of clinical competence. As such, the assessment of clinical competence requires a constant monitoring of

the student's professional development in all the domains, throughout the course of training. McMullan et al. (2003:288) suggest an assessment approach that integrates knowledge, understanding, problem solving, technical skills, attitudes and ethics with clear criteria to interpret the judgement. The integrative assessment influences students' learning by providing activities that define and track strategies that the students use to assess their own learning abilities and problem-solving capabilities. Fordham (2005:42) recommends a competency-based approach which takes into account the students' capacity to integrate knowledge, values, attitudes and skills in the practice setting. Competency-based assessment links knowledge and practice by creating a correspondence between what students know or are expected to learn, thereby simulating them to develop relevant professional skills and thinking processes (Gullikers et al., 2008:173). To achieve this, competency assessment approaches should be comprehensive enough to capture all the aspects of competent performance, integrate cognitive, psychomotor and affective skills while providing clear and specific guidance on performance criteria. This assists the students to visualise the skilled performance expected of them, thereby enhancing opportunities for the students to develop skills of self- and peer-evaluation. There is a dearth of literature on the assessment approaches used in Malawi but undocumented information indicates that most of the training institutions use OSCE for assessment of clinical competence.

2.5.2 Clinical competency-based assessment frameworks and tools

Carefully planned assessments form an integral part of the teaching and learning experience for the student as the teacher provides accurate information about learning and achievement. Clinical assessment involves observing students' performance and making inferences about the students' competence based on the observed behaviours (Oermann & Gaberson, 2009:249). On the other hand, interpretation of the students' behaviour requires that teachers use standardised assessment

tools that are systematic, objective and consistent. However, there is no uniform and systematic approach of assessing clinical competence. In most cases, traditional frameworks for assessment have used quantitative approaches using a skills checklist and/or scales to evaluate students' performance (Nicholson et al., 2013:1088; Hsu & Hsien, 2012:496; Takase & Teraoka, 2011:396; O'Connor et al., 2009:493) or qualitative approaches using portfolios (Garret et al., 2013:1207–1213; Mbombo & Bimerew, 2012:1-10; McMullan et al., 2003:283).

2.5.2.1 Checklist

Nitko and Brookhart (2007 cited in Oermann & Grberson, 2009:267) describe a checklist as a list of specific behaviours or activities to be observed with a place for marking whether or not they were present during the performance. The checklist is used for recording the observations, specific procedures, competencies and skills performed by the student. It includes a list of behaviours required to demonstrate competence, and steps for carrying out the procedure or skills. A literature review by Taylor et al. (2013:24) showed that using a checklist to assess student clinical competence had an inter-examiner agreement of >0.9 , indicating a limited opportunity for misinterpretation of the checklist between two assessors. Thus, the use of a checklist makes the assessment objective and structured (Hwang, 2013:513). In addition, the checklist is reported to aid students in self-evaluation and review of their own performance prior to the assessment by the teacher (Oermann & Gaberson, 2014:268). For instance, the step by step approach presented in the checklist enables the student to identify common errors and practise the skill without problems. However, assessment using a checklist focuses more on students' completion of the outlined tasks than clinical reasoning. In addition, there are no clear criteria to judge the students' performance. For instance, recording student performance is by indicating a 'yes' if the task was carried out or a 'no' if the task was not carried out or was carried out

incorrectly. But what does ‘yes’ mean; how was the task performed for the learner to deserve a ‘yes’ or ‘no’?

2.5.2.2 Rating scales

Rating scales provide a means for recording judgements about the observed performance of students in clinical practice (Oermann & Gaberson, 2009:270). It comprises a list of outcomes, competencies or behaviours which the student is required to demonstrate and a scale for rating the students’ performance. Unlike the checklist, a rating scale has different labels to describe the students’ performance ranging from numbers 1-4 or sometimes 1-5, letters or frequencies i.e. always, usually, excellent, very good or good (Gillespie et al., 2012:90). The rating scale helps the student to focus his/her attention on specific behaviours and the teacher to provide specific feedback on the students’ performance. In practice, rating scales have been reported as effective for self-assessment of clinical competence among practising nurses (Takase & Teraoka, 2011:396; Liu et al., 2007:805; Meretoja, Isoaho & Leino-Kilpi, 2004:124;). In addition, some educators have developed rating scales to assess students’ performance. An example of such scales are the tools developed by Diem and Moyer (2010:285) to assess Public Health students’ satisfaction with team projects and their confidence in using their public health skills in Canada. The rating scales have been useful for summative evaluation and grading of the students’ performance, for progression and certification, following a prolonged observation (Ulfvarson & Oxelmark, 2012:704). Despite being a useful assessment tool for students’ performance, Hsu and Hsien (2012:496) observe that there is an assessment gap in using the rating scales. This occurs because of the difference between the amount of evidence collected during assessment and the amount of evidence required to make an inference about the quality of performance. In most cases, the rating scales have used a four or five point scale without defining the criteria for the

interpretation of the learners' performance which leads to subjectivity of the assessment. In addition, teachers may differ on what constitutes different levels of performance for each outcome, competency or behaviour evaluated leading to students being rated either on the lowest or highest side. This concurs with Taylor et al. (2013:26) literature review findings that the use of rating scales did not improve overall accuracy and that approximately two thirds of the faculty were still rating the overall performance of the marginal student as satisfactory or superior.

2.5.2.3 Criterion referenced scales

Criterion reference scale is an assessment tool that uses a matrix for rating the clinical performance, combining different qualities of the students' performance. A criterion referenced tool guide assessors when making judgement about the students' performance based on the learning objectives and performance outcomes (Connoley, 2004:3). Students' performance is compared to predetermined standards of achievement. Predetermining the standards or criteria for performance helps the student to internalise a disciplinary or professional understanding of excellence (Gonczi, 1999:189), thereby encouraging them to evaluate their own practice against the set standards to improve performance. An example of a criterion referenced tool is the Bondy's (1983:376) criterion matrix which uses a five point scale to rate the quality of performance based on appropriateness of performance, qualitative aspects of the performance and the degree of assistance needed by the student. Using this tool, students are evaluated based on five levels. The tool has been reported as providing a fair assessment of performance and diagnostic feedback. For instance, Holaday and Buckley (2008:123) adapted the criterion tool to develop an evaluation toolkit for nursing students in the USA. The toolkit has been successfully used to measure students' performance based on standardised competencies. In addition, Nicholson et al. (2013:1088) applied the criterion referenced matrix to develop a competency-

based rubric for evaluating nurses' clinical competence in theatre nursing, in Australia. The tool proved to be useful in measuring nurses' competence in theatre nursing. Similarly, O'Connor et al. (2009:493) developed a criterion referenced tool, the Shared Specialist Placement Document, which was used to assess students' competence in Ireland. Using this tool showed positive results in assessment of competence and the users, both students and teachers, had a positive attitude in using the tool. However, despite describing the criteria for determining the students' level of clinical competence, the criterion rating scale has been a challenge in providing consistent results among clinical teachers. Oermann and Gaberson (2009:290) observe that teachers may differ about what constitutes different levels of performance for each competency. As such, teachers end up under-rating or over-rating the student based on what is believed to have been observed in the performance of the student by individual teachers.

2.5.2.4 Portfolios

A portfolio is a collection of projects and materials developed by students that documents the achievement of the objectives of a clinical experience (Oermann & Gaberson, 2014:285). The portfolio has been used as a form of both formative and summative assessment to assess students' clinical competence (Tartwijk & Driessen, 2009:793; McCready, 2007:146). Using a portfolio, students demonstrate what has been learned in clinical practice and the competencies achieved. As such, portfolios have been reported as a valuable approach to competence assessment because students provide evidence to confirm their clinical competence and document new learning and skills acquired in practice. In addition, Klenowski et al. (2006:276) observe that portfolios promote the development of reflection, self-evaluation and critical analysis skills. This is in line with Mbombo and Bimerew (2012:1-10) and Schaffer, Nelson and Litt (2005:105) who report that the use of portfolios to assess students' clinical competence

promotes critical thinking. Using portfolios, the student is provided with a wide opportunity for the promotion of individual learning and thinking skills, thereby enhancing student progress and improvement in competence development. The tool enhances student understanding of professional requirements and contributes to accurate application of the skills in the clinical setting.

In addition, literature reviewed by McCready (2007:149) shows that a portfolio can be an effective means for assessing clinical competence as well as facilitation of self-directed learning through reflection. But Tarwijk and Driessen (2009:793) observe that using a portfolio for both reflective practice and assessment can jeopardise the outcome. For instance, assessment may jeopardise the quality of reflection as learners may be reluctant to expose their challenges in specific tasks if they believe that doing so may put them at risk of failure. This can in turn affect the effectiveness of mentoring and competence development. Furthermore, there is no standardised information to guide both teachers and students on the use and assessment measure for the portfolio as its use depends on the context from which it originated (Tartwijk and Driessen (2009:796) thus making it more subjective. Table 2.3 gives a summary of the description, strengths and limitations of the different assessment tools.

Table 2.3: Summary of the assessment tools

Assessment tool	Description	Strengths	Limitations
<p>Checklist (Nitko and Brookhart, 2007; Taylor et al., 2013; Hwang, 2013; Oermann & Gaberson, 2014)</p>	<p>A list of behaviours, activities or skills to be observed during the students' performance. The assessor records either 'yes' if the skill is performed or 'no' if not performed</p>	<p>Highlights specific skills to be demonstrated by the student Student able to evaluate and review own performance Guides student on step-by-step practice of a procedure For summative assessment and evaluation</p>	<p>No evidence to make inference from students' performance Lack of clarity on the grading system Subjective Lack of consistency among assessors</p>
<p>Rating Scales (Oermann & Gaberson, 2009; Gillespie et al., 2012; Takase & Teraoka, 2011:396; Liu et al., 2007; Meretoja, Isoaho & Leino-Kilpi, 2004; Diem and Moyer, 2010; Ulfvarson & Oxelmark, 2012; Hsu & Hsien, 2012; Taylor et al., 2013)</p>	<p>A list of competencies, outcomes or behaviours required of the student. Presented on a scale of 1-4 or 1-5, or using qualitative descriptions i.e. excellent, very good or good.</p>	<p>Helps students to focus on specific behaviours Guides in feedback provision to student For summative assessment and evaluation</p>	<p>Subjective No definition to justify students' performance No clarity on grading system</p>

Assessment tool	Description	Strengths	Limitations
<p>Criterion-referenced (Connoley, 2004; Gonczi, 1999; Bondy, 1983; Holaday & Buckley, 2008; Nicholson et al., 2013; O'Connor et al., 2009; Oermann & Gaberson, 2009)</p>	<p>A matrix presenting predetermined standards of behaviour or criteria and qualities of students' performance.</p>	<p>Provides a rubric to guide assessors' judgement of students' performance</p> <p>Promotes self-evaluation and reflection</p> <p>Promotes students' feedback provision</p> <p>For both formative and summative assessment and evaluation</p>	<p>Inconsistency among assessors due to subjectivity</p>
<p>Portfolio (Oermann & Gaberson, 2014; Tartwijk & Driessen, 2009; McCready, 2007; Klenowski et al., 2006; Mbombo & Bimerew, 2012; Schaffer, Nelson & Litt, 2005)</p>	<p>A collection of projects developed by students that document their own achievement of the objectives in a particular clinical experience.</p>	<p>Used for both formative and summative assessment</p> <p>Promotes reflective practice, self-evaluation and critical thinking</p> <p>Provides diagnostic feedback</p>	<p>Student dependent</p> <p>Lack of standardisation for its use</p> <p>Subjectivity</p> <p>No clarity on grading system</p>

2.5.3 Psychometric properties of the assessment tools

A reliable and valid competency assessment tool is a basic yardstick to assist in assessing the generic competencies of nurses and midwives, and to evaluate the outcome of an educational programme (Liu et al., 2009:895). Thus, an assessment tool must consistently measure the specified competencies at the level at which the assessment measure is expected. However, Nicholson et al. (2013:1089) point out that, in nursing and midwifery training, there are problems in developing valid and reliable assessment tools. According to Nicholson et al. the majority of the instruments developed to assess competence have been insufficiently tested for validity and reliability, and also they generate inadequate reporting of psychometric results. This has resulted in development of assessment instruments that closely measure the clinical experience. Yanhua and Watson (2011:836) recommend further testing of the tools for validity and reliability, particularly the stability, equivalence, concurrent and convergent validity with larger sample sizes to ensure that they measure what is expected to be measured, hence querying their transferability and usability in all practice settings.

Furthermore, some of the tools developed to assess clinical competence are self-reported and are focused on registered nurses and baccalaureate students. Examples of these are the nurse competence scale (Meretoja et al., 2004:124) and Performance Based Scoring Rubric (Nicholson et al., 2013:1088). None of the tools assessed the clinical competence of a lower cadre of nursing and midwifery students. Though these tools have been recommended as being objective and promoting critical thinking, the aspect of attitude has not been fully covered for assessment. In some cases, the assessment tools have been used to assess a specific component of students' ability. An example of these is the Lasater Clinical Judgement Rubric which has been used as a self-evaluation tool to assess the pre-licensure students' clinical judgement development

(Lasater, 2011:86). In addition, there is no known tool that has been tailored to assess the clinical competence of students in neonatal nursing during the pre-registration training. There is no clear evidence that performance in one clinical context can be used to give meaningful inferences from students' performance in another setting (Hicks, 2011:18). Carracio (2011:56) observes that a valid assessment tool should adequately sample the competences in all aspects of knowledge, skills and attitudes which are important in a given learning environment. As such, students need to be adequately prepared and assessed in all the aspects of nursing practice using valid and reliable tools to ensure provision of quality patient care.

2.6 Theoretical framework

A theoretical framework refers to the relationship between concepts. It helps the researcher to understand a problem or the nature of things by providing a philosophical basis for the link between the theoretical aspect and the practical component of a phenomenon (Kim, 2010:32). Theoretical frameworks also guide the researcher in determining and explaining the variables that are to be measured. In nursing practice, the development of clinical competence is centred on the basis of andragogy learning models. Andragogy beliefs that learners have control over much of their learning experience and must be motivated to learn; a belief rooted in experiential education and constructivism described in Kolb's experiential learning cycle (Kolb 1984). According to Kolb (1984:41), learning is the process through which knowledge is created through a combination of grasping and transforming experience. Through this process, learning occurs in a cycle of four modes; experiencing a clinical situation, reflecting on what happened, thinking of alternative ways and acting. The clinical teacher helps the learners go through this learning experience by helping them to get in touch with their own experience and reflect on it, setting standards, evaluating if the students are meeting the set standards and providing

consistent feedback (Passarelli & Kolb, 2012:10). Experiential learning has been widely used as a platform for adult learning and assessment of prior learning experience in education. In nursing practice experience is required to develop clinical competence (Benner, 1984:133) as such clinical teachers should guide the learners to understand and build their confidence and competence to become independent practitioners. However, the success of experiential learning is dependent on the learners' ability to create new knowledge by transferring existing knowledge to different social situations. More emphasis is put on the student's experience to improve learning. While Kolb acknowledges the teachers' role as an evaluator to promote student's learning process through feedback, it does not provide direction on what attributes could be observed in the student, making student's assessment subjective.

As such, in this study, the theoretical basis for understanding issues of clinical competence assessment for Nurse-Midwife Technicians in Malawi was the Competency Outcomes and Performance Assessment (COPA) model. The researcher opted for this COPA model to provide knowledge and a clear understanding of the required competencies for the development of appropriate learning and assessment approaches in nursing education. Recognising the link between skills acquisition and students' performance, the researcher applied the Skills Acquisition Model by Dreyfus and Dreyfus (1980) to describe the criteria for interpreting the NMTs' level of clinical performance in neonatal nursing.

2.6.1 The competency outcomes and performance assessment model

Lenburg (1999:1) developed a Competency Outcomes and Performance Assessment (COPA) model in an attempt to promote competence for practice. The aim of developing the model was to create a rational and comprehensive approach to promote effective and efficient learning and

the validation of competencies essential for beginning and advanced practice. The model is based on the philosophy of competency-based, practice-oriented methods and outcomes, focusing on four major concepts: specification of essential core competencies, end-result competency outcomes, practice-driven interactive learning strategies and objective competency performance examination and assessment. For purposes of this study, three concepts of the model: essential core competencies, interactive learning strategies and competency performance assessment (fig. 2.1) were applied.

2.6.1.1 Core practice competencies

The first step in improving competence is to identify the expectations for nursing practice, the core competencies. Lenburg (1999:par.1) describes core competencies as categories under which a flexible array of knowledge and specific skills can be clustered for particular levels or foci of practice. They define the type of practice required for a practitioner to be deemed competent. Competencies can be generic to clinical practice in any setting, specific to a clinical speciality, basic or advanced (Redman, Lenburg & Walker, 1999:par. 6). According to Lenburg (1999: par. 8), educators must identify the required competencies and word them as practice-based competency outcomes rather than as traditional objectives as well as come to a consensus about the major competency categories and sub-skills essential for diverse segments of practice. Each identified competency must be learned and assessed individually, with increasing complexity and practice. Lenburg identified eight core competencies essential for practice. These include assessment and intervention, communication, critical thinking, teaching, human caring relationships, management, leadership, and knowledge integration skills. All the specific sub-skills which nurses perform are listed in one of these competency categories. The sub-skills for each competency can be identified from the set expectations identified by those in the speciality

area to specify the required abilities for the area of practice and level of training (Lenburg, 2000:1) as well as utilising those identified by regulatory and speciality professional bodies (Anema & McCoy, 2010:1).

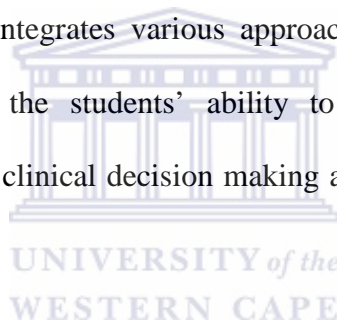
2.6.1.2 Interactive, practice-based learning

Ways of learning flow from and are fundamental to the competency outcomes. The philosophy of performance-based, interactive learning is centred on the principle of adult learning focusing on the learner and effective learning strategies. The learner is responsible for learning and achieving required competencies and the learning strategies should relate to the identified competencies (Lenburg et al., 2009:316). Once the outcome statements are clearly worded and related to core competencies, the necessary learning strategies become clearer. Mbombo and Bimerew (2012:4) suggest the use of a case-based approach to integrate student learning and achievement of clinical competence. For instance, if the competency outcome pertains to knowledge integration in neonatal care, the student would be assigned an evidence-based care plan for a particular neonate. This will enable the student to apply the necessary knowledge in the management of that particular case. The teacher guides the student in learning by providing focused interactive instructions, coaching and direction to relevant interactive resources e.g. fellow students, teachers, books and/or other information technology. In this case, effective learning results from active interaction between the teacher and the student, the student and resources, and the student and other students.

2.6.1.3 Competency performance assessment

Competency-based performance assessment is based on established concepts focusing on the students' ability to perform the skill. The concepts comprise an interactive basic pattern to guide

development and the implementation of standardised, objective, and consistent performance assessment of competence in any given situation. These concepts include competencies, skills and abilities, critical elements, objectivity, acceptability, consistency and flexibility (Lenburg et al., 2009:315). In this model, the assessment should include identification of critical elements which are observable behaviours that are mandatory for a given skill or ability. The student is expected to meet all the critical elements to meet the standard competence. The assessment is summative and follows a criterion-referenced evaluation. Thus clinical competence is established through pre-determined specific criteria, attributes that define how competent a student is in a particular skill to prevent bias, subjectivity, inconsistency and inaccuracy. The assessment criteria for student performance integrates various approaches for the holistic assessment of professional skills, focusing on the students' ability to apply and integrate knowledge, psychomotor skills and attitude in clinical decision making and a response to meet the needs of the neonate and family.



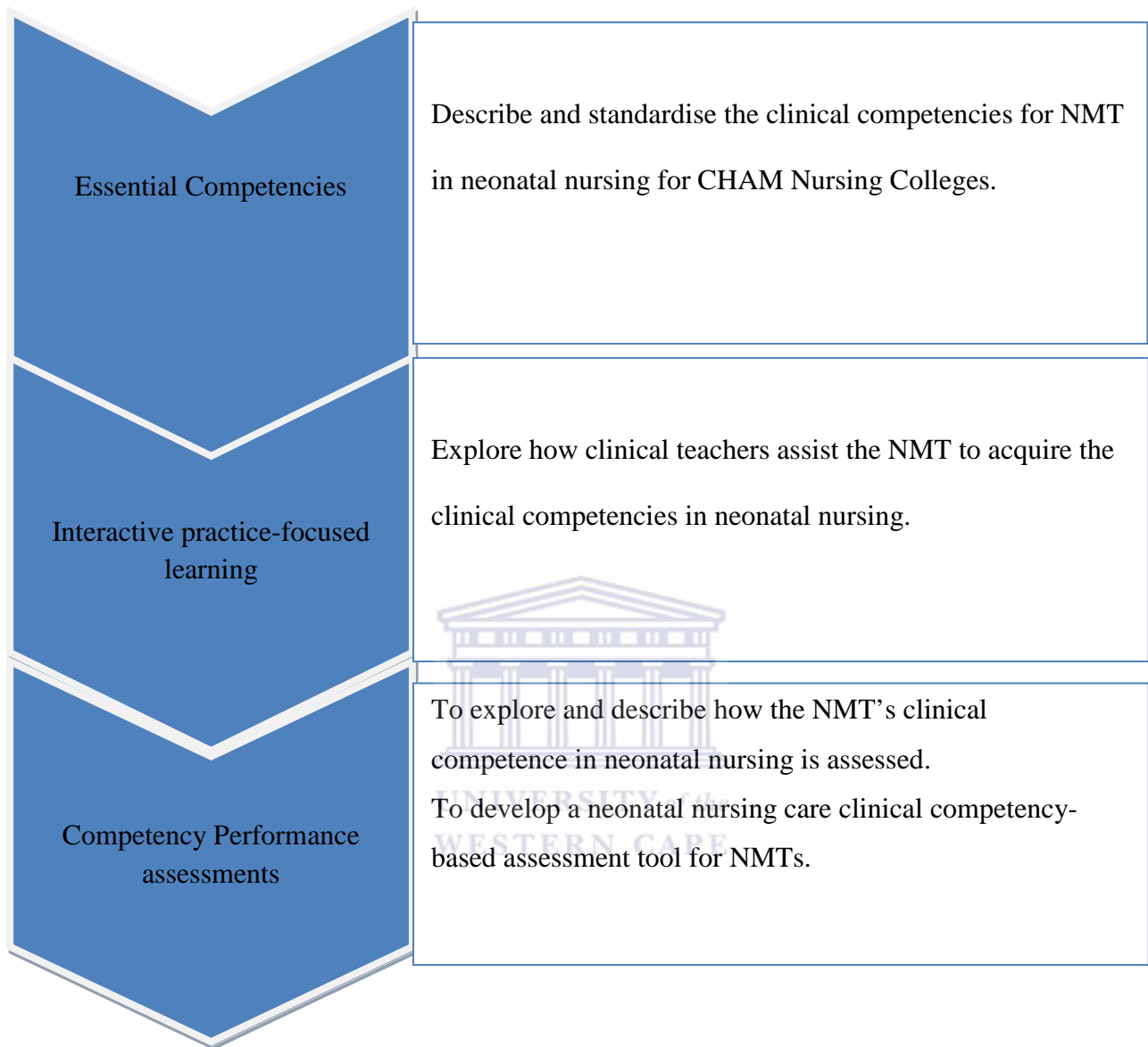


Fig 2.1: Lenburg's concept of COPA Model and associated study objectives

2.6.2 Skills acquisition model

In the COPA model, Lenburg (1999:par.1-21) recommends the establishment of pre-determined criteria that define the students' performance standard. However, she does not give an account of what would be included in the assessment criteria to define how good a student is in competency performance. As such the researcher applied the Skills Acquisition Model to define attributes, a rubric, required for the interpretation of the NMT's level of clinical competence in neonatal nursing. The model, which was developed by Dreyfus and Dreyfus (1980:1-18), posits that in the process of acquiring and developing skills an individual passes through different stages. Dreyfus and Dreyfus identified these stages as novice, advanced beginner, competent, proficient and expert. In the novice stage the learner follows rules that are context-free and feels no responsibility for anything other than following the rules. Similarly, the beginner learner has limited perception of issues and treats all attributes and aspects equally. Competence develops after having considerable experience of similar issues while proficiency is shown in learners who use intuition in decision making and develop their own rules to formulate plans. On the other hand, an expert is characterised by 'a fluid performance that happens unconsciously, automatically and no longer depends on explicit knowledge' (Pena, 2010:1). The acquisition of skills through the stages is holistic and occurs in a continuum of learning and assessment, emphasising pattern recognition, intuition and reflection as the student progresses from novice to mastery (Carraccio et al., 2008:762). Holistic learning and assessment approaches should focus on the level of development for individual learners to improve competence. The student is expected to achieve a minimum level of clinical competence during training and move towards proficiency and expert through experience.

2.7 Summary

In this chapter literature review on competence and competence assessment as presented and discussed by other researchers was presented. The literature guided the researcher to proceed with the project and develop data collection tools. In the review, definitions on competence were documented but without a unifying general consensus. For operationalisation in this study, the researcher describes competence as the ability of an individual to integrate and apply knowledge, skills, attitudes and personal behaviour in the provision of basic nursing care with minimal supervision.

A person's level of clinical competence can be validated through different approaches which include OSCE, self-assessment, peer assessment and direct observation. Using these approaches, educators have developed a number of tools, both quantitative, like checklists and rating scales, and qualitative, for instance portfolios, to use for validation of clinical competence. However, there are some challenges associated with the use of such tools. Notably, most of the tools are self-assessment scales which have been used to assess registered nurses' clinical competence other than students. In addition, the domain of attitude has not been clearly included for assessment and the tools do not have a defined criterion for how performance would be rated. Furthermore, there was no tool tailored for assessment of clinical competence in neonatal nursing for pre-registration training. As such, the researcher proposed the development of an assessment tool that would help the learner to recognise the competencies being measured and provide opportunities for problem solving, collaboration and promotion of lifelong learning. Both qualitative and quantitative approaches should be used to promote individual learners' clinical competence development and make judgement about the students' clinical progress. The COPA

model and skills acquisition model described in the literature were utilised to develop the assessment tool and define the assessment criteria and rubric, respectively.

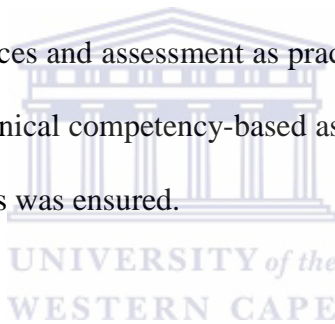


CHAPTER THREE

Research Methodology

3.1 Introduction

In this chapter, the researcher presents and discusses the research design and methodology which was used in this study. The discussion has included the research paradigm and the design and development approach to research. The study process was implemented in two phases. The phases presented an account of the activities that were carried out during each phase. Phase one was the situational analysis which helped the researcher to get an in-depth understanding on neonatal nursing clinical competences and assessment as practiced in the nursing colleges. Phase two was the development of the clinical competency-based assessment tool. The chapter has also included a discussion on how ethics was ensured.



3.2 Research paradigm

A paradigm is a set of assumptions about how things work. Willis (2007:8) defines a paradigm as a comprehensive belief system, world view, or framework that guides research and practice. It gives a general perspective of the complexities of the real world (Polit & Beck, 2008:13). According to Polit and Beck, the paradigms for human inquiry are characterised based on the response to basic philosophy or assumptions. These include the nature of truth (ontology), what it means to know (epistemology) as well as ways of obtaining evidence for the body of knowledge (methodology). The assumptions can be explained based on two world views namely; positivism and constructivism. According to Wheeldon (2010:8) and Polit and Beck (2008:15) positivism is rooted in the belief that there is an objective reality which exists independent of

human observation or experience. Because of the belief in objective reality, the positivists attempt to hold their personal beliefs and biases in check to prevent contaminating the phenomenon under study. They strive for generalisable findings by testing hypotheses through a deliberate series of actions to reach specific conclusions. The positivists use deductive reasoning which is consistent with quantitative research. Using this approach, inferences from tests of statistical hypotheses lead to general inferences about characteristics of a population. Despite being widely used by researchers, this approach has been criticised for its lack of subjectivity and reduces human experience to few concepts (Holloway & Wheeler, 2013:24) defined in advance by the researcher. For instance, human participants are viewed as passive, putting more emphasis on the use of numbers to generalise conclusions to the entire population.

On the other hand, constructivists are sceptical of the idea of one universalistic notion of truth (Wheeldon, 2010:88). They argue that reality is multiple and subjective, and the researcher interacts with those being researched. According to constructivists, meaningful understanding of the phenomenon depends on human practices and subjective interactions are important to access them. The constructivists use inductive reasoning which is associated with qualitative research. The approach focuses on discovering and understanding human experiences, perspectives and thoughts. In addition, qualitative approach is used when little is known about a topic or phenomenon and when one wants to discover or learn more about it, as it provides the researcher with a clear understanding and description of people's personal experiences of phenomena. Using this approach, the researcher may construct theories or hypotheses, explanations, and conceptualisations from details provided by a participant (Harwell, 2011:149). However, this approach has been criticised for its subjectivity (Holloway & Wheeler, 2013:27) which causes concern about the nature of the conclusions.

Recognising the challenges associated with each paradigm, the theoretical basis for carrying out this study was rooted in both positivism and constructivism. Thus both qualitative and quantitative approaches were used to guide the research. The basis for choosing this approach was that the use of both qualitative and quantitative research would provide a better understanding of the research problems by combining the reliability of computations with the validity of experience and perception of the participants (Wheeldon, 2010:91). Therefore, the researcher followed a mixed research approach. According to Creswell and Clark (2011:26), mixed research refers to collecting both qualitative and quantitative data in one study and integrating these data at some stage of the research process. Researchers use mixed methods when one data source maybe insufficient or results need to be explained or exploratory findings need to be generalised, and/ or a second method is needed to enhance a primary method. However, this study utilised a mixed research approach to make generalisation about the participants' views and perceptions on neonatal nursing competencies and assessment approaches. As such there was need to validate the findings by using a second research method.

In addition, Greene (2007:120) observes that designing a mixed research requires a clear description of the level of interaction between the two approaches, noting two strands of interaction; independent and interactive. In independent interaction, the qualitative and quantitative approaches are implemented separately and are mixed when drawing a conclusion during the overall interpretation of the data. In interactive interaction, the two methods are mixed at different points during the study process, before the final interpretation is made. In mixed research, the researcher can give equal priority to the two approaches or one approach gets a priority than the other (Creswell & Clark, 2011:65). The researcher used the qualitative and quantitative approaches sequentially, in which priority was given to the qualitative approach.

Findings from the qualitative approach informed the implementation of the quantitative strand. The level of interaction for the strands was interactive in which the qualitative and quantitative approaches were mixed during the data analysis. The purpose of using the mixed approach in the study was for triangulation. In addition to validating the data, triangulation enabled the researcher to deepen and widen the understanding of competencies and assessment approaches in neonatal nursing.

Since the purpose of the study was to develop a clinical competency-based assessment tool, the researcher utilised a design and development model developed by Reeves (2006:59) which was integrated with the steps to development of assessment tools identified by the Department of Training and Workforce Development (DTWD) (2013:5-42) in Australia. Hence, the researcher gives a description of the design and development approach and steps to development of assessment tools and its application to this study in the next section.

3.2.1 Design and development research approach

The design and development approach is a disciplined investigation used with the aim of developing a programme or product for purposes of improving practice (Hasan, 2003:5). The design and development research results in the production of conceptual artifacts (Ellis & Levy, 2010:108) aimed at establishing a practical basis for educational instructional products. Reeves proposed a design-based approach which aimed at improving teaching and learning by integrating the development of solutions to practical problems and identification of interactive tools in learning environment (Reeves, 2006:52). The design and development approach which was first proposed by Brown and Collins in the 1990s aimed at providing an interactive learning experience for learners who had been through traditional teaching and learning experiences

(Sahrir, Alias, Ismail & Osman, 2012:108). The approach has been reported useful in developing teaching and learning programmes in information sciences (Ellis & Levy, 2010:107-118; Peffers, Tuunanen, Rothenberger & Chatterjee, 2007:45-78; Reeves, 2006:52-64; Sahrir et al., 2012:108-119) resulting in improvement of students' feedback and formative evaluation (Sahrir et al. 2012; 109).

In professional practice programmes, design and development research products have been effective in improving learning environments and assessing achievements of cognition and learning (van den Akker, Gravemeijer, McKenney, & Nieveen, 2006:5). Four stages of design and development approach in education identified by Reeves (2006:57) include situation analysis, development of solutions informed by existing design principles, testing and refinement of solutions in practice and reflections to produce design principles and enhance implementation of solutions. According to Reeves, the researcher works in collaboration with the practitioners to identify real teaching and learning problems, create prototype solutions based on existing principles and test and refine the solutions until desirable outcomes are reached. In this study, the researcher aimed at developing an assessment tool that would integrate the learner's interactive learning experience to evaluate clinical competence with the aim of improving learning outcomes in neonatal nursing. As such, there was need to understand the competencies and assessment approaches essential for the practice of neonatal health nursing. Hence, the researcher utilised the first two stages of Reeves' design and development research to conduct the study.

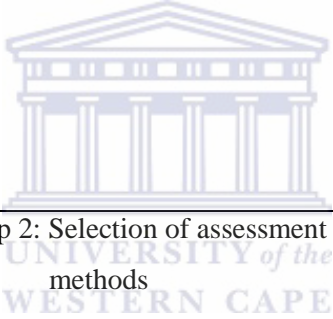
3.2.2 Steps to development of assessment tools

The researcher integrated the first two stages of design and development model with steps of designing assessment tools identified by the DTWD (2013:5-42). The steps to designing and

development of assessment tool are a series of actions that guide assessors to develop ‘reliable and credible assessment tools’ (DTWD 2013:5) for the evaluation of clinical competence. The Department of Training and Workforce Development (2013:7) in Australia identified four steps to development of assessment tools. These include clarification of the evidence requirements, selection of the most appropriate assessment methods, designing and developing the assessment tools and testing and refining the tools. According to DTWD these steps provide a framework for a systematic development of competency-based assessment tools, thereby ensuring quality outcomes. Using these steps, researchers strive to understand the available evidence in practice and get familiarised with the type of performance requiring evaluation. Following this familiarisation, the researcher, in consultation with the service providers, selects assessment strategies that are appropriate and provide adequate evidence regarding the student’s level of performance. Using this information, an assessment tool is designed, tested and refined to maximise confidence that the tool can be used for performance assessment, flexibly, and help to make valid and reliable judgments.

During phase one of this study the researcher used stage one of the design and development model, situation analysis to clarify evidence of the neonatal nursing clinical competencies taught to NMTs and approaches to facilitate and validate achievement of clinical competence. In phase two, the researcher used Reeves’ stage two, development of solutions to systematically develop the clinical competency-based assessment tool as well as to review and refine the assessment tool. Thus the researcher modified the last step of developing assessment tools to ‘review and refine’. This was because the researcher could not proceed with actual testing of the assessment tool during the study period. The design and development approach has been aligned with the DTWD steps and the research objectives in table 3.1 below.

Table 3.1: Reeves design-based stages versus steps for designing assessment tools.

Design & Development stages (Reeves, 2006:59)	Steps for designing assessment tools (DTWD, 2013:5-42)	Study objectives addressed
Analysis of problems by the researcher in collaboration with practitioners	Step1: Clarify the evidence of assessment requirements 	1. Explore and describe neonatal nursing clinical competencies taught to the NMT in CHAM nursing colleges 2. Explore how clinical teachers assist the NMT to acquire the clinical competencies in neonatal nursing. 3. To explore and describe how the NMT's clinical competence in neonatal nursing is assessed.
Development of solutions informed by existing design principles	Step 2: Selection of assessment methods Step 3: Design and development of assessment tool Step 4: Review and refine assessment tool	4. To develop a neonatal nursing care clinical competency-based assessment tool for NMTs.

Using this approach for the study:

- The elements of qualitative and quantitative approaches helped to ascertain the extent and complexity of understanding clinical competencies and assessment of clinical competence in neonatal nursing for NMTs.

- The knowledge gained by the researcher in the analysis of neonatal nursing clinical competencies for NMTs and approaches used to assess the students clinical competence guided the development of the clinical competency-based assessment tool.
- The students and clinical teachers contributed to or participated in the design and development of a neonatal nursing care clinical competency-based assessment tool.

3.3 Phase one: Situation analysis to clarify evidence required for clinical competence

The first phase of the study utilised stage one of design and development research and the first step of developing assessment tools to clarify the evidence required for neonatal nursing clinical competencies and approaches to validate achievement of competence. The researcher employed both qualitative and quantitative approaches sequentially to address objectives 1-3:

- To explore and describe neonatal nursing clinical competencies taught to the NMT in CHAM nursing colleges,
- To explore how clinical teachers assist the NMT to acquire the clinical competencies in neonatal nursing,
- To explore and describe how the NMT's clinical competence in neonatal nursing is assessed.

3.3.1 Research design for phase one

This phase was exploratory and descriptive in nature utilising both qualitative and quantitative approaches. The researcher used the two approaches sequentially, giving priority to the qualitative approach. In sequential exploratory design, one type of data informs the collection of another type of data (Cameron, 2009:144). The purpose of the exploratory design was to develop an in-depth understanding of neonatal nursing clinical competencies through both qualitative and

quantitative approaches. Using this design, the qualitative method informed the quantitative method (Greene et al., 1989:258). In addition, Creswell and Clark (2011:87) recommend the exploratory design, to identify important variables which should be studied quantitatively when the variables are unknown and when the potential product of the research process is to produce a new instrument. Thus, the researcher used the data generated from the qualitative strand to develop an instrument namely, a questionnaire. This was used to collect the quantitative data to describe the competencies and approaches used to assist the NMTs to acquire clinical competence and assessment of clinical competence in neonatal nursing. Furthermore, the data collected from both the qualitative and quantitative strand informed the development of a clinical competency-based assessment tool. The mixed methods allowed for triangulation of data by seeking corroboration between the quantitative and qualitative data, thereby ensuring credibility (Doyle, Brady & Byrne, 2009:78). In addition, utilising both approaches for this study enabled the researcher to avoid limitations that could have occurred with the use of a single approach (Onwuegbuzie & Johnson, 2006:48).

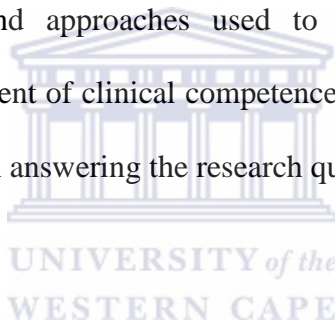
3.3.2 Study setting

The study was conducted in CHAM nursing colleges offering the NMT diploma programme in Malawi. CHAM is the largest government partner contributing to more than 80% of nursing and midwifery education in Malawi. There are nine (9) colleges offering the NMT programme under this organisation, situated across the country. This setting was ideal for the study as it enabled the researcher to have a clear understanding of the neonatal nursing clinical competencies and approaches to assess NMTs' acquisition of clinical competence, as practised by the institutions, thereby enhancing validity of the findings. However, the study was conducted in only eight

CHAM nursing colleges because the researcher could not get permission to access entry to one of the nursing colleges.

3.3.3 Study population

The population for this study was clinical teachers and students involved in neonatal nursing teaching and learning respectively. Seventy (70) clinical teachers and 716 third year students (based on students' records from the various CHAM nursing colleges) were targeted for the study. The researcher believed that the clinical teachers and third year students in the CHAM nursing colleges would provide important information needed for the study on the neonatal nursing clinical competencies and approaches used to assist the NMT acquire clinical competence and validate achievement of clinical competence. Thus, this population was deemed important to assist the researcher in answering the research questions.



3.3.4 Data collection phases

Data for phase one of this study was collected in two parts: the qualitative strand (Phase one A) and the quantitative strand (Phase one B). The qualitative strand (Phase one A, discussed in section 3.3.4.1) utilised focus group discussions and document review to collect data while the quantitative strand (Phase one B, discussed in section 3.3.4.2) utilised a cross-sectional survey. The specific sampling techniques and sample size as well as the data collection procedures have been discussed under each approach.

3.3.4.1 Phase one A: The qualitative strand

A qualitative approach to research refers to a naturalistic, interpretative approach concerned with understanding the meanings which people attach to a phenomenon (Snape & Spencer, 2003:3). It

involves studying the meaning of people's lives under real-world conditions with the aim of understanding their views and perspectives of a phenomenon (Yin, 2011:8), thereby allowing for a detailed exploration of a topic under study. Using this approach, a researcher strives to collect, integrate, and present rich data from a variety of sources of evidence to produce new concepts or insights. For this study, the researcher used the qualitative approach to become familiarised with the competencies and approaches to learning and assessment of clinical competence. A qualitative exploratory and descriptive design was used to describe the competencies taught to NMTs in neonatal nursing and to explore approaches used to assist the NMT to acquire clinical competence as well as approaches used to assess clinical competence. This provided rich data about the competencies, interaction and meaning attached to neonatal nursing clinical competence (Polit & Beck, 2008:397) at the level of the NMT.

3.3.4.1.1 Gaining entry

The researcher got permission from the nursing colleges through the college principals to conduct the study. Of the nine CHAM nursing colleges targeted for the study, eight colleges permitted the researcher to conduct the research at their premises while one college did not respond even after several follow ups were made, hence it was excluded from the study. No reason was given for not responding to the researcher's request. The college principals or deans were approached to assist the researcher in the identification of participants for the study.

3.3.4.1.2 Sampling technique and sample size

Sampling refers to the process of selecting participants to take part in a research study on the grounds that they provide information considered relevant to the research problem (Oppong, 2013:203). Basically the researcher went to groups which were believed to maximise the

possibilities of obtaining data for answering the research question (Coyne, 1997:625). In qualitative research, three sampling techniques are commonly used namely; convenience sample, judgement sample and theoretical sample. In convenience sampling, researchers select the most accessible participants (Zhi, 2014:105) to provide the required data. However, this has been associated with the risk of gathering poor quality data resulting in poor research outcomes (Oppong, 2013:203), making it difficult to generalise the findings to other settings. On the other hand, Oppong describes theoretical sampling as a strategy in which the researcher devises explanatory theories in line with information obtained from emerging data after which a new sample is selected for a study to test the configured theory. This approach to sampling has been associated with grounded theory (Coyne, 1996:624).

Judgement sampling, also known as purposive sampling, is commonly used in qualitative research. The researcher selects subjects who have experience or knowledge of the issue/s being addressed in the research (Oppong, 2013:204). Using this approach, the researcher categorises the participants according to set criteria based on the research problem (Mack, Woodsong, MacQueen, Guest & Namey, 2005:5). In this study, the researcher used purposive sampling to identify the clinical teachers and students. These groups of participants were considered experienced and knowledgeable about the neonatal nursing clinical competence. Zhi (2014:106) notes that in purposive sampling the researcher identifies varied characteristics amongst the target population and then selects a sample of subjects that matches the identified characteristics. However, the size of the sample depends on the appropriateness to answer the research question. Onwuegbuzie and Leech (2007:242) observe that the sample sizes in qualitative research should not be too large otherwise it makes it difficult to extract thick rich data, at the same time if they are too small then it is difficult to achieve data saturation. For this reason, an appropriate sample

size for a qualitative study is one that adequately answers the research question. In this study, a total of 171 respondents participated in the focus group discussions. This included 31 clinical teachers who were involved in teaching neonatal nursing and 140 students going through a neonatal nursing clinical experience (table 3.2). However, this sample was conveniently selected for the focus groups. This was because very few participants were available at the institutions as most of the students were placed in different hospitals for clinical practice and some clinical teachers had been assigned to other errands. Thus all the clinical teachers and students who were teaching and learning neonatal nursing respectively and who were available at the nursing colleges during the study period participated in the focus group discussion.

Table 3.2: Participants for the focus group discussion

Nursing college	Clinical teachers	Students	Total # of Participants	Number of FGD
College 1	4	19	22	3
College 2	4	14	17	3
College 3	0	20	20	2
College 4	5	19	23	3
College 5	5	12	16	3
College 6	5	20	22	3
College 7	4	19	22	3
College 8	4	17	19	3
Total	31	140	171	23

3.3.4.1.3 Eligibility criteria

All the third year students from the CHAM nursing colleges, who had gone through a neonatal nursing clinical experience or were in the clinical area during the period of study, were eligible to participate in the study. On the other hand, the clinical teachers were eligible for the study if they were involved in teaching neonatal nursing theory and/or practice and had been teaching the

course for one year or more. These groups of participants were considered important in providing the required information for the study because of their experience in neonatal nursing either as clinical teachers or learners.

3.3.4.1.4 Developing a focus group discussion guide

The researcher developed a guide to direct the focus group discussions (Appendix 1). The guide comprised of questions extracted from the research objective. This ensured that the information obtained from the participants was relevant and matched the objectives. In addition, the guide enabled the researcher to focus and control the discussion. The key questions in the discussion guide focused on the competencies expected of the NMT and the approaches used to facilitate and assess clinical competence. The initial guide was developed with assistance from experts and then modified following the first focus group discussion. The questions were organised in such a way that the researcher moved from broader to specific questions. Starting with broader and more general types of questioning, and moving to more specific and structured types of inquiry enabled the researcher to collect more information as the participants learned more about the topic (Guest, Namey & Mitchell, 2013:28). The guide for the clinical teachers and students' focus groups were similar except for one question which required the clinical teachers to describe student behaviours that would indicate competent performance in neonatal nursing practice.

3.3.4.1.5 Developing a document analysis checklist

The researcher developed a checklist (Appendix 2) for the document review which comprised of areas of competency as identified by the Nurses and Midwives Council of Malawi namely; knowledge, skills and attitudes. The checklist was used to assess teaching and learning materials

for the documentation of the neonatal nursing competencies, teaching and learning approaches as well as assessment approaches to clinical competence. The researcher reviewed the NMT neonatal nursing syllabus outline, course outlines and assessment tools as well as the objectives for the NMT programme.

3.3.4.1.6 Data collection methods

Qualitative inquiry requires that the researcher obtains a clear understanding of the peoples' perspectives and views of a phenomenon, occurring within 'a particular historical and social context' (Snape & Spencer, 2003:5). As such, qualitative approaches use methods which attempt to provide a holistic understanding of research participants' views and actions in the context of their general experience. Snape and Spencer (2003) emphasise that the researcher must understand the meaning of social actions within the context of the material conditions in which people live or practice. As such, because of the complexity of the field setting and the diversity of its participants, researchers use different data forms ranging from interviews and observations to the inspection of documents and artifacts (Yin, 2011:10; Brannen & Halcomb, 2009:68). This enables the researcher to triangulate the data from the different sources, "by providing explanations for seemingly contradictory results that emerge from using the different methods" (Byrne, 2007:1). For this study, the researcher used focus group discussions with students and clinical teachers, and document analysis to gather the qualitative data. This enabled the researcher to understand the neonatal nursing clinical competencies for the NMTs and to assess the approaches used to assist the NMT to acquire clinical competence and assess clinical competence. The researcher used a discussion guide (developed in section 3.3.4.1.4) and checklist (developed in section 3.3.4.1.5) for the focus groups and document analysis respectively to collect the data.

3.3.4.1.6.1 *Focus group discussions*

A focus group is a discussion-based interview that produces verbal data generated through group interaction. It is carefully planned, in sequence, designed to obtain views on a defined area of interest in a non-threatening and permissive environment (Hennink, 2007:6). It aims at building conversation among the participants rather than conversation between the interviewer and individual participants (Millward, 2012:413). Focus group discussion is one of the most favoured methods in qualitative research. It has been used as a method for data collection in social and applied social sciences. Focus groups can be used either as a primary means of data collection or as a supplement to a multi-method to capture content from the understandings, perspectives, stories and experiences of the group in relation to a specific topic or area under discussion.

Focus group discussions have been an important tool to generate rich data among participants within a short period of time. Hennink (2007:8) observes that a one-hour focus group discussion can generate a large volume of data and identify a greater variety of views, opinions and experiences from the participants compared to the data collected from individual interviews for the same duration of time. This is because the discussion element of the method enables participants to talk about the issues with little moderator involvement and build on the responses of other group members to debate various contributions. For instance, the comments of one participant may trigger a series of responses from other participants and reveal insights about an issue beyond that of a single interviewee. This leads to participants' ability to reveal their own views and opinions of the topic being discussed. In addition, the focus group discussions occur in a natural setting promoting social interaction among the participants. This may make participants find the environment comfortable and enjoyable leading to positive contribution. Furthermore,

the focus groups can yield data on the meanings that lie behind the group assessments or perception of a particular topic or practice (Bloor et al., 2001:4).

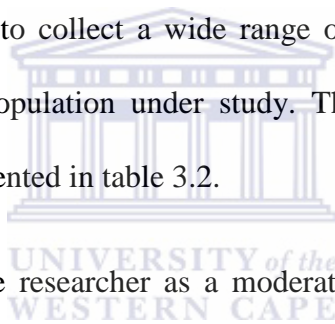
Despite having some strength, focus groups have been viewed as a limitation to data collection because of risk of bias. The moderator can be biased knowingly or unknowingly through the selection of participants or in the delivery of questions during the discussion. Bader and Ross (2002:14) advise researchers to avoid including volunteers for focus group discussions because they may have hidden agendas that could implicate the outcome of the discussion. In addition to bias, some participants may dominate during the discussion because of their authoritative tone or time spent for a contribution. This may inhibit other participants who remain quiet or simply agree with the views of a dominant participant. Because focus groups involve a small sample of participants from the population group, the results cannot be generalised to a larger population. Furthermore, focus group discussions cannot be appropriate for collecting sensitive data from the participants because participants may not be free to share their experiences or views in public. As such, researchers need to be sensitive to these issues to ensure the credibility of focus group data.

However, because of the group context involved in focus groups, it is an ideal method when seeking a range of views on a topic when debate and discussion on an issue is desired and for uncovering new insights or unanticipated issues (Eggins et al., 2008:279; Hennink, 2007:9). For instance, the focus group discussion is of such a nature that it promotes social interaction among participants, leading to collection of data that would be representative of the institutional practice. Therefore, in this study, the researcher conducted FGD at the nursing colleges to assess the neonatal nursing competencies taught to the NMTs and clinical teaching and assessment approaches. The FGD involved clinical teachers and students groups separately to encourage effective discussion. Krueger and Casey (2009:65) recommend internal homogeneity of focus

group participants to promote effectiveness of discussions. Furthermore, the focus group discussions were segmented in that clinical teachers and students formed different groups. This is because people with similar characteristics would be comfortable to express their views and perception of the topic under discussion. The focus group discussions were held in a separate room within the college premises identified with the assistance of the college principals or dean of students, to avoid interruptions and maintain confidentiality. The groups were comprised of 4-10 people depending on the size of individual groups. For instance, clinical teacher groups ranged from 4-5 people while student groups ranged from 5-10 participants. On average, conventional focus groups can comprise nine participants per session (Millward, 2012:425) with a range of five to eight participants (Krueger & Casey, 2009:67; Hennink, 2007:4). This enables the moderator to control and limit each participant's opportunity to share insights and observations during the discussion. Thus, the number of participants for the groups was minimised to ensure active participation from the participants. This enabled them to share their knowledge and perception of the neonatal nursing clinical competencies, learning and assessment approaches, to inform the development of the assessment tool. In addition, the small sizes of participants enabled the researcher to record the discussions clearly.

Because the FGD was a primary data collection method for this study, the researcher conducted three FGDs per institution, at seven participating colleges, while two focus groups were conducted at one nursing college. Two FGDs for each of the seven institutions were for students and one for the clinical teachers. However, at one college only two student FGDs were conducted as the clinical teachers were reportedly busy and unavailable to participate in an FGD. As such, the researcher conducted the students' discussion only with the view that the clinical teachers would have provided similar information to other clinical teachers in other colleges

since they used a common curriculum. In total 23 focus group discussions were conducted (table 3.2), seven for clinical teachers and 16 for students, until data saturation was reached. To obtain accurate results, Bader and Ross (2002:16) recommend focus groups to comprise about 50-100% of the organisational population if the targeted population is 10-100. In this study, each nursing college had a clinical teacher population of 4-10, and 40-70 students participating in neonatal nursing teaching and learning. Furthermore, Hennink (2007:203) recommends that for exploratory research, where specific issues are undefined or unknown at the outset and the initial group discussions focused on identifying the issues of importance, more groups may be required to fully understand the complexity of each issue. Hence, conducting three group discussions per institution enabled the researcher to collect a wide range of information as more participants were included to represent the population under study. The distribution of the focus group participants per institution are presented in table 3.2.



The FGDs were conducted by the researcher as a moderator and one research assistant. The moderator was responsible for managing the discussion (Hennink, 2007:122) while the research assistant took notes to complement the recorded information. Before the focus group started, the moderator introduced the research team and the topic to the participants to build rapport and prepare the participants for the discussion. The participants were then asked to introduce themselves for familiarisation. However, participants were informed that they should use pseudonyms during the discussion for anonymity and confidentiality.

During the discussion, the moderator used the discussion guide (section 3.3.4.1.4) to ensure that the discussion was focused and controlled. Key questions focused on how clinical teachers assisted the NMT to acquire clinical competence in neonatal nursing and how the NMTs were assessed for clinical competence. These questions were similar for the clinical teachers and

students participants except where the researcher expected the clinical teachers to explain the behaviours associated with competent practice of the student. During the discussions, the researcher asked one question at a time to allow for the participants' contributions before the next question was asked. The researcher used probing questions when the responses were not clear or incomplete. The participants could debate an area if the question required them to explain their experiences on clinical assessments. In some situations, some participants demonstrated lack of satisfaction with the way some assessments were being conducted and this generated some emotional responses among the participants. This was common among the student focus group discussions.

Initially, some participants kept quiet, leaving others to dominate the discussion. In such cases, the researcher asked individual opinion and experiences on the topics directed towards the passive participants. This enabled the researcher to collect more data from the participants. The discussions took between 40-60 minutes, with the longest discussion recorded for the students' participants. All the discussions were audio recorded and detailed field notes were taken by the research assistant. This allowed for data triangulation as data from the field notes were used to validate data from the audio recording (Bloor et al., 2001:41). The researcher used three recorders, of which one was the main recorder and two were backups. This enabled the researcher to compare the recordings for accuracy during data transcription. All the focus group discussions were arranged at a time convenient to the participants. Thus, the researcher proceeded with the FGD when the participants agreed and were ready to participate.

3.3.4.1.6.2 Document review

Bowen (2009:27) defines document analysis as a systematic procedure for reviewing or evaluating documents, both printed and electronic. It involves skimming, reading and interpretation of the content. Using documents provides the researcher with adequate information about some reality (Have, 2004:90). Documents have been recommended in qualitative research because they provide background information or insights for the research process (Bowen, 2009:30). In addition, using documents enables the researcher to track changes and developments as well as to supplement the research data. Thus, documents can be an effective way of collecting data if the events cannot be observed or participants forgot to give details. In this study, document analysis was conducted to gain insight and examine trends and consistence in neonatal nursing clinical competencies and assessment approaches for nurse-midwife technicians. This document analysis was done to compare the findings with that of the focus group discussions. The researcher analysed the NMT syllabus' outline and course outline, as well as the teaching and assessment tools. A content analysis approach was used to organise the document information based on the research objectives.

To ensure that relevant documents and information was extracted, the researcher used the checklist (section 3.3.4.1.5) to identify the necessary documents for review. Each document, syllabus outline and course outline was checked for the type or area of competencies included; number of the competencies and whether teaching and assessment approaches were included. Likewise for the assessment tools, the researcher examined the type or area of competencies included for assessment; the assessment and grading criteria. Then the researcher marked the checklist by ticking each item which was examined in the document. In addition, the data

extracted from the documents were written following the research objectives for accuracy. This enabled the researcher to ensure credibility and accuracy of the selected documents and data.

3.3.4.1.7 Qualitative data analysis

Qualitative data analysis involves organising, providing structure to and drawing meaning from the research data. It includes the search for underlying themes for description and interpretation of general statements obtained from the research data. Data reduction, categorisation and interpretation are central tasks in qualitative analysis (Spencer, Ritchie & O'Connor, 2003:220), which were also conducted in this study. The researcher used content analysis (Hsieh & Shannon, 2005:1279) for both the focus group discussion and document review data. In content analysis, both the content and context of documents were analysed by identifying themes. The researcher read through the data to extract meaning, divided the data into small units, assigning a label for each unit and then identified codes (Creswell & Clark, 2011:208) focusing on the way the theme was presented and the frequency of its occurrence. The unit of analysis was neonatal nursing competencies and approaches used for validating achievement of clinical competence as well as approaches used to facilitate achievement of clinical competence.

The FGDs data analysis was done simultaneously with data collection. For instance, the initial FGD was analysed to guide subsequent data collection (Hennink, 2007:204) by examining the information to identify new issues. However, following the first FGD for both students and clinical teachers, no new issues were identified that required a review of the discussion guide. As such, no changes were made except for rephrasing some of the questions. The analysis concentrated on providing an understanding of essential issues in the data (Bloor et al., 2001:59) while keeping in mind the dynamics of the group discussions. The stages identified by Hennink

(2007:200-234); data preparation, identification of themes and coding and presentation of findings were followed during the analysis.

3.3.4.1.7.1 Data preparation

Data preparation involves transcribing the audio-recorded data into written transcripts. During this stage the researcher cleans, labels and anonymises the data (Hennink, 2007:10). The recorded data from the FGDs was transcribed verbatim, with the help of research assistants to reflect the true speech of the participant. Three research assistants were employed and oriented to assist in the data transcription. After the transcription was completed, two independent research assistants verified the transcribed data by listening to the audio recorded data while going through the transcripts. This process was also repeated by the researcher. Thus, the researcher re-listened to the recorded data, following the verified transcripts, to ensure completeness and accuracy. During this stage, the transcripts were labeled with characteristics in the form of letters and numbers for analysis based on participant designation; student or clinical teacher and college. This provided a clear reference point for the data. These labels replaced the pseudonyms assigned to participants during the discussion.

3.3.4.1.7.2 Identification of themes and coding

This involved segmenting the data into smaller, but meaningful parts for detailed analysis (Hennink, 2007:220) by identifying specific issues which arose during the FGD and also based on the research objectives. During this process, the researcher first read through the transcripts to become familiarised with the context. Then the researcher read and re-read the transcripts to notice issues or concepts, themes or codes under discussion, putting markers under each issue, idea and explanation which was identified. The identified codes were placed at a node and

references were made to the text by linking the codes and quotations. The researcher also assigned memos for some issues which were interesting and important findings for the study. In addition, the researcher identified categories by grouping codes and themes which presented a similar topic or tackled the same research objective. Seven categories were identified which included competencies, approaches to facilitate achievement of clinical competence, approaches to validate achievement of clinical competence, assessment challenges, clinical teachers, students and nursing colleges. The researcher used the categories and/or the themes or codes to explore the rich text data, examining the content. Atlas.ti version 7.1, qualitative software, was used to assist in the data analysis.

3.3.4.1.8 Ensuring rigour

The issue of quality in qualitative research has been debated by researchers without reaching a consensus of establishing quality criteria. Rolfe (2006:305) argues that any attempt to establish a consensus on quality criteria for qualitative research is unlikely to succeed because the idea of qualitative research is open to question. However, for Morse et al. (2002:1) qualitative researchers should be responsible for reliability and validity by implementing essential verification strategies and self-correcting during the conduct of the inquiry itself, to ensure the attainment of rigour. Without rigour, research is regarded as worthless, becomes fiction, and loses its utility. According to Morse et al. (2002:12), the verification strategies to ensure rigour of a study include ensuring methodological coherence, sampling sufficiency, developing a dynamic relationship between sampling, data collection and analysis, thinking theoretically and theory development. If these strategies are followed throughout the study process, the result will be scientific evidence that can be integrated into our knowledge base. Rolfe (2004:305) further argues that if the verification strategies are made visible by the researcher, the results would be

trustworthy, representing a fundamental shift in the judgement of quality. A study is said to be trustworthy if the reader of the research report is able to audit the events and actions of the researcher (Koch, 2006:91). The criteria for establishing trustworthiness of a study include credibility, dependability, transferability and confirmability (Lincoln & Guba, 1985:319) which were also followed in this study. These have been discussed separately in this section.

3.3.4.1.8.1 *Credibility*

Credibility refers to the confidence in the truth of the data and its interpretation (Brink et al., 2012:172). It is concerned with accuracy of the findings and determining the extent to which conclusions effectively represent empirical reality. Credibility was achieved through triangulation. Triangulation involves the use of different methods and a wide range of informants (Shenton, 2004:65). In this study, triangulation was done through the use of multiple informants; students and clinical teachers, and validating the findings through document analysis and a survey (presented in a different section 3.3.4.2).

3.3.4.1.8.2 *Dependability*

Dependability refers to accuracy and consistency of information obtained in a study. It is concerned with the stability and repeatability of the informants' accounts and the researcher's ability to collect and record information accurately (Brink et al., 2012:172-173). It entails the techniques of showing that similar results would be obtained if the work were repeated in the same context, with the same methods and with the same participants. One of the ways for dependability suggested by Koch (2006:92) is the auditing of the research process. The researcher involved the research supervisor and other senior researchers and colleagues at each and every stage to check if the research process was consistent.

3.3.4.1.8.3 Confirmability

Confirmability refers to the degree to which the results could be corroborated or confirmed by others. It involves making judgements on whether inferences are logical (Lincoln & Guba, 1985:318). Confirmability was achieved through independent coding. Thus, an independent coder checked the accuracy of the themes. In addition, the audio recorded information and document analysis data were kept for an audit trail as a reference for researchers and other people who might be interested in having a feel of the raw data.

3.3.4.1.8.4 Transferability

Transferability is an indication of whether the findings or conclusions fit with other contexts or the existing literature (Fitzpatrick & Wallace, 2006:147). Koch (2006:92) suggests that the original context of the findings must be described adequately so that a judgement of transferability can be made by readers. In this study, the researcher provided thick descriptions of participants' narrative responses, to ensure that 'sufficient contextual information' (Shenton, 2004:72) about the focus group discussions was presented.

3.3.4.2 Phase one B: The quantitative strand

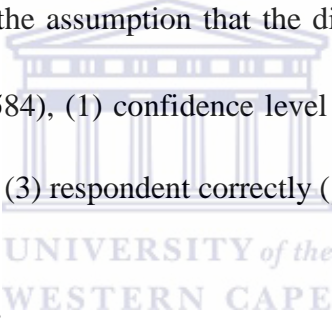
Quantitative research involves the use of disciplined procedures to acquire information. It specifies numerical assignment to the phenomena under study (Vanderstoep & Johnston, 2009:7). Quantitative researchers use deductive reasoning to generate predictions, focusing on the research problem. Singh (2007:64) divides quantitative research designs into two broad types namely, exploratory research and conclusive research. According to Singh, exploratory research is conducted to explore the research issue when the alternative options have not been clearly

defined or their scope is unclear. It explores the issue further and relies more on secondary research derived from a review of available literature or qualitative research approaches. On the other hand, conclusive research is designed to provide information for the evaluation of alternative courses of action (Feinberg, Kinnear & Taylor, 2013:39; Malhotra & Birks, 2006:62). This phase of the study used an exploratory and descriptive design. In descriptive design, the researcher provides the number of times something occurred and helps in determining the descriptive statistics for a population or phenomenon; that is the average number of occurrences or frequency of occurrences (Singh, 2009:65).

3.3.4.2.1 Sampling and sample size

Sampling in quantitative research means trying to select participants who are best suited for the study and allowed the researcher to, most effectively, accomplish the research goal (Singh, 2007:37). The goal of sampling in quantitative studies is to obtain a representative sample. This means that it is a group that is similar to a larger population targeted for the study. In this study, the researcher used a convenience and proportional stratified sampling techniques to select the different respondent groups for the study. The researcher used convenience sampling to select the clinical teacher respondents. In convenience sampling the researcher selects people who are available for the study (Vanderstoep & Johnston, 2009:27). Using this method, 60 clinical teachers who were involved in teaching neonatal nursing in the nursing colleges were selected to participate in the study. These clinical teachers were reportedly available in the seven nursing colleges which participated in the quantitative phase of the study (one nursing college was dropped from the list of the main survey because the college was used to pre-test the instrument). Thus, using this technique, the clinical teachers population was ($N_1=60$) and the sample was ($n_1=60$).

On the other hand, the researcher used the proportional stratified technique to select the student respondents. With proportional stratified technique participants are selected based on their membership in a particular subgroup (Vanderstoep & Johnston, 2009:32). In this study, the technique was used because the student population was different from each nursing college. As such, the researcher wanted to ensure that each college had contributed a sample of students that was proportionate to the number of students (Davis et al., 2012:164). Thus, the student population of (N₂=471) was calculated using a stratified proportional technique to get the sample for the study (this number excludes students from the nursing college which was used for the pre-test and the nursing college which did not give the researcher permission to conduct the study). The researcher worked on the assumption that the distribution of means were normally distributed (Polit and Beck, 2008:584), (1) confidence level was 95% $\alpha=5\%$, $Z_{\alpha/2} = 1.96$; (2) Marginal error (d) = 5% = 0.05 and (3) respondent correctly (ρ) =50%, not responding correctly



(q) =50%:
$$n = \frac{N_2 * Z_{\alpha/2} * p * q}{(N - 1)d^2 + Z_{\alpha/2}^2 * p * q}$$
. Thus
$$n = \frac{471 * 1.96 * 0.5 * 0.5}{(471 - 1) * 0.05^2 + 1.96 * 0.5 * 0.5} = 198$$

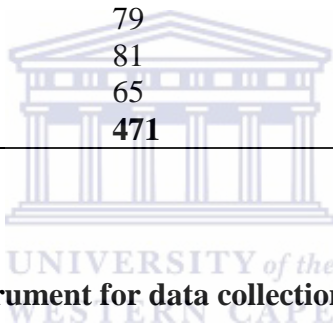
(Singh, 2007:95-104).

Hence a sample of n₁=198 students, undergoing a neonatal nursing course, was randomly selected to participate in the study. The sample for each college was determined by dividing the total number of students at the college by the target population, multiplied by the total sample required for the study (n₁ =N₁ * N₂/n). The participants for each college were selected using simple random sampling. The researcher used the student class list, provided by the college principals for each college, which had numbers pre-assigned for each student ranging between 1-81 depending on the number of students per institution. Then the researcher generated random

numbers in a table, using a two-digit combination, to determine which students could be included in the study sample. The number of generated random numbers differed from institutions depending on the sample size. All the students who corresponded with the generated random numbers on the class list constituted the sample. The selected participants were then given the questionnaire. The sample for each nursing college is presented in table 3.3.

Table 3.3: Sample for student respondents

College of Nursing	Student population	Sample
College 2	75	32
College 3	52	22
College 4	70	29
College 5	49	21
College 6	79	33
College 7	81	34
College 8	65	27
Total	471	198



3.3.4.2.2 Developing an instrument for data collection

Designing research instruments depends on the research problem, type of survey design and the nature of information that needs to be collected (Singh, 2009:68). Survey instruments can either be in the form of a self-administered questionnaire or an interview. In a self-administered questionnaire, the participants fill in the answers on their own whereas in an interview the researcher and respondent have a face-to-face discussion or communicate through telephone or emails. Self-report questionnaires have been used by most researchers in social and applied social sciences because of their efficiency in collecting large amounts of data (Vanderstoep & Johnston, 2009:67). Despite, the researcher's reliance on the participants' reports of their own attitudes and perceptions, which can produce inaccurate responses, a self-report questionnaire is

a powerful and flexible way to collect data that allows the researcher to measure many aspects of human activity.

In this study, a self-report Likert type questionnaire (Appendix 3 & 4) was developed for data collection. A Likert scale is a set of self-reported data collection instruments where participants numerically respond to questions based on their perceptions (Polit & Beck, 2008:418). It consists of several declarative items that express a viewpoint on a topic under study. Using this tool, the respondent is asked to indicate the degree to which they agree or disagree with the opinion presented in the statement. The researcher developed a Likert scale of 1-5 (strongly disagree to strongly agree) in which 'strongly agree' had the highest score of five. Polit and Beck (2008:478) recommend putting the most positive response option in a Likert scale at the end of the list rather than at the beginning to minimise acquiescence responses. In addition, the researcher used positively framed declarative statements to avoid confusing the participants. The researcher used the qualitative research findings to develop items for the questionnaire on competencies taught to the NMT in neonatal nursing and approaches to facilitate and assess clinical competence. Two Likert type questionnaires were developed, one for clinical teachers (Appendix 3) and the other for students (Appendix 4). The instrument had four sections for each group focusing on neonatal nursing clinical competencies, approaches to facilitate acquisition of clinical competence, approaches to assess clinical competence and tools used to assess clinical competence. Sections one and two had similar statements for both groups while sections three and four had additional statements for the clinical teachers despite carrying some statements which were also responded to by the students.

3.3.4.2.3 Pre-test of the data collection instrument for reliability

Singh (2007:72) recommends that all research instruments developed for a study should be thoroughly tested to ascertain their suitability in actual field conditions. Pretesting is not only critical for identifying questionnaire problems but also helps the researcher to remove ambiguities and other sources of bias and error. According to Singh, pre-testing is an essential step in survey research to ascertain the instrument's reliability. Twycross and Shields (2004:28) define reliability as the consistency of measurement or the degree to which an instrument measures the same way each time it is used under the same conditions with the same subjects. The commonly used method for evaluating instrument's reliability is the use of the Cronbach's alpha. Using Cronbach's alpha test, researchers estimate the extent to which different subparts of an instrument reliably measure the critical attribute. An instrument is reliable when its measures reflect the true scores. Pallant (2010:96) considers values above 0.7 as acceptable while Polit and Beck (2008:454) consider values above 0.8 as being good and acceptable for the instrument usability. Thus, a measure is considered reliable if a person's score on the same test, which is administered twice, is similar.

In this study, pre-testing was done among seven clinical teachers of neonatal nursing and 20 students undergoing neonatal nursing. One nursing college was chosen for the pre-test which did not form part of the major survey sample. The results from the pre-test were analysed using SPSS and the Cronbach's alpha reliability coefficient test was performed. On average, a value of 0.8 for the items was obtained. The majority of the items scored above 0.9. The researcher maintained all the items which had a value score of 0.8 and above. All items which did not correlate with the test were removed from the questionnaire. This led to the removal of three

items which had a score of 0.7 or less on the Cronbach alpha test. Thus the results from the pre-test helped the researcher to refine the instrument.

3.3.4.2.4 Instrument validity

Validity refers to the extent to which the instrument measures what it is expected to measure. Twycross and Shields (2004:28) identify three measures of instrument validity that provide evidence of the quality of a study. These include content validity, criterion validity and construct validity. Content validity involves examining whether a tool appears to be measuring what it says it does. Researchers use face validity as a simple form of content validity (Twycross & Shields, 2004:28) in which the researcher asks a few people to check if the tool covers all areas of the topic under study. On the other hand, criterion validity uses an already existing and well-accepted measure against which the new measure can be compared while construct validity tests the link between a measure and the underlying theory (Polit & Beck, 2008:299). In this study, validity was enhanced through face and content review by the supervisor, other senior researchers and peers. The instrument was given to two senior researchers, one in education and another in nursing and midwifery, and other colleagues to review the content of the questionnaire and to check if it covered all the areas expected to be measured on the neonatal nursing clinical competencies and approaches to facilitate and assess clinical competence. Feedback from these reviewers helped the researcher to refine the instrument through the addition of some items which were believed to be important in assessing clinical competence among nursing and midwifery students. In addition the instrument was pretested to ascertain its suitability.

3.3.4.2.5 Data collection method

The researcher used a cross-section survey to explore and describe the neonatal nursing competencies and approaches used to facilitate and assess clinical competence in neonatal nursing. Johnson (2011:slide 2) defines a survey as a systematic approach to collecting quantitative data that will provide statistical information about a population or phenomenon. It is a popular form of data collection, when gathering information from large groups, where standardisation is important (Creswell, 2002:49). Surveys are appropriate for gathering descriptive data and cover a wide range of topics. However, Creswell (2002:50) argues that the approach may not provide adequate information on the context, lacks depth and may be biased if self-reports are used. For this study, the researcher used the survey to triangulate the data generated from the qualitative phase. This enabled the researcher to validate the information provided by the participants thereby ensuring validity of the findings.

During the data collection, the researcher used the self-report questionnaire developed in section 3.3.4.2.2. In self-report data collection, the participants answer questions on their own, by completing a survey or questionnaire either through mail, email or a group setting (Vanderstoep & Johnston, 2009:67). In this study, the questionnaire was administered to the participants by the researcher and the participants used 'paper and pencil to answer the questions' (Bowling, 2005:281). The participants, especially the students, completed the questionnaire in a group setting. The researcher handed the paper questionnaires to the participants in person and asked them to complete them by hand and return them to the researcher. This ensured that more questionnaires were completed, thereby increasing the response rate. In addition, the presence of the researcher during the completion of the questionnaire enabled the researcher to clarify some statements which the participants did not understand. In some situations, where the participants

were reportedly busy or unavailable, the researcher left the questionnaires with one participant to distribute to the remaining participants and was then requested to send them to the researcher by mail upon completion. This was common with the clinical teacher participants. In total, 258 questionnaires were distributed, 198 for the students and 60 for the clinical teachers. Of these, 243 questionnaires were fully answered and returned to the researcher. This included 195 student questionnaires and 48 clinical teacher questionnaires. Three student questionnaires were not fully answered and as such they were not included for analysis in the study, giving a compliance rate of 98.5%. For the clinical teacher questionnaires, eight questionnaires were returned unanswered and four questionnaires were not returned to the researcher, giving a compliance rate of 80%. All the 243 questionnaires were included for data analysis.

3.3.4.2.6 Quantitative data processing and analysis

Quantitative researchers use statistical procedures to organise, interpret and communicate research findings (Polit & Beck, 2008:556) using descriptive or inferential statistics. Descriptive statistics are used to describe and interpret the data. For analyses to be performed the researcher identifies the variables to be measured and then the data is coded for computer processing. Singh (2007:82) defines coding research as the process of conceptualising research data and classifying them into meaningful and relevant categories for the purpose of data analysis and interpretation. A number is assigned to each category in the form of a code. For instance, female would be given 1 and male 2. In this study, the researcher defined the variables to be measured prior to the data collection and codes were assigned for each variable. This enabled the researcher to follow through the research objectives and collect relevant data that answered the research questions (Hardon, Hodgkin & Fresle, 2004:67). Using the Statistical Package for Social Science (SPSS) version 22 descriptive statistics were used to analyse and interpret the data. The data were

presented using frequency tables. The results from this analysis were integrated with results from the focus group discussions and document analysis to aid interpretation. In addition, the findings from these approaches informed phase two of the study, to develop the clinical competency-based assessment tool.

3.3.5 Ethics considerations

The research proposal was reviewed and given ethics clearance by the University of Western Cape High Degrees Committee (Appendix 6). Then the research proposal and the ethics approval letter from UWC were submitted to National Health Sciences Research Committee (NHSRC), Malawi, for review and approval before the researcher proceeded to data collection (Appendix 7). Permission was granted to the researcher by the participating institutional authorities, following submission of the ethics approval letter from NHSRC to proceed with data collection.

Verbal and written consent were sought from the participants before participation in the study to ensure protection and voluntary participation. The participants were provided with an information sheet (Appendices 8-9) which explained the necessary information for the study. Questions and concerns raised by the participants, based on the information sheet, were clarified by the researcher. The participants were informed that confidentiality would be maintained throughout the research process and dissemination of the study findings. Thus, information provided by the participants would not be linked to individuals to maintain anonymity and will not be shared with anyone without the participants' consent. The information they provided have been kept under lock and key and will be destroyed five (5) years after writing the report. In addition, the participants were informed that their participation in the study was voluntary, and that they had a right to refuse to participate or withdraw if they felt like doing so.

The student participants were also informed that their contributions during the FGD and the survey responses would not be discussed with any of the clinical teachers. As such, their learning or performance would not be affected in any way by participating in the study. Furthermore, clinical teachers and/or any staff at the nursing colleges were not allowed to be present or come close to the room during the focus group discussions with the students. However, all participants were informed of the minimal risk which could follow their participation in the study, like psychological effects if the participant went through a negative experience during clinical assessment. The researcher encouraged the participants to share such experiences with colleagues or the researcher if they felt that would relieve their pain. However, no participant reported psychological effects during the study.

An informed consent (Appendix 10) was then signed by the participants following the researcher's clarification of the study. The consent form stipulated that the information provided during the study would not be used for anything else except for the intended purpose. Names or any identifiers were removed from the study during data processing and presentation. The researcher's contact address was provided in case the participants wanted to communicate with the researcher should any issues develop. The participants' contributions were treated with dignity and privacy was maintained throughout the research process.

3.4 Phase two: Development of solutions informed by existing design principles

This phase addressed objective four of the study:

- To develop a neonatal nursing care clinical competency-based assessment tool for NMTs.

Informed by the findings from phase one and information from the reviewed literature, the researcher utilised the second stage of design and development research and the last three steps

of developing assessment tools; selection of assessment methods, design and development of assessment tool and review and refinement, to proceed with this phase. A consensus workshop was employed to generate data and consensus on the required neonatal nursing clinical competencies as well as development of the assessment tool.

3.4.1 Phase two research design

During this phase, the researcher used a qualitative descriptive approach. This enabled the researcher to generate a consensus on the required neonatal nursing clinical competencies for NMTs and assessment method to be included in the clinical competency-based assessment tool as discussed by participants.

3.4.2 Study setting

The setting for this phase of the study was similar to that in phase one. However, a central point was selected for all participants from the nursing colleges to meet in a forum. One institution in the capital city, situated in the central region, was selected as the central point ideal for the meeting. This place was chosen for easy access of the participants from all the three regions. The organisation of a central location for the forum allowed for the greatest attendance of the participants.

3.4.3 Population

The population for this phase of the study was similar to that of phase one with few modifications. Apart from including the clinical teachers, some stakeholders responsible for nursing and midwifery education and neonatal health services were included for the workshop. However, students were not included during this phase. Allowing a mixed group of participants for the workshop led to the generation of full and in-depth representation of views from all

individuals involved, thereby enabling the researcher to collect a wide range of data for the assessment tool development.

3.4.4 Sampling and sampling technique

The participants from these population groups were purposively selected based on their involvement in neonatal health nursing education and practice as well as decision-making. The participants were drawn from different institutions/organisations offering and supporting nursing education as well as providing neonatal health services. Twenty-five participants were targeted for the consensus workshop, 13 participants from nursing and midwifery training institutions, six from the nursing education supporting organisations and six from the neonatal health services providers. This sample was believed to be appropriate for the study based on their expertise and experience in nursing and midwifery education as well as involvement in neonatal health services. However, only 21 participants (table 3.4) participated during the consensus workshop and four training institutions did not send any participant.

Table 3.4: Workshop participants

Institution/organization	Number of participants
Nursing and Midwifery Education experts	9
Ministry of Health	1
Nurses and Midwives Council of Malawi	1
Nursing and Midwifery Education Partners	4
Neonatal Health Care Providers	6
Total	21

3.4.5 Data collection procedure: Choosing assessment methods and approach

The researcher used a consensus development workshop to collect data for this phase. A selected group of participants was brought together to reach consensus (Murphy et al., 2009:6) about the areas of neonatal nursing clinical competency and development of the competency-based assessment tool. This provided a means of synthesising information and gaining insights and views on the competencies and assessment methods from the experts and stakeholders (Hutchings, Rapport, Wright, Doel, Clement & Lewis, 2014:42).

According to Hutchings et al. (2014:43), consensus development workshops aim at determining the extent to which experts or lay people agree about a particular issue. It uses five steps to reach a conclusion namely, context, brainstorming the ideas, clustering the ideas, naming the clusters and then making a resolution (Stanfield, 2002:60). Thus, the participants are presented with a context of the issue or problem at hand to enable them to understand and explore the topic. In addition, the facilitator outlines the process of the workshop and explains its product and outcome. During brainstorming, the facilitator gathers relevant data from the participants and puts it in front of them. This is followed by developing clusters of the ideas in which similar ideas are put together in clusters. Then the clusters are assigned names and sub-clusters are also developed during this stage. This gives a comprehensive picture of the ordered relationship of all ideas generated from the workshop (Stanfield, 2002:64). Participants make a resolution which involves confirming the group's commitment to the decisions they have made and moving it to action. The facilitator reads through the named clusters loudly and then holds a discussion to reflect on the workshop, using focused conversation questions. This is followed by a group discussion on the next steps to effect the product of the workshop. During resolution, items with similar meanings are combined and duplicate items are removed from the clusters. Using this

approach, the researcher synthesised the information gathered from phase one of the study and the contributions of the workshop participants to develop the assessment tool.

3.4.5.1 Data collection: The consensus workshop

The researcher conducted a one-day workshop with the stakeholders involved in nursing and midwifery education and practice in Malawi, in addition to principal officers from the CHAM nursing colleges. During the workshop, the researcher sought to achieve consensus on recommendations for ways to make the research findings more relevant to neonatal nursing education and practice environments (Sabir et al., 2006:835). Thus, the aim of the workshop was for the participants to reach a consensus on the neonatal nursing clinical competencies for the NMTs' and methods of assessing clinical competence as well as to develop the neonatal nursing care clinical competency-based assessment tool. As such, the participants were involved in identifying appropriate neonatal nursing clinical competencies for the NMTs and participated in the development of the neonatal nursing care clinical competency-based assessment tool. The researcher followed the stages identified by Stanfield (2002:60); the context, brainstorming, developing clusters, naming the clusters and resolution to facilitate the workshop. Participants discussed the issues in groups and flipchart presentations were prepared. During the group presentations, all the presentations were audio recorded. In addition, a rapporteur was nominated to take detailed notes throughout the workshop proceedings.

3.4.5.1.1 The context

During this stage, the researcher introduced the topic under study and explained the product and outcome of the workshop. This was done to draw the participants' attention during the workshop deliberations. Thereafter, the researcher presented the phase one study findings, focusing on the

research objectives. This enabled the participants to understand the specified neonatal nursing clinical competencies as presented in the study findings and to choose appropriate assessment methods (DTWD, 2012:7) for the validation of NMTs' achievement of clinical competence. The researcher facilitated the workshop for easy coordination as principal investigator and conversant with the study findings, while providing participants adequate time to discuss and come to a consensus on the issues highlighted in the study. The workshop and participants' discussions were guided by the questions identified by DTWD (2013:12-14) to guide the development of an assessment tool, namely:

- What competencies should be included for clinical assessment in neonatal nursing for the NMTs?
- How would these competencies be validated in the clinical area?
- Who would be involved in assessing the NMTs to validate achievement of clinical competence?
- Where will the assessments for clinical competence be conducted?
- When will the clinical assessment be conducted?

3.4.5.1.2 Brainstorming

Based on the phase one research findings presented in the previous stage (context), the participants were asked to contribute their ideas towards development of the clinical competence-based assessment tool. During this stage, the participants were divided into three groups which had mixed members from both training institutions and clinical practice institutions, to ensure active participation from all participants. Two groups had seven members while one group had six members. The participants were guided by the questions to brainstorm

the ideas towards neonatal nursing clinical competencies, methods and criteria for assessment of clinical competence, personnel to be involved in the assessments, place and time for assessments. Questions one and two were given 30 minutes each for the small group discussions, separately, while questions 3-5 were discussed together for 15 minutes. This was because questions one and two formed the main areas of the study and assessment tool, hence participants needed to deliberate on the issues widely.

In addition, during the small group discussions, question one was guided by the COPA model while question two was guided by the skills acquisition model. However, the participants were not restricted to focus on the study findings only as some other important issues may have been missed during the first phase. Hence, the participants were encouraged to add other competencies that would be relevant and important for the NMT's clinical competence in neonatal nursing. Flipcharts and flipchart markers were provided to each group to document their ideas. Each group was asked to choose a chairperson who controlled the group discussions and a secretary documented the ideas. The facilitator moved around the groups to check on progress and clarified issues that were not clear for the group members. Thereafter, each small group was given 30 minutes to present their ideas to the whole group.

3.4.5.1.3 Developing clusters

This involved putting similar items from the small group discussions together. Thus the facilitator read through the ideas, as presented by each group, loudly to the participants (Miller, 2013:1). Then similar ideas were put together to form clusters. This enabled the participants to ensure that the identified issues or ideas adequately described the items contained within them (Hutchings et al., 2013:495). During this stage, the participants discussed the items and agreed to

which items could be included in the assessment tool. Those items which did not get a consensus from the participants were removed from the list.

3.4.5.1.4 Naming the clusters

During this stage, names were assigned to the clustered ideas to give meaning. For question one, the clusters formed the clinical competencies expected of the NMTs' in neonatal nursing. In total, seven clinical competencies for neonatal nursing practice were identified. For question two, the clusters formed the criteria for the assessment of clinical competence.

3.4.5.1.5 Resolution

During this stage, the participants further discussed the clusters, 'to check if that was really what all the participants thought' (Miller, 2013:1). Following a general consensus from the participants on the clusters for each group, competencies, assessment methods and criteria for assessment, the participants agreed that the researcher should continue designing and developing the clinical competency-based assessment tool. Thus, the researcher used the information obtained during the workshop to develop the assessment tool.

3.4.6 Data analysis

The workshop presentations were transcribed verbatim. During the transcription, the audio recordings were used to validate data from the notes and documented flipcharts. The researcher used the content and summative analysis of the transcribed data based on the group level of participants to extract detailed information relating to each of the generated clusters (Hutchings et al., 2013:496). Summative analysis is a group, collaborative analytic technique that concentrates on consensus-building activities, to reveal major issues inherent in the data

(Rapport, 2010:270). The detailed content of the data helped the researcher to add depth of understanding to the clusters and to clarify any anomalies regarding the important aspects of the questions. This enabled the researcher to describe and select the neonatal nursing clinical competency areas, assessment methods and criteria for determining the achievement of clinical competence, as identified and agreed upon by the participants, to be included in the assessment tool.

3.4.7 Design and development of clinical competency-based assessment tool

During this step the researcher worked on devising the clinical competency-based assessment tool. DTWD (2013:15) describe an assessment tool as containing both the instrument and the instructions for gathering and interpreting evidence in an assessment process. It provides clear guidance and support for students with objectivity and transparency, and the student's level of performance is judged based on specified evidence criteria. The researcher was informed by the findings from the consensus workshop data, to design and develop the neonatal nursing care clinical competency-based assessment tool. Thus, the neonatal nursing clinical competencies, assessment methods and criteria for determining achievement of clinical competence, identified and agreed upon by the workshop participants, were integrated into the tool.

The assessment criteria (evidence) were included to guide the clinical teachers on what to assess in the student. The criteria outlined the attributes for judging the students' level of performance using the first four (4) stages of the skills acquisition model; novice, advanced beginner, competent and proficiency. Furthermore, instructions (guidelines) on how to use the assessment tool were also included. These instructions provided information to both the student and the clinical teacher, on how to use the tool to aid self-assessment and for validation of clinical

competence respectively (Northern Ireland Practice and Education Council for Nursing and Midwifery (NIPEC), 2010:4). The instructions were structured in such a way that they guided the user to respond to the questions regarding the ‘what, when, where, how, and why’ of the assessment processes. Apart from validating the students’ clinical competence (Lenburg et al., 2011:292), the assessment tool provides guidance for the student’s learning and acquisition of clinical skills in neonatal nursing.

3.4.8 Review and refinement of assessment tool

Validity of the tool was ensured through content and criterion-related validity. The assessment tool was reviewed by the experts in education and neonatal care, those who attended the consensus workshop and peers, to assess validity of content, objectivity and fairness of assessment criteria. Thus, following the design and development of the draft assessment tool, the researcher sent the drafted tool to the participants of the workshop for review and comment, to check if the tool had included the items agreed upon during the workshop for consensus. A checklist (Appendix 11) was developed to guide the review. The feedback from the reviewers was used to refine the tool to enhance quality, reliability and validity.

3.5 Summary

This chapter presented and discussed the research design and methodology which guided the study. The researcher started by discussing the two research paradigms, positivists and constructivists. The positivists use deductive reasoning which is consistent with quantitative research while the constructivists use inductive reasoning consistent with qualitative research. For this study, the researcher used a mixed research approach in which both positivists’ and constructivists’ views were used. Thus, both qualitative and quantitative approaches were used

for triangulation purposes. The study was conducted in two phases. Phase one consisted of the qualitative and quantitative strands sequentially. The researcher used exploratory and descriptive research design to collect and present data for both strands. The qualitative strand was given priority and informed the quantitative strand. In addition, the qualitative strand used focus group discussions and document analysis. Data collected using these methods were analysed using content analysis. Findings from the qualitative data informed the development of a questionnaire which was used to collect survey data in the quantitative strand. The software Atlas.ti and SPSS were used to assist in the analysis of the qualitative data and quantitative data respectively.

Findings from phase one informed the researcher to proceed with phase two of the study. During phase two, the researcher used a consensus workshop, in which a mixed group of participants were involved. The workshop aimed at drawing a consensus from the stakeholders on the neonatal nursing clinical competencies, assessment method and criteria for determining achievement of clinical competence for the NMTs. Thus, the researcher used the consensus workshop findings to develop the clinical competency-based assessment tool. In addition, the chapter has also discussed the rigour and trustworthiness of the qualitative strand and the validity and reliability of the survey instrument and assessment tool. Ethical considerations have also been discussed.

CHAPTER FOUR

Presentation of findings

4.1 Introduction

This chapter presents findings generated from the qualitative and quantitative data. The findings have been presented in two phases. Phase one presents data from the focus group discussions, document review and cross-section survey. Phase two presents data from the consensus workshop on the development of the clinical competency-based assessment tool. The main emphasis was to obtain multiple data on the clinical teachers' and students' experience with neonatal nursing clinical teaching and assessments. The analysis was done based on the research objectives, for easy organisation of data.

4.2 Phase one findings: Neonatal nursing clinical competencies taught to NMTs and approaches to facilitate and assess clinical competence.

This phase addressed objectives 1-3 of the study:

- Explore and describe neonatal nursing clinical competencies taught to the NMT in CHAM nursing colleges
- Explore how clinical teachers assist the NMT to acquire the clinical competencies in neonatal nursing
- To explore and describe how the NMT's clinical competence in neonatal nursing is assessed.

The data for these objectives were generated through focus group discussions, document review and cross-section survey. The data have been presented in three sections. The first section

presents data from the focus group discussions based on the identified themes and sub-themes, which were organised based on the research objectives and the conceptual framework, COPA model, to ensure a systematic presentation of the results. The second section presents data from the document review and the third section presents data from the cross-section survey, following the research objectives. The researcher has also presented the relationship between the quantitative and qualitative findings of the study for a clear understanding of the standard of competencies taught to the NMT as well as the approaches used to assist and assess clinical competence.

4.2.1 Data from the focus group discussions

The focus group discussion questions were similar for both clinical teachers and students except for one question which sought the attributes attached to competent practice by the student. This question was responded to by the clinical teachers only. The findings were grouped into themes and sub-themes. In the event that the responses and contributions were different between the participant groups, the researcher clearly indicated that for the particular responses and/ or experiences. The themes and sub-themes are presented in table 4.1.

Table 4.1: Themes and sub-themes generated from the FGD

Objective	Theme	Sub-theme
Neonatal nursing competencies taught to NMTs	Assessment and management of a neonate	Immediate care of the newborn baby Initial and subsequent assessment of the newborn baby Management of a neonate with complications
	Communication skills	Documentation
	Collaboration	
Approaches used to assist NMT acquire clinical competence	Skills laboratory practice	Demonstrations and return demonstrations
	Practice-based learning	Learning contract Clinical mentors and peer teaching Assignments and discussions Case studies and case presentations
	Neonatal nursing has been neglected	Challenges with OSCE and NMCM assessments
Approaches assess clinical competence	Assessment tools	Checklists Criteria for evaluation

4.2.1.1 Neonatal nursing competencies taught to Nurse-Midwife Technicians

The findings showed that the nurse-midwife technicians are taught a number of skills important for them to provide basic nursing care to the neonates and their families. The skills were grouped into two main themes, competencies, which include assessment and management of a neonate, with its sub-themes, communication skills and collaboration. Each competency has been presented separately.

4.2.1.1.1 Assessment and management of a neonate

The participants reported that the assessment and management of a neonate started in the labour and delivery room and continued in the postnatal ward if the neonate did not present with immediate complications. For premature babies and those presenting with complications, the management continued in the neonatal care units. The participants highlighted a number of areas of clinical competency taught to the NMT which included immediate care of the new born baby, initial and subsequent assessment of the neonate and management of a neonate with complications. Each of these competencies has been presented separately.

4.2.1.1.1.1 Immediate care of the newborn baby

In this study, the participants reported that the immediate care of the newborn baby comprised the care provided to the neonate immediately after birth. This means the first minute care provided to the newborn baby, which was viewed as critical for survival and long-term outcome of the neonate. The participants indicated that the NMTs are prepared during training to provide immediate care to the newborn babies. The immediate care included a thorough drying of the newborn baby, establishing skin-to-skin contact of the newborn with the mother, cord clamping and cutting after the first minutes of the birth as well as early initiation of breastfeeding.

...after the baby is born they do immediate care of the neonate (Clinical teacher, college 1).

In immediate care what you are expected to do is, after or when...the baby is delivered we assess using the APGAR score. Wipe the baby to stimulate the baby, from there you clamp and identify the sex of the baby. You clamp the cord after feeling the cord that is if still pulsating. Then, clamping, next you take baby to a warm environment (Student, college 8).

An APGAR score was an approach used to report the status or condition of the newborn baby. Using the APGAR score, the NMT identified and recorded the heart rate, respiratory effort, colour, tone and response to stimulation at one minute and five minutes. When the newborn baby did not respond to the stimulation or did not initiate spontaneous breathing, other mechanisms were used to help the baby breathe. Helping the baby breathe (HBB) was also part of the immediate care expected of the NMT.

I think with the normal baby, it starts with, immediate care of this baby, once the baby is born. ... so we look at things like, helping the baby breathe, and keeping the baby warm, feeding the baby, position and attachment in breastfeeding (Clinical teacher, college 2).

Helping the baby breathe was an education programme in neonatal resuscitation for skilled birth attendants, in low-resource settings, which aims at preparing the skilled birth attendants to care for healthy babies and babies who are not breathing at birth. However, some participants felt that the concept of HBB was a substitute for neonatal resuscitation.

...the other thing is resuscitation of the babies they say helping baby's breathe (Student, college 5)

...a neonatal resuscitation, which in other words known as helping the baby breathe (Clinical teacher, college 8).

Despite the confusion brought about by the concept of HBB, the nursing colleges continued to teach neonatal resuscitation as a requirement for the practice of NMTs in neonatal units and labour and delivery. Some participants reported that neonatal resuscitation was one of the core competencies for the practice of NMTs. This was demonstrated in the following responses from the participants:

... one of the core competencies in neonatal, it's resuscitation of the babies, with birth asphyxia (Clinical teacher, college 1).

Sometimes they teach us how to resuscitate the baby starting from the delivery point because if the baby...has difficulties in breathing, on the delivery point, it means that's where you start resuscitating to help the baby breath (Student, college 3).

Some participants felt that the NMT had a responsibility to save the newborn baby's life soon after birth hence the importance of including resuscitation as a competency in the training programme.

If there is possibly breathing problems, of the baby, you have to intervene, like resuscitation' (Student, college 2).

So when you go there the nurse tells you what to do...if the baby needs resuscitation... you just do the resuscitation, with the assistance of the midwife if she is there. If the baby has other problems, we take him/her to the nursery (Student, college 7).

4.2.1.1.1.2 Initial and subsequent assessment of the newborn baby

The study findings showed that the NMT is taught how to conduct an initial examination of the newborn baby. As a routine, all newborn babies were supposed to be examined immediately following birth. An initial examination was conducted immediately following birth at one and five minutes, by quickly checking the baby from head-to-toe to assess if there were some problems requiring immediate intervention. Following which, a complete physical examination was conducted which included the weighing of the baby and a head-to-toe examination, one hour after the delivery. Almost all participants also reported that following the initial examination the NMT was expected to conduct a subsequent assessment which continued in the postnatal ward. One clinical teacher pointed out that despite having acquired assessment skills in adults, neonatal

assessment and examination was emphasised because it was believed that the NMT needed to acquire different skills to enable him/her care for the baby.

First of all, it's to do with the assessment of the child. So they have to be competent to assess a child. Much as they have done in assessment of an adult, of a pregnant woman, or woman in labour, we know that the neonate would be approached differently. So...one of the major competencies is assessment of a neonate...basically it starts with the history taking from the mother, about the general wellbeing of the neonate and assessment, head-to-toe assessment, of the neonate; those are the skills that we teach them....initial assessment, whereby it is done one hour after the delivery of the child...the other one is on subsequent assessment...the students are supposed to be competent in assessing these neonates, one hour after they have just been born, and then continuous, subsequent assessments (Clinical teacher, college 4).

Some participants viewed knowledge and skills in assessment and examination of the neonate as important for the NMT to provide neonatal care.

When they go there (clinical placement), we expect them to take history from the mothers of the neonates so that they should be able to identify the problems...to assist them how to treat the neonates (Clinical teacher, college 6).

Similarly, a student participant reported that:

Assessment of children both postnatally and maybe if they fall sick...so you need to acquire skills that will help you to assess accordingly so that your interventions can be of benefit to the neonates (Student, college 4).

Apart from including the initial and subsequent assessment of the neonate, the NMT was also expected to perform a gestational age assessment of preterm babies as presented by one clinical teacher from college 2: "...assessing the gestational age, because sometimes those babies, they are premature..." This was also echoed by a student participant from college 6. Participants reported that the assessment of gestational age helped the NMT to categorise low birth weight babies, as either preterm or small for gestational age, for institution of appropriate care. However, some student participants raised concern over the acquisition of the skill as presented by one student from college 2: "... we are supposed to do gestational age assessment but we didn't do..." The students lamented not having learnt the competency (gestational age assessment) despite being expected to perform it during practice.

4.2.1.1.1.3 Management of a neonate with complications

The study findings showed that the NMTs were expected to acquire skills in the management of a neonate who had developed any condition or complications requiring intensive neonatal care. The respondents reported a number of skills taught to the NMT to prepare them for managing the sick or preterm neonates. The NMT was expected to acquire the skills to enable him/her care for a neonate who developed complications or any other infection.

That includes the management of complications or any other disease of a neonate. That's probably in some hospitals where they have the nurseries...so they will also get the competencies there, of care of probably disease and disorders of a neonate (Clinical teachers, college 7).

We also teach them on other skills like insertion of nasal gastric tubes, those are very specific tubes, and probably use of phototherapy, the incubators (Clinical teacher, college 5).

...some of them were to manage neonates; those that are within...they have not exceeded 28 days, to manage the problems like diseases that they must have within those days...some of them pathological like...bilirubinaemia, hypothermia...others were congenital as well (Student, college 8).

Most of the participants also reported that NMTs were expected to acquire and utilise neonatal nursing basic skills to enable them to manage the sick babies. This included maintenance of a thermal neutral environment and body temperature for the neonate, checking and monitoring vital signs, insertion of nasogastric tubes, calculation of feeds, feeding and encouragement of breastfeeding, supporting mothers to care for their neonates and assisting mothers with positioning and attachment of the neonate to the breast, as well as observing infection prevention measures. Furthermore, the NMT was taught about drug calculations and administration in neonates as one of the skills expected of them to encompass neonatal nursing skills. This also included health education for the mothers about immunisations and administration of the first vaccine to the neonate.

In addition to acquisition of the basic neonatal nursing skills for the sick neonate, some participants reported that the NMT was expected to care for a low birth weight or preterm baby. This included caring for a baby in an incubator, provision of health education and assisting mothers with Kangaroo mother care (KMC). In the Kangaroo mother care approach, the preterm baby was carried skin-to-skin with the mother to provide stable warmth and to encourage

frequent and exclusive breastfeeding. Thus, the NMT was taught to ensure that mothers nursed their babies in and maintained the Kangaroo positions through supervision as indicated in this statement: “...even the issue of positioning in Kangaroo mother care...we are supposed to supervise them if they are really doing” (Student, college 5). As primary caregivers in a low-resource setting, the NMT was expected to assist and support the mothers with babies in KMC to promote health and well-being of the neonate. However, some clinical teachers reported that there was no clear and specific competency that the NMT was expected to acquire in the management of the neonate apart from giving them general information and skills on nursing care.

It's just the general assessment of the baby and assessing the care of the new born like...it depends on three areas like...we tell them to be able to take care of the low birth weight baby...and those conditions, like jaundice, but then there is no particular competencies for what we are looking at (Clinical teacher, college 8).

4.2.1.1.2 Communication skills

In this study, the participants reported that the NMT was taught communication skills during the training programme to enable him/her to provide care to the neonates and family members. The participants reported that communication skills helped the NMT to interact properly with colleagues and mothers as well as improving his/her own attitude during the provision of care. This was revealed in this statement from a clinical teacher from college 4: “...also communication...to improve the way the student interacts with the clients, the mother, to get the history, about the neonate...” The NMT was expected to use verbal, non-verbal and written communication skills during the provision of care.

4.2.1.1.2.1 Documentation

Some participants reported that the NMT needed the communication skills for proper documentation of care. This was indicated in a statement by a clinical teacher from college 6: “...communicating with other members of staff ...how they are documenting proper care...” Documentation served as a primary source of communication between the healthcare providers and provided information on the quality of care being provided. However, some participants reported that experience had shown that documentation of nursing care was a challenge in the county’s hospitals with no or little information documented in the patient’s files. This was demonstrated in this statement:

...we have a little documentation for the baby or just weight and when the baby is ok, that baby has no documentation at all, till the baby is discharged ...the students have to write, they are supposed to write the nursing care records...how they are providing, proper care (Clinical teacher, college 5).

Hence the issue of documenting care was seen as important for the NMT, for the demonstration of appropriate care delivered to the neonate. As such, clinical teachers taught and assisted the NMT with documentation of care using the SOAP format: “...then we do the SOAPEIR in the plan of care of the baby and then I try to get them to document” (Clinical teacher, college 5). Encouraging the NMT to document patient care as part of the training programme was viewed as an important aspect for the promotion of quality neonatal health services.

4.2.1.1.3 Collaboration

Some participants from one nursing college reported that the NMT was expected to work collaboratively with other healthcare service providers. This included recognising the need to involve other healthcare providers to promote and improve neonatal health services as presented in this statement:

...collaboration...the student is expected to consult other health care providers in cases of problems as they are caring for the...neonates...asking qualified staff, the clinician...that is also another competency that one has to see in a student” (clinical teacher, college 7).

As such, some clinical teachers encouraged the NMT to refer neonates who needed comprehensive or special care. This was evidenced in the following contribution:

Collaboration with other members of the healthcare team is also another area...we encourage the students to interact with other members in the clinical setting and refer neonates with problems requiring special care... (Clinical teacher, college 1).

4.2.1.2 Approaches used to assist the NMT to acquire clinical competence in neonatal nursing

The researcher asked the FGD participants what approaches were used to assist the NMT acquire clinical competence. However, the participants reported that there was no specific approach that clinical teachers used to assist the student acquire clinical competence in neonatal nursing. The selection and use of the approaches depended on individual clinical teachers. The participants’ responses have been categorised into two themes; skills laboratory practice and practice-based

learning. The themes have been presented separately, highlighting the activities involved under each.

4.2.1.2.1 Skills laboratory practice

The study findings showed that following classroom work, theory, the NMT went through the skills laboratory for skills demonstration and practice. The skills laboratory provided an environment for the NMT to become competent in new nursing skills for safe practice. In the skills laboratory, the NMT was introduced to the skills as taught in class and expected to practise them. The clinical teachers used demonstrations and return demonstrations as some of the approaches to enable the NMT acquire the skill.

4.2.1.2.1.1 *Demonstrations and return demonstrations*

The participants reported that the clinical teachers demonstrated the skill to the students in the skills laboratory based on what the student had covered in class. During the demonstration, the clinical teacher selected a clinical activity that best met the students' needs and was consistent with the unit taught to meet the goal and objectives. The students were divided into manageable groups to ensure that each one of them benefited from the demonstration. The clinical teachers reported that the demonstration was performed by the teacher responsible for the teaching in class and could sometimes be assisted by colleagues if the procedure required and depending on the number of students.

After they have learnt the theory, the practical part, the tutor who did the theory part is the one who demonstrates the skill in the skills lab...with assistance from the other

members of staff depending on the number of students to be, to master the skill (Clinical teacher, college 7).

But also before going to the clinical allocation, they were able to demonstrate to us in the skills lab, before we perform on the actual neonate (Student, college 6).

In some cases the teacher could start demonstrating the skill in the classroom during theory and then proceeded to the skills laboratory. This was usually done when the skill being taught was not complex and when the teacher had the time and resources to do so.

When you are teaching them for example...in class, if you have time and have resources you may just demonstrate, and then after that...we take them to the lab and maybe, show them the skill...(Clinical teacher, college 2).

They can demonstrate if it's a short term learning...but when it comes to something which, we can't learn it very fast, we go into...skills lab, where it is demonstrated and we practice... (Student, college 2).

During demonstration of the skill in the skills laboratory the student was given a chance to first observe the skills being performed. Thereafter, the students were given a chance to do a return demonstration.

They're demonstrated, they are demonstrated on how to conduct these assessments...and demonstration is done in the...skills lab, and they are supposed to have a return demonstration (Clinical teacher, college 4).

We had the chance to be demonstrated to, so they demonstrate, then we were given a chance to do it in their presence...on the dolls of the same procedure, before the actual person. So if you are qualifying, if they are impressed with our actions...they sent us to the clinical departments where we do the procedures under the maximum supervision...then later we will do under the minimum supervision (Student, college 6).

Following the demonstrations and then return demonstrations, the student was given a chance to practice the skill either individually or in groups. This helped the student to have the pre-requisite knowledge and skills for real clinical experience.

...they demonstrate to us, they let us demonstrate, they allow us to do it in groups...before we go for clinical allocations. So it's like when you go there, we really have some like pre-information about those skills, so when we have managed to face those situations, they do not become strange things. It's like something you have encountered before, then you just recall what we, you learnt and we ask assistance where you think you cannot do well (Student, college 4).

Some participants reported that the demonstrations were also done on a real patient in the clinical setting, during the first days of placement.

When we go for supervision, we first of all have to be with them the first week of placement so we really demonstrate to them how to examine a neonate (Clinical teacher, college 8).

...and in the clinical area most of the skills they demonstrate first, before we do them, it's like return demonstrations (Student, college 1).

The clinical teacher could also demonstrate a skill in the clinical setting when the student had problems performing the skill or they (the clinical teachers) were requested to do so by the student.

While in the clinical we follow them, and then if we see that maybe, somehow maybe they haven't got the skill or things are not working, as we expect them, we sometimes withdraw them back in the skills lab to re-demonstrate, or maybe we do it right there at the ward. Let's suppose he doesn't know how to do immediate care of the baby, so you can assist him or her right away there, by demonstrating (Clinical teacher, college 2).

Thereafter when they go to the clinical if there are some skills that we see that the students are lacking, also if you are asked, you do some demonstrations in the clinical area (Clinical teacher, college 1).

The students viewed the demonstration and return demonstration of skills as important for the acquisition of clinical competence, since they could not forget what they had seen. They reported that during a demonstration they could observe what was being done. What they saw with their own eyes could not be forgotten in the clinical setting. In addition, during a return demonstration the clinical teacher corrected the student immediately when a mistake was made, which assisted the student to internalise the skill.

Mostly demonstrations, when they are doing we observe, then we do return demonstration they correct us immediately when we don't know how to do it... (Student, college 3)

Because what you see, you cannot easily forget. So once you see you follow the steps... and there is that principle that says 'you do you remember' yes, they demonstrate you see they let you demonstrate, you remember what you were doing (Student, college 4).

In some situations, the demonstration supplemented what the student had already learnt or missed in the classroom session.

When you are seeing the teacher demonstrating, it's like, maybe, some of the points that you missed when you are learning, when the teacher is demonstrating it's like, you are gaining more skills and when you are doing the practical you...become more confident in doing (Student, college 6).

Despite having demonstrations as an effective approach to assist the student to acquire clinical competence, some students lamented that they had not been demonstrated to a skill in the clinical area. This was challenging for their learning and practical experience.

But that to us is a challenge because of...there is need that the tutors come to the hospital and demonstrate. But most of the time they don't come (Student, college 1).

This was echoed by another student who emphasised that clinical teachers never visited the neonatal care clinical area for demonstrations for the students: "...they never come and demonstrate to us it's only...I use my theory" (Student, college 1). While another student from the same college said: "I will not lie that I was demonstrated to by the tutor, then am lying before God". Shortage of clinical teachers in the colleges was the reason identified by some of the students for not demonstrating all the skills to the students. As such, the students relied on the

clinical staff to demonstrate the skills to them or assist them when they faced challenges during the course of training.

4.2.1.2.2 Practice-based learning

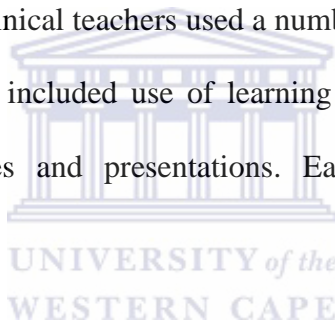
The study findings showed that the NMT were placed in the actual clinical settings for direct observation of skilled clinicians and hands on practice on neonates. Using practice-based learning, the students were expected to acquire the necessary neonatal nursing skills through interaction with neonates and their families, clinical staff and mentors as well as other students. However, most of the students in this study reported that there was no emphasis on clinical practice for neonatal nursing. In most colleges, the students were allocated to postnatal wards where most of the clinical teachers focused on the care provided to the mother rather than the baby. In cases where the students were allocated to neonatal units, the duration of the clinical experience was short, either two or three weeks for some students. This made the students' neonatal nursing learning experience challenging as they could put more effort into learning other areas than neonatal nursing. The mother's health was the concern of most clinical teachers.

...I have also observed that when we talk of high risk, people only concentrate on the mother, for the baby it is rarely done because when coming for supervision, they come to the labour ward, like, 'what have you done to the mother with eclampsia?' ... They only concentrate on the mother not the baby...they want you to spend more time where high risk mothers are admitted, but I have never heard them ask what I am doing to the baby, so I am always surprised whether high risk refers to the mother only, what about the baby?... (Student, college 7).

Similarly, some clinical teachers observed that neonatal nursing was not considered very important as such priority for teaching was on labour and delivery, making the student's learning a challenge.

...we don't really take neonatal area as something which is important... there was no specific...allocation for neonatal...because of that I think we concentrate much on areas of labour and delivery, postnatal and we do very little in this area of neonatal care...In that way the learning I think becomes difficult (Clinical teacher, college 5).

However, for those nursing colleges whose students' went through neonatal nursing experience, the participants reported that the clinical teachers used a number of approaches to assist the NMT acquire clinical competence. This included use of learning contract, clinical mentors, clinical assignments, clinical case studies and presentations. Each approach has been presented separately.



4.2.1.2.2.1 Learning contract

The study findings showed that the NMT was expected to develop a learning contract for the achievement of clinical competence in neonatal nursing. The participants reported that during the course of clinical experience, the NMT was encouraged to develop learning objectives which were expected to be attained on a daily basis. The clinical teacher would then devise learning experiences or assist the student with learning based on what was planned for the day.

They will ask if you have objectives at that time...what you are supposed to do... so they guide you, on what they want you to do (Student, college 1).

This helped the student to focus his/her learning on a particular experience as indicated by one student participant from college 8: “You could have objectives, like...say I want to master resuscitation...it was you as a student to have a task...to do resuscitation”. In addition, developing learning contracts enabled the students to evaluate their own learning and identify their own learning needs. As such, the student was able to seek assistance where needed.

Actually, they also encourage us to say every day, maybe when we are going to work (clinical area for practice), at least we need to prepare some objectives...then later on you evaluate your services, have I achieved the objectives...if not then maybe if you see that you are having any problems then you may ask...then it will be good and ok (Student, college 4).

Some participants reported that the learning contract enabled the students to improve the learning experience through fostering a reciprocal partnership and accountability between the student and clinical teachers. The clinical teachers were able to plan individualised learning experiences based on the students’ planned objectives.

4.2.1.2.2.2 Clinical mentors

In this study, the participants reported that the NMTs were assisted by mentors and/or clinical preceptors who were either trained or oriented to clinical teaching. The mentors were clinical staff working in the government hospitals and were given the responsibilities to assist the nursing students. The clinical mentors were guided by the learning objectives provided by the students to structure the students’ learning experience. Both clinical teachers and student participants mentioned the availability of mentors or clinical preceptors who assisted them with the learning experience.

Apart from the clinical instructors...some preceptors...so the preceptors are assisting these students (Clinical teacher, college 4).

So when they are leaving, then they leave that in the hands of the...specific mentors, who are here, who are trained for that. So them too they demonstrate, the same way our tutors demonstrated...and later on, we start practising...when they are observing us, so if there is anything that, there is need for improvement, then they will tell us, “no we have to do like this” (Student, college 2).

In some cases, the mentors were trained and employed by the college, and then they were allocated to different clinical sites to assist the students.

The college has trained preceptors...three quarters of the sites where they go we have these clinical instructors...so these...also teach...to bridge the theory and the practice gap. And, they're, apart from being involved in the practical teaching, they are also responsible for following up and assessments of the students...they are involved in day to day learning of the students in the practical area (Clinical teacher, college 4).

Mentors from the school...they evaluate each and every one, then at the end of the week, they, ask, at the end of the month, how much we have achieved, based on the time we were allocated to that area (Student, college 1).

Despite having mentors to assist the students in the clinical setting, in some hospitals the mentors were not available. Some students lamented that they were told to meet mentors in the clinical setting, but they did not see anyone coming: “... when we were going to the clinical area we were told we will have a mentor...but she never came” (Student, college 7). In such situations,

the learning experience was challenging for the students as they could only rely on the clinical staff as an option.

4.2.1.2.2.3 Peer teaching

Some clinical teachers reported that peer teaching was also encouraged for the students' learning experience. This was revealed in the following statements from some clinical teachers:

Sometimes, there are other students who capture things very fast and there is someone, maybe who takes time... so you can pair the 2, saying 'can you work with your friend here'... (Clinical teacher, college 2).

... other times if they are comfortable enough, they do assist each other and when they have problems they do...they do ask (Clinical teacher, college 4).

In peer teaching, the students helped each other to acquire the required knowledge and skills through formal or informal interactions. This was viewed as an effective way to enhance student learning and level of efficacy. The clinical teachers in this study felt that peer teaching helped the students because they learnt from their colleagues in a less stressful environment as indicated by one clinical teacher from college 7: "I think the students... are free with a peer rather than ... a teacher". To enhance peer teaching, the students were provided with learning guides. The learning guides outlined step-by-step tasks to be performed by the student for a particular procedure. The students would then either work in groups or pairs, one student performing the skill while the other one went through the learning guide to check if the tasks were being followed. This was evidenced in the following contribution:

We provide the students with the learning guides...so that they can at least be checking one another...one will be looking at the learning guide, whilst the other one is performing the procedures (Clinical teacher, college 4).

At the end, the student would check if all the tasks were carried out or not. However, no student FGD discussed peer teaching as an approach that was being used to enhance their learning experience in neonatal nursing.

4.2.1.2.2.4 Assignments and discussions

This study finding showed that some clinical teachers used assignments to assist the NMT acquire clinical competence in neonatal nursing. Some participants reported that the clinical teacher assigned the NMT to care for a particular patient or to read about a certain patient's condition which could then be discussed with the student in question. The clinical assignments helped the students to apply knowledge to practice and develop the required skills. This was because the student had to read widely to understand the assignment.

...it helped because when you were...given an assignment...you would research more on the assignment...so that we were able to learn from that (Student, college 2).

Some participants reported that sometimes the learning assignments were assigned to the student based on the available learning opportunity. These assignments were either presented to the clinical teacher or discussed as a group.

Discussions were also emphasised by both clinical teacher and students FGDs, as one of the approaches which assisted the NMT to acquire clinical competence. Apart from discussing the

assignments provided by the clinical teachers, students were drawn for a group discussion when the clinical teacher identified a deficit in some of their skills.

If you have seen that, maybe the majority of the students...are lacking a certain skill, or they're saying they don't know this...we call them ...to discuss that issue (Clinical teacher, college 6).

Sometimes the discussions were conducted following a group work by the students.

The students are also advised to have maybe, like group case studies where they identify like a case and they manage...then... they have time to discuss the care that was done on the neonate (Clinical teacher, college 7).

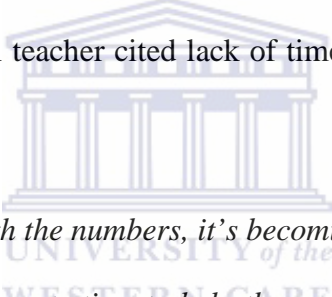
In addition, the clinical teachers could draw students to a discussion when there was a scarce condition that the students would learn from as indicated by one student participant from college 8: "...sometimes by just discussing some of these conditions that are scarce...the neonates are facing". The clinical teachers felt that the assignment and discussion approaches were important in assisting the NMT acquire knowledge and skills in neonatal care because the student was involved and participated in the actual task.

4.2.1.2.2.5 Case studies and presentations

The study findings showed that some clinical teachers encouraged the NMTs to conduct case studies in the clinical setting. Some participants reported that using the case study approach, the student identified a neonate, conducted an assessment to identify problems and managed the identified problems. The clinical teacher guided the student through the process.

We ask them to choose a case, a baby...then together we look at the notes and we assess the history of the baby from the mother and...then we go through the assessment from head to toe, assessment of the baby...(Clinical teacher, college 5).

The case studies assisted the clinical teachers to discover whether the student had understood the concepts in class as reported by one student participant: "... sometimes we are given case studies to perform in order to see if we have got whatever we learnt in class" (Student, college 2). However, some clinical teachers felt challenged in using case studies with increased student numbers. The clinical teachers observed that the use of case studies was effective with small numbers, but since the student in-takes had increased, case studies were no longer being used in some nursing colleges. The clinical teacher cited lack of time to adequately follow each student as one of the reasons.

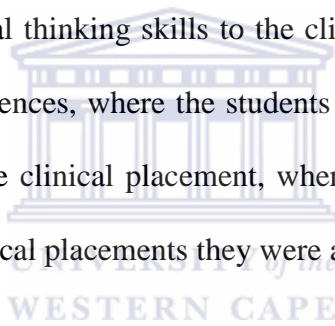


The use of case studies...with the numbers, it's becoming a challenge, because we need to make sure that we have adequate time to help them or to guide them or to see when they are doing the whole case study and in that way you can also assess their progress; where they have the right skills in that clinical attachment (Clinical teacher, college 4).

This was also echoed by student participants in other colleges who reported that in neonatal nursing they had never used a case study except in other clinical experiences. Some students attributed this to inadequate time spent in the neonatal nursing clinical setting that would not allow them to complete a case study.

Despite the discrepancy in the use of case studies as a teaching approach, some clinical teachers reported that students were assigned case studies and then asked to make a presentation. This was done to encourage the students to share the information with their colleagues if the learning

experience was deemed important by the clinical teacher. One clinical teacher from college 8 reported that: "... if we feel that this particular case is...one that the others can learn from, then you can ask the student to present so that the rest of the students can benefit from that". In some settings, the clinical staff or medical professionals assigned case studies to the students for presentation as indicated by one student from college 2: "... the clinicians, the doctor was the ones who told us to do the presentations..., that is how we had the advantage to do the presentations". The students found the presentations effective for their learning as one pointed out that: "...when you present that thing, that topic, you gain more knowledge" (Student, college 2). During the presentation, the students shared their experiences regarding a particular condition being presented and applied critical thinking skills to the clinical experience. The presentations were either done in clinical conferences, where the students could be given a chance to present the assigned condition, or after the clinical placement, where the students were asked to share different experiences from the clinical placements they were allocated to.



When the researcher inquired about which approaches were found to be effective in assisting the NMT acquire clinical competence, both the clinical teachers' and students' FGD pointed out that no single approach was effective because the students had different and diverse learning needs and styles. As such, a combination of approaches was appropriate.

...students are different, some will find demonstration easier, some will find discussion easier so it's really difficult to say 'I find demonstration much easier in the clinical area' because you will leave other students. What you do...identify the needs first...(Clinical teacher, college 5).

In some situations, the use of one approach could lead to another.

...one method may lead to another method, maybe we can start with reflections so during reflection you can also identify some gaps which may need demonstration so you may go to demonstration. But sometimes we start with discussion, from discussion we feel that maybe there are some areas which you need maybe to do, like maybe demonstration or some other approaches so that at least they meet the need of all the students (Clinical teacher, college 5).

4.2.1.3 Approaches used to assess clinical competence

The study findings showed that there was no assessment of students' progress and performance in the neonatal nursing clinical setting. However, most of the participants reported that the NMT went through a skills check off in the skills laboratory prior to clinical placement to enable the clinical teacher assess if the student was ready to practise on a real patient.

After the course, when they are just about to go to the clinical placement areas, they are assessed...called check offs, whereby, you just want to check whether they've...it's like formative evaluation. You want to know where they are, where can they be assisted? So they're done check offs before they go to the clinical placement areas (Clinical teacher, college 4).

The student was allowed to proceed to a clinical placement for practise on real patients only when the skills check off showed a satisfactory performance. In so doing, the clinical teachers ensured that the students were allocated for clinical practice with pre-requisite knowledge and skills obtained from the laboratory practice. However, with regard to students' assessment of

performance in the clinical setting, most of the participants were sceptical and felt that there was not much being done in neonatal nursing.

4.2.1.3.1 Neonatal nursing has been neglected

This study finding showed that there was no clinical assessment in neonatal nursing for the NMT's clinical competence. The participants observed that as long as the student was given the objectives for the clinical experience, there was no assessment on whether or not the student had achieved the clinical competence. Clinical teachers worked on the assumption that if the student followed the objectives in the clinical area, that was enough to achieve clinical competence.

...to say the fact, validation, we don't do it. What we do is provided they have covered those areas, to say that we sit down and validate to see what they have covered, honestly speaking, we don't...(Clinical Teacher, college 1).

...we don't have a special assessment for the sick baby...to say we have these for the sick baby, let's say maybe, aaah, checking competency.... no. So for the sick baby, there are just competencies that they have to kind of fulfill (Clinical teacher, college 2).

Similarly, some students reported that there was no specific assessment done in neonatal nursing practice for NMT's clinical competence. However, the students observed that during postnatal care placement they had been assessed on how to provide care for the neonate which was part of an assessment on the care of a postnatal mother.

There is no specific assessment for nursery experience, most of the time we went through postnatal assessment...because we assess also the neonates (Student, college 6).

The care of the neonate assessment was one of the assessments stipulated by the Nurses and Midwives Council of Malawi, expected of the NMT to perform during the course of training. Almost all participants reported that this assessment was performed during the postnatal care placement for low risk midwifery. During this placement, the NMT was expected to be assessed, by the clinical teacher while caring for a mother who had undergone normal delivery and was due for discharge. The student was expected to assess both the mother and her baby and provide health education regarding identified problems or risks. This was like a summative assessment for the students' experience in low risk postnatal care.

There is one for care of the postnatal mother and care of the neonate. But this is like I could say low risk. We use in low risk...it's only like summative...(Clinical teacher, college 5)

While acknowledging lack of assessment for students' clinical competence in neonatal nursing practice, some clinical teachers observed that the NCMC assessment of care of the newborn baby focused on the care provided to the health baby.

...we have assessments in different departments...but in the neonate we don't have a specific assessment. In the postnatal, most of the times we do assessment of a normal child...but in neonatal ward we don't have... (Clinical teacher, college 6).

During the postnatal care assessment, the student was advised to choose a neonate who was well and due for discharge as reported by one student from college 7: "...but they also say that for the assessment, you should choose a baby who is fine...you are supposed to discharge the baby at the end..." However, this gave some students the impression that they were supposed to care for

the health babies only during practice: "... we have never been assessed on neonates who are sick...we just deal with neonates who are health" (Student, college 1).

In addition to the assessment on care of the newborn baby, the student was exposed to some neonatal health scenarios during midwifery OSCE. Some clinical teachers reported that during the midwifery OSCE, the student could be exposed to one or two stations carrying neonatal health procedures.

...if anything, validation comes with the OSCE, to say ok, maybe in OSCE we may have station one or two, to say ok 'let's see if the competencies, if they've, you know, 'acquired them or they are still', we validate like that...(Clinical teacher, college 2).

In some nursing colleges, the OSCE was performed at the end of each placement of midwifery part one and part two. While in other colleges it was carried out at the end of both placements when the students were going for an end of year examination as indicated by one clinical teacher from college 1: "...OSCE is done at the end of the whole allocation...it's done when you are writing end of year exams". This enabled the clinical teacher to assess if the student had acquired the necessary skills as expected by the programme or if they were doing the right things as expected of them.

...we assess to check if...they have acquired the skills and they're doing the right thing. Because we know we teach them the right thing and then they go to the ward. There is all these shortcuts and then maybe they kind of forget everything. So we do the OSCE to check if they are still remembering the right way of doing the skills (Clinical teacher, college 2).

In addition to OSCE, almost all the student participants reported that they did an informal self-assessment. The student assessed him/herself based on the skills learning guides provided by the colleges for specific procedures as indicated by one student from college 8: "...after doing the task you evaluate yourself, regarding the marking guide of the procedure". This enabled the student to identify areas which were omitted in the learning guide during the procedure and would work to improve on such areas. Some student participants indicated that the students were also evaluating their own performance in relation to the clinical objectives. In such cases, the student wanted to know what objectives had been achieved in the clinical area with the aim of identifying areas for further learning.

Since we had been given the objectives, so you evaluate yourself according to the college objectives which we were given, in the conditions you know and how you know to manage the conditions, the medications, even the nursing and surgical interventions of these conditions (Student, college 8).

Because of lack of clinical assessment, some clinical teachers felt that neonatal nursing clinical experience for the NMTs was neglected: "...maybe I am supposed to do the assessments in the labour ward, now you have very little time to go to the nursery...the newborns are neglected" (Clinical teacher, college 5). This also brought some fears of inadequacy among the student participants. Some student participants reported fears of meeting challenges when they practise in the future because they had not acquired all the necessary skills in neonatal nursing practice.

I feel like we can, we can face a challenge when we start working...to be allocated to a department...to care for the...neonatal because in our training, it was not concentrated on much... (Student, college 6).

The student wished that neonatal nursing was given the same attention as the clinical teachers did with maternal health issues in the clinical setting.

4.2.1.3.1.1 Challenges with the OSCE and NMCM assessment

The participants observed that there were some challenges associated with OSCE and the NMCM assessment, despite being the commonly used approaches to assess the students' clinical competence. The study findings showed that some student participants perceived OSCE and the NMCM assessment as being stressful and made the student feel nervous. According to some student participants, the stress increased upon seeing the examiner. The student explained that the presence of the clinical teacher (examiner) during the assessment made the student forget everything despite having practised the skills in the clinical area.

... we are anxious when, when you see the tutor and assessing you, sometimes you forget where should I start, mmh because of anxiety...related to the process of being assessed (Student, college 5).

You can have the skill and be competent enough when you are performing on a daily basis but when it comes to assessment, you find that you've flopped (Student, college 1).

In some situations, the reaction of the teacher towards the students' performance of the skill indicated that the student was doing something wrong. This made the student lose self-confidence and became more stressed.

...it's very stressful because it's like one to one assessment now, it's like when you are doing something that maybe, which is wrong...which is not in the assessment guide, then

the facial expression can tell, maybe of the assessor, that it's wrong, now it's so stressful...(Student, college 5).

In such situations, the student felt demoralised and confused because he/she did not understand what could be the best way to perform the skill. Another student perceived the assessment to be intimidating and wished the process was changed to make it friendly for the student.

...I wish if the assessment, when assessing...I think must, must be changed so that students they should feel comfortable, should we say...what about if I fail? Should not be intimidated as such... (Student, college 5).

In addition, some clinical teachers felt that the assessment, both OSCE and NMCM assessment of care of the neonate, did not include all the domains: "...the other thing is with the development of knowledge and...there are other domains that may not be there" (Clinical teacher, college 7). In particular, clinical teachers reported having problems in evaluating attitude when assessing the student because they did not spend more time with the student. This was demonstrated by one clinical teacher as she emphasised that it was easy to evaluate knowledge and technical skills.

...most of the times, it's easier for us to evaluate the knowledge and the skills. The attitude maybe we miss some of the terms because we do not spend much time with the student, so when you are available, she can behave well like an angel type of nurse, maybe behind us she can change (Clinical teacher, college 6).

Another clinical teacher expressed concern in assessing a student attitude in this way:

...you know the skill is objective, you check and then, but the other thing is like today they behave like this and then tomorrow they behave like that; and then you don't know where exactly to put this one to say 'is behaving well or not' or does he behave while I am here? When I am not there he does not, you know. So...it becomes a bit difficult (Clinical teacher, college 2).

Problems with assessing all the domains of clinical competence made it difficult for the assessors to make conclusions about the students' performance. In some cases, they used their knowledge: "... most of the times you use your knowledge... you relate it according to whatever the students are doing" (Clinical teacher, college 6), thereby making the assessment subjective. In addition, some student participants reported incidents of subjectivity during the students' assessment when one clinical teacher was involved in the process. In such situations, during feedback, the student could not defend him/herself regarding the skills performed during the assessment when the assessor had missed the skill. One student reported that the assessor did not pay attention to what the student was doing and yet provided negative feedback.

...in the case of having one assessor, sometimes you find that after having finished the assessment and she is evaluating you, you come to wonder that she is evaluating that you didn't say this to patient. Yet that time the assessor was absent minded I don't know...Was on the phone, was concentrating on the phone (echoed in a chorus by other students)...Was on the phone whatever you say, 'no you didn't do this' when you still...insist to say I did this, she say no you didn't do this skill you have to do it again. So in the case of one assessor it becomes a challenge (Student, college 3).

4.2.1.3.2 Assessment tools

The researcher was also interested to understand the assessment tools and grading criteria used in the nursing colleges to validate and interpret the NMTs achievement of clinical competence in neonatal nursing. The results are presented in sections 4.2.1.3.2.1-4.2.1.3.2.3 below.

4.2.1.3.2.1 Checklists

In this study, most of the clinical teachers reported that there was no tool specifically prepared to assess the NMT's clinical competency in neonatal nursing: "... but in neonatal ward, specific assessment tools we don't have..." (Clinical teacher, college 1). As such, the clinical teachers relied on the Nurses and Midwives Council checklist for the care of the newborn baby: "...assessment tools, we don't have...we rely on the Nurses and Midwives Council" (Clinical teacher, college 1). Meaning the student was only assessed using the NMCM checklist for the care of a newborn baby, which was conducted during a low risk postnatal care experience. Similarly, some student participants indicated that they were not sure what the clinical teachers used to evaluate the students' clinical competence apart from the NMCM assessment tool: "...on the assessment we don't know what they use...but they have a tool...Nurses Council..." (Student, college 7). The NMCM checklist outlined the tasks expected of the student. The student was not allowed to access or see the assessment tool prior to the assessment. The student was expected to use knowledge acquired in class to perform the skills as outlined in the learning guides or current theory. During the assessment, the clinical teacher or assessor used the checklist, while observing the student, to record or check the behaviour portrayed or skills performed by the student.

In some colleges, participants reported that a checklist, comprising the skills as outlined in the curriculum, was given to the students during the clinical experience. The student was expected to sign against each skill performed during the clinical experience. On the other hand, during OSCE, the assessors used a checklist which was developed based on the skills required by the student at that particular time, as one clinical teacher from college 2 indicated: "...we come up with the checklist...the specific tools depend on the type of the skill that we want...to assess". In some situations, the checklist was developed from the learning guides provided to the students for a specific procedure.

...we just devise one, from the learning guide, the one we provide to students. You know, a learning guide is detailed and a checklist is, just takes the main points. So we just use that one, checklist... (Clinical teacher, college 4).

However, the clinical teachers reported that using the NMCM checklist for the care of the newborn baby was challenging. Some participants felt that there was need to revise the NMCM assessment checklist because it did not carry current information. Some of the skills being practised now have not been included in the tool.

Nurses Council forms...they need revision...because things have changed but we still have kind of a bit old, and then...you become confused (Clinical teacher, college 2).

Similarly, a student participant pointed out that the tool was outdated and not suited to assess current practice. "...the thing is that the assessment tool...is outdated and you are being taught something new which the assessment tool doesn't have..." (Student, college 7). This brought confusion among the students because they were not sure what was expected of them.

In addition, some clinical teachers reported that the NMCM grading system was inconsistent as each item or element was graded with a score of one despite some areas containing more than one skill. In such cases, the assessors were challenged about the mark allocation when the student had not remembered to perform all the skills in that aspect.

You find that there is one mark but when you read the sentence there is more than one thing that the student need to do, so the student mention one...how can I allocate the mark? ...I will give an example of danger signs...there are all those danger signs, but then they will say, 'mention danger signs,' and give one point; but then they want the student to mention everything, but will just be given one....if the student mention two, then you say how much am I going to allocate, the marks?... (Clinical teacher, college 2).

4.2.1.3.2.2 Green book

In addition to the checklist, some participants reported that students were assessed using the green book. The green book was a collection of different skills as indicated by a student participant from college 8: "... we use green books...different procedures are there", which included neonatal nursing skills. During each clinical placement, the student was expected to carry the green book and signed each skill she/he had performed, which the clinical mentor or teacher who had observed the student performing the skill, counter-signed.

...green book...when you have performed a certain skill...the one who helped you, who assessed you...has to put his signature and your signature...confirming that you have really attained that skill (Student, college 8).

This was also stressed by a clinical teacher from college 4, that the student was expected to sign the green book upon completing the skill when she said: "...they are supposed to sign the green books only when they have attained the skill. Only that time". At the end of the training, the student was expected to submit the green book, with all the skills signed for, back to the college.

4.2.1.3.2.3 Grading criteria

In this study, the participants reported that the student was assigned a grade following the assessment. Highlighting the NMCM assessment grading criteria, a clinical teacher from college 4 pointed out that: "...the Nurses Council assessment tools...they will say...give one", meaning a score of one is assigned on the checklist for each task the student performed correctly. The scores are then added together to give an aggregate score for all the skills performed correctly, presented as percentages: "... percentage, the form has got percentages" (Clinical teacher, college 1). Following the aggregation of the students' task scores, the clinical teachers determined the performance of the student by using qualitative characteristics indicated on the assessment form in three categories; outstanding, satisfactory and unsatisfactory. These categories were aligned to the scores, in percentage, obtained by the student during the procedure.

The clinical teacher continued to explain how the categories were obtained from the original scores in this manner:

... Nurses Council has got their own scale...which is...their grading criteria...which is 0-59 unsatisfactory, 60-75 satisfactory then 76-100, outstanding. So we use this... (Clinical teacher, college 1).

Using this grading criterion, the nursing colleges presented the overall performance of the student. The findings showed that almost all the nursing colleges had adopted the NMCM system of grading students' clinical performance. However, some clinical teachers reported that the students' clinical performance grade did not contribute to the students' final performance at the end of the clinical experience or training programme. This caused some students to put less effort into neonatal nursing practice and clinical experience.

4.2.2 Findings from the document review

In this study, a document review was conducted in all the eight institutions visited to determine the type or area of neonatal nursing competencies for nurse-midwife technicians, domains, and level of the competencies as well as the assessment forms. The aim of the document review was to obtain multiple-evidence of the neonatal nursing competencies taught to the NMT and the approaches used to facilitate and validate achievement of clinical competence. Thus, the purpose for the document review was for corroboration with the focus group discussions. The documents reviewed included the neonatal nursing course syllabus and course outlines and clinical assessment tools. The issues which emerged from the document which were similar to that of the focus group included a focus on the knowledge and skills domains as neonatal nursing competencies taught to the NMTs and skills checklists used as assessment tools for students' clinical performance.

4.2.2.1 Neonatal nursing competencies taught to NMTs

The document analysis showed that the NMT's teaching and learning focused on acquisition of knowledge and skills as the core competencies required for neonatal nursing practice. The syllabus outlined two statements labeled as competencies for neonatal nursing theory for the

nurse-midwife technician, which focused on demonstration of knowledge and skills in management of a neonate. In the syllabus, the NMT is expected to demonstrate knowledge and skills required to:

...provide high quality and culturally sensitive immediate and long-term nursing care to neonates with complications within the midwife's scope of practice.

...provide high quality and culturally sensitive nursing care to newborns with complications.

Under each statement is a list of skills and topics perceived to be important for the NMT to provide quality neonatal care. Most of the skills and topics identified under these competency statements were similar to the ones mentioned by the focus group participants. However, for the clinical course outline, the wording of what was regarded as clinical competencies was confusing. In other documents, the clinical competency was similar to the identified skill. For instance, if the skill was 'conduct an initial examination of the neonate', the clinical competence was presented as 'systematically conduct initial examination of the neonate'. While in some documents it sounded like a learning outcome. For instance, 'provide a routine care of a neonate'.

This finding was similar to the one obtained from the course outlines used in all the eight nursing colleges visited. The only difference noted from a clinical course outline in one nursing college was that the affective domain was included with specific attributes assumed to be important for the students' attitude, identified. These included empathy, professionalism, active listening, respect, compassion, and use of appropriate language. In addition, contrary to the FGD, the document review revealed that the NMTs were also expected to acquire a competency in cultural

sensitivity. Furthermore, the clinical course outline stipulated the number of hours expected of the NMT to spend in neonatal nursing. In total the NMT was expected to spend 160 hours (four weeks) of clinical experience in a neonatal nursing unit. The course outline included a list of approaches expected to be used by the clinical teachers to facilitate the achievement of clinical competence. These included demonstration, group discussion, question and answer, case study, problem based learning, reflection and clinical conference. However, none of the focus group discussion participants mentioned problem based learning and clinical conference as some of the approaches used to facilitate achievement of clinical competence for the NMT.

It was also noted that apart from having a common syllabus, the colleges utilised one core curriculum developed by the NMCM in collaboration with CHAM. As such, the institutions had extracted the course outlines from the core curriculum hence there was consistency among the nursing colleges in the documentation of the assumed neonatal nursing competencies and teaching approaches. In addition, there was consistency between the documented skills and those mentioned by the FGD participants in all the eight nursing colleges visited.

4.2.2.2 Use of skills checklists for performance assessment

The document analysis showed that the most common tool used to assess the NMT's achievement of clinical competence was a skills checklist. The checklist outlined skills to be performed by the student and the frequency of performing such a skill, while some of the checklists outlined the tasks for a specific procedure. The tasks included on the checklists had either been extracted from the neonatal nursing course outline or from a basic emergency management of obstetric conditions (BEMOC) procedure manual. The checklist assessed the students' ability to carry out the procedure step-by-step.

Common to all nursing colleges was the use of the checklist developed by the Nurses and Midwives Council for care of the neonate within the first 48 hours. The checklist was used for summative assessment for the NMT during a postnatal care experience. It outlined the step-by-step tasks expected of the student to carry out during a physical examination of the newborn baby. Basically, the student NMT was expected to prepare for the tasks, assess the neonate, identify and manage risk health problems with emphasis on providing health education to the mother. These findings were consistent with those of the FGD participants.

The checklists used a single mark or a rating scale of 0-2 or 0-3 to grade the student when the task was performed. For instance, using the NMCM checklist, the student would be assigned a one if the task was performed or a zero if the task was not performed. Whereas using the BEMOC extracted checklists, the student would be assigned a two if the task was performed, a one if the task was partially performed and a zero if the task was completely missed. The students' performance grade was obtained from an aggregate of the total scores obtained, presented in percentages and then interpreted qualitatively similar to what was reported by the participants in the focus group discussions. However, it was noted that the NMCM checklist graded the student using pass or fail, in addition to the outstanding, satisfactory and unsatisfactory criteria mentioned by the FGD participants. For instance, a score of between 60-75% (Satisfactory) and 76-100% (outstanding) would be graded as a pass and a score of between 0-59% (unsatisfactory) would be graded as a fail.

Some training institutions were using forms designed with a rating scale of 0 to 3 or 0 to 5. One of the forms, with a rating scale of 0 to 3, outlined some of the basic nursing skills expected of the NMT to acquire in neonatal nursing while the other form, with a rating scale of 0 to 5,

outlined basic nursing skills and professional behaviour expected of the NMT to demonstrate during practice. This form was used in all clinical settings including neonatal nursing.

In addition to the checklists, the NMT used a green book to record the skills performed in the clinical area. The green book was developed by the Nurses and Midwives Council of Malawi for students' record of practical experience during the course of nursing and midwifery training. The booklet contained basic skills expected of the student nurse to acquire during the course of training, from general nursing to midwifery. The booklet was used by both NMT and RNM students. The neonatal health nursing skills included in the booklet were similar to the skills mentioned in the focus group discussions. Unlike the NMCM checklist, the green book did not have any grading criteria included. However, despite mentioning case studies as well as listing case studies in the FGD and course outline respectively as assessment approaches, there was no documented evidence to corroborate the use of these case studies in all the nursing colleges.

In conclusion, the findings from the qualitative strand showed that the NMT's were expected to acquire knowledge and skills in management of neonates as the core competencies required for neonatal nursing practice. The clinical teachers concentrated on teaching the NMT general nursing skills to enable him/her provide basic care to the health newborn baby. Most of the skills taught focused on assessment and management of a neonate in which the NMT was expected to assess the health newborn baby, provide immediate care and manage a neonate with some complications as well as communication skills. However, the participants did not discuss critical thinking and ethical decision making as some of the competencies taught to the NMT as stipulated in the programme objectives.

The findings also showed that there was no emphasis on neonatal nursing clinical teaching. However, the clinical teachers assisted the NMT to acquire the skills through demonstration and return demonstration prior to clinical placements. In addition, some clinical teachers used students' learning contracts, discussions and peer teaching. A combination of the approaches was reported to be effective for acquisition of clinical competence among the NMTs.

Furthermore, the findings showed that there were inadequate assessments conducted to evaluate the NMT's achievement of clinical competence. In addition, the clinical teachers used checklists to assess specific skills or procedures in neonatal health during the midwifery OSCE or low risk postnatal care clinical experience. The commonly used assessment tool was the NMCM tool despite the participants' observation that the NMCM tool was outdated and inconsistent, bringing confusion to both the assessors and students during the assessment. Furthermore, there was no clear criterion or attributes to define the students' performance that would assist the assessor to allocate a score of 1 or 0. The participants perceived that neonatal nursing was neglected in the training institutions.

4.2.3 Findings from the cross-sectional survey

The findings presented here reflect the responses provided by the participants on their perceptions of the competencies taught to the NMT, approaches used to assist the NMT acquire clinical competence and the approaches used to assess the NMTs' clinical competence. The items included in the questionnaire were extracted from the focus group discussion findings, with the aim of validating the data. The participants were asked to indicate whether they strongly disagreed, disagreed, agreed, strongly agreed or were uncertain with the items on the questionnaire. The participants included the clinical teachers and students from the nursing

colleges which participated in the FGD. The findings have been presented based on the demographic characteristics of participants, perception on the competencies taught to the NMTs, approaches used to assist the NMT acquire clinical competence and then approaches used to assess clinical competence. In addition, the researcher has also linked the findings with the FGD and document review findings, for a clear understanding of the standard of competencies taught to the NMT as well as the approaches used to facilitate and assess clinical competence.

4.2.3.1 Demographic characteristics

The demographic information collected from the participants included designation, gender, position, qualification and teaching experience of clinical teachers and duration of students' clinical placement in neonatal nursing. A total of 243 participants responded to the questionnaires, of which 195 (80.2%) were students and 48 (19.8%) were clinical teachers and tutors. Most of these participants (65%) were female while 35% were male. Three participants did not indicate their gender.

4.2.3.1.1 Position, qualification and teaching experience of clinical teachers

Of the 48 clinical teachers who responded to the questionnaire, most of them were tutors (76.6%) while the rest were either clinical instructors (12.8%) or senior tutors (10.6%). Majority of the respondents had a Bachelors' degree (79.5%) while others had a Masters' degree (10.6%) or a Diploma in nursing. All the senior tutors and tutors indicated having a Masters' degree and Bachelors' degree in nursing respectively, while two clinical instructors had a Bachelors' degree and four clinical instructors indicated having a Diploma in Nursing. On teaching experience, the majority had taught for duration of between 1-4 years (61%), while others had taught for a period

of 5-9 years (31.8%) and 10-15 years (7.2%). Seven (7) clinical teachers did not indicate their teaching experience.

4.2.3.1.2 Duration of student's clinical placement in neonatal nursing

Following theory sessions in neonatal nursing, NMTs were placed in different clinical sites for practice. Of the 195 students who responded to the questionnaire, most of them indicated that they had spent between 4-6 weeks (77.4%) and some indicated having spent 1-3 weeks (22.6%) in neonatal nursing clinical practice.

4.2.3.2 Competencies taught to NMTs in CHAM nursing colleges

Items on competencies taught to NMTs in neonatal nursing were identified from the qualitative data. The items included conducting an immediate care of the new born baby, management of a neonate with different conditions, resuscitation, administration of medication, communication skills, initial and subsequent assessment of a neonate, infection prevention, collaboration, documentation and assisting mothers with Kangaroo mother care. In addition, the researcher included ethical decision making and critical thinking which were viewed as important aspects for the nurse-midwife practitioners' clinical competence in neonatal nursing.

The results showed that most clinical teachers strongly agreed (81.3%) or agreed (16.7%) that the competency, *immediate care of the newborn baby*, was taught to students. Only 2.1% of the participants were uncertain about teaching this competency. On the competency, *resuscitation*, most clinical teachers strongly agreed (85.6%) or agreed (14.4%) that the competency was taught to the students, while some clinical teachers were uncertain (8.3%) about teaching this competency. Similarly, on the competency, *initial assessment of the newborn baby*, majority of

clinical teachers strongly agreed (77.1%) or agreed (20.4%) about teaching students this competency, while few clinical teachers were uncertain (2.1%) on whether students were taught the competency. However, on the competency, *subsequent assessment*, all clinical teachers strongly agreed (64.6) or agreed (35.4%) that this competency was taught to students. Furthermore, on the competency, *management of neonates with different conditions*, majority of clinical teachers strongly agreed (47.9%) or agreed (43.8%) that students were taught this competency. Only few clinical teachers were uncertain (8.3%) about teaching this competency to students. On the competency, *communication skills*, most clinical teachers strongly agreed (56.3%) or agreed (33.3%) that they taught students this competency, while few clinical teachers were uncertain (10.4%) if the competency was taught to students. In addition, on the competency, *administration of medication to neonates*, majority of clinical teachers agreed (37.5%) or strongly agreed (39.6%) that students were taught this competency. However, a good percentage of clinical teachers were uncertain (22.9%) about teaching this competency. On the competency, *infection prevention*, most clinical teachers agreed (29.2%) or strongly agreed (64.5%) that the competency was taught to students, while some clinical teachers either disagreed (2.1%) or were uncertain (4.2%) about teaching this competency. When asked if the competency, *critical thinking skills*, was taught to students, majority of clinical teachers agreed (47.1%) or strongly agreed (29.2%) that the competency was taught while some clinical teachers disagreed (8.3%) or were uncertain (14.6%) on teaching the competency. In addition, most clinical teachers agreed (56.3%) or strongly agreed (33.3%) that the competency, *ethical decision making skills*, was taught to students, while some clinical teachers disagreed (2.1%) or were uncertain (8.3%) about whether the competency was taught. On the other hand, almost all clinical teachers agreed (39.6%) or strongly agreed (58.3%) that students were taught the

competency, *Kangaroo mother care*. Similarly, when asked on teaching the competency, *collaboration skills*, to students, most clinical teachers either strongly agreed (56.3%) or agreed (35.4%), while a few clinical teachers were uncertain (8.3%) of teaching this competency. The other competency which the participants were asked to rate was *documentation of neonatal nursing care*. In response majority of clinical teachers strongly agreed (58.3%) or agreed (33.3%) that the competency was taught to students compared to few clinical teachers who were uncertain (8.3%) about teaching this competency.

Similarly, when the student participants were asked to rate if they were taught these competencies, most students agreed or strongly agreed that all the competencies were taught to them during the course of neonatal nursing. On the competency *immediate care of the newborn baby* almost all students strongly agreed (87.7%) or agreed (11.8%) that they were taught the competency. On the competency, *resuscitation*, all students strongly agreed (81.3%) or agreed (16.7%) that they were taught this competency. Similarly on the competency, *initial assessment*, most students strongly agreed (85.6%) or agreed (14.4%) that the competency was taught. On the competency, *subsequent assessment*, most students strongly agreed (74.9%) or agreed (23.6%) that clinical teachers taught that competency. Furthermore, on the competency *management of neonates with different conditions*, majority of students strongly agreed (57.4%) or agreed (38.5%) that they were taught the competency while few students were uncertain (3.1%) about being taught this competency. On the competency *communication skills* most students strongly agreed (57.9%) or agreed (34.4%) that the clinical teachers taught this competency, while some students were uncertain (6.2%) about being taught this competency. On the competency, *administration of medications to neonates*, majority of students strongly agreed (53.3%) or agreed (40%) that they were this competency, while some students were uncertain (3.1%) or

disagreed (3.1%) that the clinical teachers taught this competency. On the competency, *infection prevention measures*, most students strongly agreed (77.9%) or agreed (19.5%) that they were taught the competency. On the competency, *critical thinking skills*, majority of students strongly agreed (46.7%) or agreed (45.1%) that the clinical teachers taught this competency. However, some students were uncertain (5.1%) or disagreed (2.1%) that they were taught this competency. On the competency, *ethical decision making skills*, majority of students strongly agreed (46.2%) or agreed (42.1%) that they were taught this competency, while some students were uncertain (6.2%), disagreed (4.1%) or strongly disagreed (1.5%) that the clinical teachers taught this competency. On the competency, *Kangaroo mother care*, most students strongly agreed (83.6%) or agreed (15.4%) that they were taught this competency. On the competency, *collaboration skills*, majority of students strongly agreed (53.3%) or agreed (38.5%) that they were taught the competency, while some students were uncertain (6.2%) or disagreed (1.5%) that the clinical teachers taught this competency. On the competency, *documentation of neonatal nursing care*, majority of students strongly agreed (57.7%) or agreed (33%) that they were taught this competency. However, some students were uncertain (5.7%), disagreed (2.1%) or strongly disagreed (1.5%) that the clinical teachers taught this competency. The results are presented in table 4.2.

Table 4.2: Competencies taught to the Nurse-Midwife Technicians

		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Immediate care of a new born baby	Students	0 (0)	0 (0)	1 (0.5)	23(11.8)	171 (87.7)
	Clinical Teachers	0 (0)	0 (0)	1 (2.1)	8 (16.7)	39 (81.3)
Resuscitation	Students	0 (0)	0 (0)	0 (0)	28 (14.4)	167 (85.6)
	Clinical teachers	0 (0)	0 (0)	4 (8.3)	10 (20.8)	34 (70.8)
Initial assessment	Students	0 (0)	1 (0.5)	2 (1.0)	39 (20)	153(78.5)
	Clinical Teachers	0 (0)	0 (0)	1 (2.1)	10 (20.4)	37 (77.1)
Subsequent assessment	Students	0 (0)	1 (0.5)	2 (1.0)	46 (23.6)	146 (74.9)
	Clinical Teachers	0 (0)	0 (0)	0 (0)	17 (35.4)	31 (64.6)
Management of neonates with different conditions	Students	1 (0.5)	1 (0.5)	6 (3.1)	75 (38.5)	112 (57.4)
	Clinical Teachers	0 (0)	0 (0)	4 (8.3)	21 (43.8)	23 (47.9)
Communication skills	Students	1 (0.5)	2 (1.0)	12 (6.2)	67 (34.4)	113 (57.9)
	Clinical Teachers	0 (0)	0 (0)	5 (10.4)	16 (33.3)	27 (56.3)
Administration of medications to neonates	Students	1 (0.5)	6 (3.1)	6 (3.1)	78 (40.0)	104 (53.3)
	Clinical Teachers	0 (0)	0 (0)	11 (22.9)	18 (37.5)	19 (39.6)
Infection prevention measures	Students	0 (0)	0 (0)	5 (2.6)	38 (19.5)	152 (77.9)
	Clinical Teachers	0 (0)	1 (2.1)	2 (4.2)	14 (29.2)	31 (64.6)
Critical thinking skills	Students	2 (1.0)	4 (2.1)	10 (5.1)	88 (45.1)	91 (46.7)
	Clinical Teachers	0 (0)	4 (8.3)	7 (14.6)	23 (47.9)	14 (29.2)
Ethical decision making skills	Students	3 (1.5)	8 (4.1)	12 (6.2)	82 (42.1)	90 (46.2)
	Clinical Teachers	0 (0)	1 (2.1)	4 (8.3)	27 (56.3)	16 (33.3)
Kangaroo mother care	Students	1 (0.5)	0 (0)	1 (0.5)	30 (15.4)	163 (83.6)
	Clinical Teachers	0 (0)	1 (2.1)	0 (0)	19 (39.6)	28 (58.3)
Collaboration skills	Students	1 (0.5)	3 (1.5)	12 (6.2)	75 (38.5)	104 (53.3)
	Clinical Teachers	0 (0)	0 (0)	4 (8.3)	17 (35.4)	27 (56.3)
Documentation of neonatal nursing care	Students	3 (1.5)	4 (2.1)	11 (5.7)	64 (33.0)	112 (57.7)
	Clinical Teachers	0 (0)	0 (0)	4 (8.3)	16 (33.3)	28 (58.3)

4.2.3.3 Approaches used to assist students acquire clinical competence

Participants were asked to indicate if they agreed, strongly agreed, disagreed, strongly disagreed or were uncertain with the items in the approaches used to assist NMTs acquire clinical competence as identified in the qualitative data. The approaches which included demonstration, return demonstration, assignments, case studies and presentations, and learning contract were identified from the FGD with the participants. Other approaches, coaching, orientation, portfolio, guidance and support, which were believed to facilitate acquisition of clinical competence, were also added to the list by the researcher.

The results (table 4.3) show that, most clinical teachers either agreed (39.6%) or strongly agreed (56.3%) that the approach, *demonstration*, was used to facilitate the student's acquisition of clinical competence, while few clinical teachers were uncertain (4.2%) about using this approach. On using the approach, *return demonstration*, majority of clinical teachers agreed (47.9%) or strongly agreed (41.7%) that the approach was used, while some clinical teachers disagreed (2.1%) or were uncertain (8.3%) whether that approach was used. When asked to rate if the approach, *discussion*, were used to facilitate the acquisition of competence, most clinical teachers agreed (50%) or strongly agreed (31.3%) that the approach was used. However, some clinical teachers were uncertain (12.5%), disagreed (2.1%) or strongly disagreed (4.2%) that the approach was used to facilitate acquisition of clinical competence among students. Furthermore, when asked to rate if the approach, *clinical assignments*, was used, most clinical teachers agreed (34.2%) or strongly agreed (27.1%) using this approach, while some clinical teachers were uncertain (14.6%) or disagreed (4.2%) on using the approach to facilitate the acquisition of competency. On whether the approach, *case studies*, was used to facilitate competence, most

clinical teachers were uncertain (35.4%), disagreed (12.5%) or strongly disagreed (4.2%) that the approach was being used, while some clinical teachers agreed (31.3%) or strongly agreed (16.7%) that case studies were used to facilitate acquisition of competence. Similarly on using the approach, *case presentations*, to facilitate acquisition of competence, most clinical teachers were uncertain (33.3%) or disagreed (20.2%) that the approach was used, while some agreed (18.8%) or strongly agreed (18.4%) on using this approach. On student *orientation* as one of the approaches to facilitate the acquisition of competence, majority of clinical teachers strongly agreed (72.9%) or agreed (20.8%) that this approach was used. In addition, most clinical teachers strongly agreed (54.2%) or agreed (37.5%) that they used *learning contracts* to facilitate the student's acquisition of clinical competence. Similarly, almost all clinical teachers either strongly agreed (62.5%) or agreed (35.4%) that they *supported* the students to acquire clinical competency. In addition, *coaching* was also an approach identified to facilitate the acquisition of clinical competency. When asked to rate this approach, most of the clinical teachers strongly agreed (54.2%) or agreed (42.7%) that the approach was used, while few clinical teachers were uncertain (4.2%) on using the approach. On use of *guidance* as a method of facilitating acquisition of clinical competence among students, most clinical teachers strongly agreed (58.3%) or agreed (37.5%) that they guided students to perform the skills. However, when asked if *portfolios* were used to facilitate acquisition of clinical competence, most clinical teachers were uncertain (39.5%) or disagreed (22.9%) that the approach was used. Some clinical teachers strongly agreed (16.7%) or agreed (12.5%) that they used portfolios to facilitate the acquisition of clinical competence.

Students were also asked to rate the approaches if they were used by clinical teachers to facilitate the acquisition of clinical competence in neonatal nursing practice. Similar to the clinical

teachers' responses, most students strongly agreed (44.3%) or agreed (41.2%) that *demonstration* was used by clinical teachers to facilitate acquisition of clinical competence. However, some students were uncertain (7.2%) or disagreed (3.6%) or strongly disagreed (3.6%) that the approach was used. On using *return demonstration* most students strongly agreed (42.1) or agreed (39.5%) while some were uncertain (7.2%) or disagreed (5.6%) that the approach was used by clinical teachers. When asked to rate *discussion*, majority of students agreed (39.7%) or strongly agreed (25.8%) that it was used by clinical teachers, while some students were uncertain (20.1%), disagreed (10.8%) or strongly disagreed (3.6%) that discussion was used. On the use of *clinical assignments* to facilitate acquisition of competence, most students agreed (36.4%) or strongly agreed (27.7%) that clinical teachers used this approach. Some students disagreed (14.9%), were uncertain (13.8%) or strongly disagreed (7.2%) that clinical assignments were used to facilitate clinical competence. Similarly, most students strongly agreed (41.5%) or agreed (34.2%) that clinical teachers used *case studies*, while some students disagreed (12.4%) or were uncertain (7.8%) that this approach was used by clinical teachers to facilitate clinical competence. On using *case presentations* to facilitate clinical competence, most students disagreed (28.2%) that clinical teachers used this approach, while some students agreed (26.7%) or strongly agreed (17.4%) that this was used. Some students either strongly disagreed (14.4%) or disagreed (13.3%) that case presentations were used by clinical teachers. On the other hand, majority of students strongly agreed (65.3%) or agreed (30.6%) that clinical teachers *oriented* students to the clinical environment to facilitate acquisition of competence. On the use of *learning contract* as a clinical teaching approach, most students strongly agreed (64.1%) or agreed (31.8%) that clinical teachers used this approach. Similarly, majority of students agreed (46.9%) or strongly agreed (26.3%) that clinical teachers *supported* students to acquire clinical

competence, while some students were uncertain (12.9%) or disagreed (9.3%) that they were supported by clinical teachers. On *coaching* by clinical teachers, majority of students agreed (43.1%) or strongly agreed (18.5%) that they were coached in the clinical area, while some students were uncertain (16.9%) or disagreed (16.9%) that clinical teachers coached them. When students were asked to rate if clinical teachers provided *guidance* to facilitate acquisition of clinical competence in neonatal nursing, most students agreed (48.7%) or strongly agreed (24.6%) that they were guided by clinical teachers, while some students disagreed (12.3%) or were uncertain (11.8%) that clinical teachers provided any guidance to students in the clinical setting. On the use of *portfolios* to facilitate clinical competence, majority of students strongly disagreed (33.3%), were uncertain (26.2%) or disagreed (22.6%) that portfolios were used by clinical teachers. Few students agreed (9.7%) or strongly agreed (8.2%) that clinical teachers used portfolios to facilitate student's acquisition of competence.

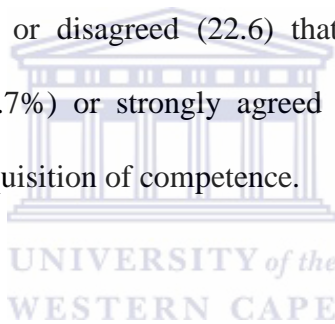


Table 4.3: Approaches used to assist the Nurse-Midwife Technician to acquire clinical competence

		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Demonstration	Students	7 (3.6)	7 (3.6)	14 (7.2)	80 (41.2)	86 (44.3)
	Clinical Teachers	0 (0.0)	0 (0.0)	2 (4.2)	19 (39.6)	27 (56.3)
Return demonstration	Students	11 (5.6)	11 (5.6)	14 (7.2)	77 (39.5)	82 (42.1)
	Clinical Teachers	0 (0.0)	1 (2.1)	4 (8.3)	23 (47.9)	20 (41.7)
Discussions	Students	7 (3.6)	21 (10.8)	39 (20.1)	77 (39.7)	50 (25.8)
	Clinical Teachers	2 (4.2)	1 (2.1)	6 (12.5)	24 (50.0)	15 (31.3)
Clinical assignments	Students	14 (7.2)	29 (14.9)	27 (13.8)	71 (36.4)	54 (27.7)
	Clinical Teachers	0 (0.0)	2 (4.2)	7 (14.6)	26 (54.2)	13 (27.1)
Case studies	Students	8 (4.1)	24 (12.4)	15 (7.8)	66 (34.2)	80 (41.5)
	Clinical Teachers	2 (4.2)	6 (12.5)	17 (35.4)	15 (31.3)	8 (16.7)
Case presentations	Students	28 (14.4)	55 (28.2)	26 (13.3)	52 (26.7)	34 (17.4)
	Clinical Teachers	4 (8.3)	10 (20.8)	16 (33.3)	9 (18.8)	9 (18.8)
Orientation	Students	2 (1.0)	1 (0.5)	5 (2.6)	59 (30.6)	126 (65.3)
	Clinical Teachers	0 (0.0)	0 (0.0)	3 (6.3)	10 (20.8)	35 (72.9)
Learning contract	Students	1 (0.5)	1 (0.5)	6 (3.1)	62 (31.8)	125 (64.1)
	Clinical Teachers	0 (0.0)	2 (4.2)	2 (4.2)	18 (37.5)	26 (54.2)
Support	Students	9 (4.6)	18 (9.3)	25 (12.9)	91 (46.9)	51 (26.3)
	Clinical Teacher	0 (0.0)	0 (0.0)	1 (2.1)	17 (35.4)	30 (62.5)
Coaching	Students	9 (4.6)	33 (16.9)	33 (16.9)	84 (43.1)	36 (18.5)
	Clinical Teachers	0 (0.0)	0 (0.0)	2 (4.2)	20 (41.7)	26 (54.2)
Guidance	Students	5 (2.6)	24 (12.3)	23 (11.8)	95 (48.7)	48 (24.6)
	Clinical Teachers	0 (0.0)	0 (0.0)	2 (4.2)	18 (37.5)	28 (58.3)
Portfolio	Students	65 (33.3)	44 (22.6)	51 (26.2)	19 (9.7)	16 (8.2)
	Clinical Teachers	4 (8.3)	11 (22.9)	19 (39.6)	6 (12.5)	8 (16.7)

4.2.3.4 Approaches used assess clinical competence

The approaches, skills check offs, OSCE, NMCM assessment and self-assessment were identified from the FGD. In addition, the researcher included other approaches such as assignments, direct observation, question and answer and peer-assessment because these were identified from the literature as some of the methods of assessing competence of students.

The results (table 4.4) show that most clinical teachers strongly agreed (72.9%) or agreed (20.8%) that the approach, *skills check offs*, was used to assess clinical competence. Similarly, majority of clinical teachers strongly agreed (62.5%) or agreed (31.3%) that they used the *Nurses and Midwives Council of Malawi assessment (NMCM)* for clinical competence. On the use of *Objective Structured Clinical Examinations (OSCE)* for assessment of clinical competence, most clinical teachers strongly agreed (79.2%) or agreed (14.6%) that this approach was used. In addition, majority of clinical teachers strongly agreed (66.7%) or agreed (27.1%) that *direct observation* was used to assess students' clinical competence in neonatal nursing. Furthermore, most clinical teachers strongly agreed (58.3%) or agreed (35.4) that they used *question and answer* to assess clinical competence among students. On the use of *clinical assignments* as an assessment approach to clinical competence, most clinical teachers agreed (52.1%) or strongly agreed (25%) that they used this approach, while some clinical teachers disagreed (14.6%) that they used clinical assignments to assess clinical competence. When asked if clinical teachers used student's *self-evaluation* report to assess clinical competence, most clinical teachers agreed (37.5%) or strongly agreed (31.3%) that this approach was used, while some clinical teachers disagreed (18.8%) or were uncertain (10.4%) whether the approach was used. On use of *peer assessments*, majority of clinical teachers were uncertain (31.3%) or disagreed (25%) that the approach was used to assess clinical competence, while some clinical teachers agreed (16.7%) or

strongly agreed (16.7%) that they used this approach to assess students' competence in neonatal nursing.

Students were also asked to rate if clinical teachers used these approaches to assess clinical competence in neonatal nursing. On the use of *skills check offs*, most students strongly agreed (72.8%) or agreed (23.6%) that clinical teachers used this approach to assess clinical competence. However, some students strongly disagreed (2.1%) that clinical teachers used skills check offs to assess clinical competence. On the use of *Nurses and Midwives Council of Malawi assessment*, majority of students strongly agreed (48.2%) or agreed (28.2%) that the clinical teachers used this approach to assess clinical competence, while some students were uncertain (13.8%) or strongly disagreed (6.2%). When asked if *OSCE* was used to assess clinical competence in neonatal nursing, most students strongly agreed (66.7%) or agreed (26.2%) that this approach was used. On the use of *direct observation*, majority of students strongly agreed (40%) or agreed (39%) that clinical teachers directly observed the students to assess clinical competence in neonatal nursing, while some students disagreed (9.7%) or were uncertain (7.2%) if the approach was used. Similarly, most students agreed (44.8%) or strongly agreed (39.2%) that *question and answer* was used to assess clinical competence. When asked to rate if the clinical teachers used *clinical assignments* to assess clinical competence in neonatal nursing, most students agreed (39.5%) or strongly agreed (20.5%) that this approach was used. However, some students were uncertain (16.9%), disagreed (13.8%) or strongly disagreed (9.2%) that clinical assignments were used to assess clinical competence in neonatal nursing. On the other hand, most students strongly agreed (44.6%) or agreed (42.1%) that *self-evaluation* was used to assess clinical competence. On the contrary, majority of students strongly disagreed (24.1%), disagreed (15.9%) or were uncertain (19.5%) that *peer assessment* was used to assess clinical

competence, while some students agreed (26.7%) or strongly agreed (13.8%) that the approach was used.



Table 4.4: Approaches used to assess clinical competence

		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Skills check offs	Students	4 (2.1)	2 (1.0)	1 (0.5)	46 (23.6)	142 (72.8)
	Clinical Teachers	1 (2.1)	1 (2.1)	1 (2.1)	10 (20.8)	35 (72.9)
Nurses and Midwives Council of Malawi assessment	Students	12 (6.2)	7 (3.6)	27 (13.8)	55 (28.2)	94 (48.2)
	Clinical Teachers	0 (0.0)	1 (2.1)	2 (4.2)	15 (31.3)	30 (62.5)
Objective Structured Clinical Examination	Students	4 (2.1)	4 (2.1)	6 (3.1)	51 (26.2)	130 (66.7)
	Clinical Teachers	1 (2.1)	0 (0.0)	2 (4.2)	7 (14.6)	38 (79.2)
Directly observation	Students	8 (4.1)	19 (9.7)	14 (7.2)	76 (39.0)	78 (40.0)
	Clinical Teachers	0 (0.0)	0 (0.0)	3 (6.3)	13 (27.1)	32 (66.7)
Question and answer	Students	7 (3.6)	9 (4.6)	15 (7.7)	87 (44.8)	76 (39.2)
	Clinical Teachers	0 (0.0)	0 (0.0)	3 (6.3)	17 (35.4)	28 (58.3)
Clinical assignments	Students	18 (9.2)	27 (13.8)	33 (16.9)	77 (39.5)	40 (20.5)
	Clinical Teachers	1 (2.1)	7 (14.6)	3 (6.3)	25 (52.1)	12 (25.0)
Self-evaluation	Students	4 (2.1)	11 (5.6)	11 (5.6)	82 (42.1)	87 (44.6)
	Clinical Teachers	1 (2.1)	9 (18.8)	5 (10.4)	18 (37.5)	15 (31.3)
Peer assessment	Students	47 (24.1)	31 (15.9)	38 (19.5)	52 (26.7)	27 (13.8)
	Clinical Teachers	5 (10.4)	12 (25.0)	15 (31.3)	8 (16.7)	8 (16.7)

4.2.3.4.1 Participants' perception of assessment approaches

Furthermore, the researcher asked the clinical teachers to rate the assessment approaches' ability to evaluate the students' clinical competence in different domains. The approaches used for the Nurses and Midwives Council assessment, OSCE and direct observation, were included for this purpose. The approaches were each rated against four elements, critical thinking, technical skills, professional behaviour and attitude. The results are presented separately for each approach.

4.2.3.4.1.1 Nurses and Midwives Council assessment

The NMCM assessment was reported to be used for assessment of the NMT in the care of a low risk neonate during the FGD. The researcher asked the clinical teachers to rate whether they agreed, strongly agreed, disagreed, strongly disagreed or were uncertain if this assessment approach enabled the assessor to evaluate the students' critical thinking, professional behaviour, attitude and technical skills performance. The results (table 4.5) show that most clinical teachers agreed (50%) or strongly agreed (41.7%) that they were able to assess the student's *technical skills* using the NMCM assessment. On the assessment approach's ability to assess *professional behaviour*, most clinical teachers strongly agreed (37.5%) or agreed (31.3%) that they were able to assess professional behaviour using this approach. However, some clinical teachers were uncertain (18.8%) or disagreed (12.5%) that NMCM assessment approach enabled the clinical teachers to assess professional behaviour among students. On ability to assess the student's *critical thinking skills*, most clinical teachers agreed (41.7%) or strongly agreed (27.1%) that they were able to assess critical thinking skills using this approach, while some clinical teachers were uncertain (16.7%) or disagreed (41.7%) that this approach enabled them to assess critical thinking skills. When asked if the assessment approach enabled clinical teachers to assess

student's *attitude*, most clinical teachers agreed (39.6%) or strongly agreed (25%) that they were able to assess attitude using this approach. However, some clinical teachers were uncertain (25%) or disagreed (8.3%) that this approach enabled them to assess student's attitude.

Table 4.5: Clinical teachers' perception of NMCM assessment approach

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Technical skills	1 (2.1)	2 (4.2)	1 (2.1)	24 (50.0)	20 (41.7)
Professional behaviour	0 (0)	6 (12.5)	9 (18.8)	15 (31.3)	18 (37.5)
Critical thinking skills	2 (4.2)	5 (10.4)	8 (16.7)	20 (41.7)	13 (27.1)
Attitude	1 (2.1)	4 (8.3)	12 (25.0)	19 (39.6)	12 (25.0)



4.2.3.4.1.2 Objective structured clinical examination

Objective structured clinical examination (OSCE) was one of the approaches used to assess the NMTs' clinical competence in neonatal nursing practice. The researcher asked clinical teachers to indicate whether they agreed, strongly agreed, disagreed, strongly disagreed or were uncertain if the approach enabled the evaluation of attitude, professional behaviour, technical skills and critical thinking. The results (table 4.6) show that most clinical teachers strongly agreed (39.6%) or agreed (31.3%) that they were able to assess the student's *attitude* using OSCE, while some clinical teachers were uncertain (14.6%) or disagreed (14.6%) that OSCE enabled them to assess attitude. On the assessment approach's ability to assess *technical skills*, most clinical teachers strongly agreed (62.5%) or agreed (31.3%) that they were able to assess technical skills using

this approach. On ability to assess the student's *critical thinking and reasoning skills*, most clinical teachers strongly agreed (43.8%) or agreed (39.6%) that they were able to assess critical thinking skills using this approach, while some clinical teachers were uncertain (8.3%) or disagreed (6.3%) that this approach enabled them to assess critical thinking and reasoning skills. When asked if the assessment approach could enable clinical teachers to assess *professional behaviour*, most clinical teachers strongly agreed (61.7%) or agreed (30%) that they were able to assess professional behaviour using this approach. However, some clinical teachers were uncertain (4.5%) or disagreed (2.5%) that this approach enabled them to assess professional behaviour.

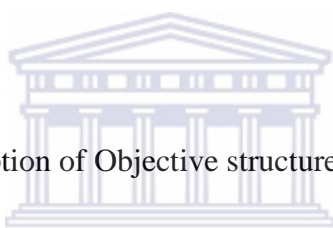


Table 4.6: Clinical teachers' perception of Objective structured clinical examination

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Attitude	0 (0)	7 (14.6)	7 (14.6)	15 (31.3)	19 (39.6)
Technical skills	0 (0)	1 (2.1)	2 (4.2)	15 (31.3)	30 (62.5)
Critical thinking and reasoning skills	1 (2.1)	3 (6.3)	4 (8.3)	19 (39.6)	21 (43.8)
Professional behaviour	3 (1.2)	6 (2.5)	11 (4.5)	73 (30.0)	150 (61.7)

4.2.3.4.1.3 *Direct observation*

The researcher included direct observation as an approach used to assess students' clinical competence based on literature. The FGD participants did not discuss direct observation. However, the researcher assumed that the clinical teachers directly observed the students during

OSCE and NMCM assessment, hence the inclusion on the list of approaches used to assess clinical competence. The results (table 4.7) show that most clinical teachers strongly agreed (45.8%) or agreed (43.8%) that they were able to assess *professional behaviour* using direct observation of students. On the assessment approach's ability to assess *critical thinking and reasoning skills*, most clinical teachers strongly agreed (47.9%) or agreed (39.6%) that they were able to assess critical thinking and reasoning skills using this approach. However, some clinical teachers were uncertain (8.3%) or disagreed (4.2%) that direct observation enabled them to assess critical thinking and reasoning skills of students. On ability to assess the student's *attitude*, most clinical teachers strongly agreed (43.8%) or agreed (41.7%) that they were able to assess attitude using this approach, while some clinical teachers were uncertain (12.5%) or disagreed (2.1%) that this approach enabled them to assess student's attitude. When asked if the assessment approach enabled clinical teachers to assess *technical skills*, most clinical teachers strongly agreed (58.3%) or agreed (29.2%) that they were able to assess technical skills using this approach. However, some clinical teachers were uncertain (12.5%) that this approach could enable them to assess the technical skills.

Table 4.7: Clinical teachers' perception of direct observation

	Disagree	Uncertain	Agree	Strongly Agree
Professional behaviour	0 (0)	5 (10.4)	21 (43.8)	22 (45.8)
Critical thinking and reasoning skills	2 (4.2)	4 (8.3)	19 (39.6)	23 (47.9)
Attitude	1 (2.1)	6 (12.5)	20 (41.7)	21 (43.8)
Technical skills	0 (0)	6 (12.5)	14 (29.2)	28 (58.3)

4.2.3.5 Tools used for assessing clinical competence

During the FGD, participants identified three tools which were used to assess the NMTs' clinical competence. These were competency checklists, the Nurses and Midwives Council Assessment tool and the green book. Participants were asked to rate whether they agreed, strongly agreed, disagreed, strongly disagreed or were uncertain that the tools were used for this purpose during the course of neonatal nursing practice. The results (table 4.8) show that most clinical teachers strongly agreed (54.2%) or agreed (32.8%) that *competency checklists* were used to assess student's clinical competence in neonatal nursing, while some clinical teachers were uncertain (6.3%) or disagreed (8.3%) that this tool was used in neonatal nursing. In addition, majority of clinical teachers strongly agreed (31.3%) or agreed (27.1%) that they used green book to assess student's clinical competence in neonatal nursing. However, some clinical teachers were uncertain (29.2%) or disagreed (10.4%) that the green book was used to assess clinical competence in neonatal nursing. On using the *Nurses and Midwives Council of Malawi (NMCM)* assessment tool, almost all clinical teachers strongly agreed (66.7%) or agreed (31.3%) that the NMCM tool was used to assess clinical competence in neonatal nursing.

Students were also asked to rate if clinical teachers used these assessment tools to assess student's clinical competence in neonatal nursing practice. Most students strongly agreed (43.6%) or agreed (32.8%) that clinical teachers used *competency checklists* to assess student's clinical competence in neonatal nursing. However, some of the students were uncertain (12.3%) or disagreed (7.2%) that this tool was used by clinical teachers. On the use of the *green book*, majority of students agreed (37.4) or strongly agreed (36.9%) that the green book was used to assess clinical competence, while some students were uncertain (13.8%), disagreed (6.2%) or strongly disagreed (5.6%) that this tool was used. When asked if clinical teachers used the *NMCM assessment tool*, most students strongly agreed (43.1%) or agreed (31.3%) that this tool was used to assess clinical competence in neonatal nursing practice.



Table 4.8: Assessment tools

		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Competency checklist	Students	8 (4.1)	14 (7.2)	24 (12.3)	64 (32.8)	85 (43.6)
	Clinical Teachers	1 (2.1)	4 (8.3)	3 (6.3)	14 (29.2)	26 (54.2)
Green book	Students	11 (5.6)	12 (6.2)	27 (13.8)	73 (37.4)	72 (36.9)
	Clinical Teachers	1 (2.1)	5 (10.4)	14 (29.2)	13 (27.1)	15 (31.3)
Nurses and Midwives Council of Malawi assessment tool	Students	8 (4.1)	11 (5.6)	28 (14.4)	64 (32.8)	84 (43.1)
	Clinical Teachers	0 (0.0)	0 (0.0)	1 (2.1)	15 (31.3)	32 (66.7)

4.2.3.5.1 Clinical teachers' perception of assessment tools

The clinical teachers were asked to rate the assessment tools in their ability to evaluate students' attitude, professional behaviour, technical skills and critical thinking skills. Each assessment tool has been presented separately.

4.2.3.5.1.1 Competency checklist

When the clinical teachers were asked to rate if the competency checklist enabled them to assess the student's *attitude*, the majority strongly agreed (39.6%) or agreed (10.8%) that they were able to assess the student's attitude using the competency checklist. However, some clinical teachers disagreed (12.5%), strongly disagreed (6.3%) or were uncertain (12.5%) that the checklists enabled them to assess attitude. On the ability to assess *technical skills*, most clinical teachers strongly agreed (50%) or agreed (31.3%) that they were able to assess student's technical skills using the checklist. On the assessment tool's ability to assess *professional behaviour*, most clinical teachers strongly agreed (34.5%) or agreed (10.8%) that they were able to assess professional behaviour using this approach. However, some clinical teachers were uncertain (29.2%) or disagreed (10.4%) that the checklist enabled them to assess professional behaviour among students. When asked if the checklist enabled clinical teachers to assess student's *critical thinking and reasoning skills*, most clinical teachers agreed (31.3%) or strongly agreed (31.3%) that they were able to assess critical thinking skills using this tool, while some clinical teachers were uncertain (22.9%), disagreed (8.3%) or strongly disagreed that this approach enabled them to assess critical thinking skills.

On the other hand, clinical teachers were asked to rate if the competency checklist provided a criterion for assessing student's level of clinical competence in neonatal nursing practice. On

this, most clinical teachers strongly agreed (47.9%) or agreed (29.2%) that the checklist had a criterion for assessing student's level of competence. However, some clinical teachers were uncertain (16.7%) or disagreed (84.3%) that the tool had specified the criteria for assessing student's level of competence. The results are presented in table 4.9 below.

Table 4.9: Clinical teachers' perceptions of the checklist

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Attitude	3 (6.3)	6 (12.5)	10 (10.8)	10 (10.8)	19 (39.6)
Technical skills	2 (4.3)	3 (6.3)	4 (8.3)	15 (31.3)	24 (50)
Professional behaviour	2 (2.3)	5 (10.4)	14 (29.2)	10 (10.8)	17 (35.4)
Critical thinking and reasoning	3 (6.3)	4 (8.3)	11 (22.9)	15 (31.3)	15 (31.3)
The check list provides criteria for assessing the students' level of competence	1 (2.3)	2 (4.3)	8 (16.7)	14 (29.2)	23 (47.9)

4.2.3.5.1.2 *Green book*

The participants were asked to indicate whether they agreed, strongly agreed, disagreed, strongly disagreed or were uncertain if the green book enabled the clinical teachers to evaluate the NMTs' attitude, critical thinking, professional behaviour and technical skills. The results (table 4.10) show that most clinical teachers strongly agreed (27.1%) or agreed (22.9%) that they were able to assess the student's *attitude* using the green book. However, some clinical teachers were

uncertain (29.2%), disagreed (14.6%), strongly disagreed (6.3%) that the green book enabled them to assess attitude. On the ability of the green book to assess *professional behaviour*, most clinical teachers agreed (29.2%) or strongly agreed (25%) that they were able to assess student's professional behaviour using the green book, while some clinical teachers were uncertain (29.2%) or disagreed that the green book enabled the assessment of professional behaviour. On the assessment tool's ability to assess *technical skills*, most clinical teachers agreed (39.6%) or strongly agreed (37.5%) that they were able to assess technical skills using this tool. However, some clinical teachers were uncertain (12.5%) or disagreed (8.3%) that the green book enabled clinical teachers to assess student's technical skills. When asked if the green book enabled the clinical teachers to assess student's *critical thinking and reasoning skills*, most clinical teachers agreed (27.1%) or strongly agreed (25%) that they were able to assess critical thinking skills using this tool, while some clinical teachers were uncertain (25%), disagreed (18.8%) or strongly disagreed (4.3%) that this tool enabled them to assess critical thinking skills.

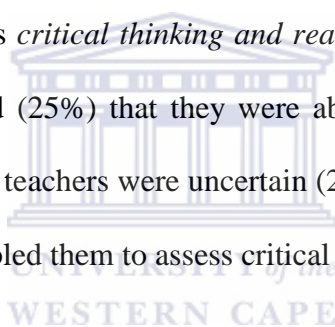


Table 4.10: Clinical teachers' perceptions of the green book

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Attitude	3 (6.3)	7 (14.6)	14 (29.2)	11 (22.9)	13 (27.1)
Professional behaviour	3 (6.3)	5 (10.4)	14 (29.2)	14 (29.2)	12 (25)
Technical skills	1 (2.3)	4 (8.3)	6 (12.5)	19 (39.6)	18 (37.5)
Critical thinking and reasoning	2 (4.3)	9 (18.8)	12 (25)	13 (27.1)	12 (25)

4.2.3.5.1.3 Nurses and Midwives Council of Malawi assessment checklist

The participants were asked to indicate whether they strongly disagreed, disagreed, agreed, strongly agreed or were uncertain on the NMCM tools ability to assess attitude, critical thinking, technical skills and professional behaviour. The results (table 4.11) show that on the assessment tool's ability to assess students' *attitude*, most clinical teachers agreed (39.6%) or strongly agreed (25%) that the NMCM assessment tool enabled them to assess attitude, while some clinical teachers were uncertain (27.1%) or disagreed that this tool enabled them to assess students' attitude. On the assessment tool's ability to assess *professional behaviour*, most clinical teachers agreed (33.3%) or strongly disagreed (33.3%) that they were able to assess professional behaviour using this tool. However, some clinical teachers were uncertain (20.8%) or disagreed (12.5%) that the NMCM tool enabled them to assess professional behaviour. On the assessment tool's ability to assess *technical skills*, most clinical teachers agreed (50%) or strongly agreed (45%) that the tool enabled them to assess technical skills. Furthermore, on the tool's ability to assess *critical thinking and reasoning skills*, majority of clinical teachers agreed (41.7%) or strongly agreed (39.6%) that the NMCM tool enabled them to assess student's critical thinking and reasoning skills. However, some clinical teachers were uncertain (20.8%) or disagreed (4.3%) that this assessment tool enabled the assessment of students' critical thinking and reasoning skills.

Table 4.11: Clinical teachers' perception of NMCM tool

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Attitude	1 (2.3)	3 (6.3)	13 (27.1)	19 (39.6)	12 (25)
Professional behaviour	0 (0)	6 (12.5)	10 (20.8)	16 (33.3)	16 (33.3)
Technical skills	0 (0)	0 (0)	2 (4.3)	24 (50)	22 (45.8)
Critical thinking and reasoning	2 (4.3)	3 (6.3)	10 (20.8)	20 (41.7)	13 (27.1)
NMCM assessment tool provides clear criteria for assessing the students' level of competence	1 (2.3)	2 (4.3)	4 (8.3)	22 (45.8)	19 (39.6)

4.2.3.6 Summary for phase one findings

The findings from phase one, both qualitative and the survey, showed that the NMT was expected to acquire knowledge and skills in the management of neonates with complications, as core competencies required for neonatal nursing practice. As such, the NMT's teaching focused on assisting them to acquire basic nursing skills to enable the NMT to provide basic care to the health newborn baby. These basic nursing skills included resuscitation of the newborn baby, provision of immediate care, initial and subsequent assessment, helping the baby breath, Kangaroo mother care, administration of medication and management of a neonate with some complications, and communication. The participants' responses on the skills taught to the NMT as clinical competencies were consistent with the document review findings and FGD.

The findings also showed that, in most of the nursing colleges, there was no specific allocation to neonatal nursing practice for students. This was because the participants believed that the

neonate could not be separated from the mother. As such, the NMT neonatal nursing clinical practice was combined with labour and delivery and postnatal care. For those institutions which had a separate neonatal nursing clinical practice experience, the duration was limited to either two or three weeks in a neonatal care unit. To facilitate the NMTs' acquisition of skills in neonatal nursing, the clinical teachers used demonstration, return demonstration, learning contract, assignments and discussions. In some colleges, students were assigned case studies which were also presented to colleagues to share knowledge and experience. The clinical teachers used a combination of approaches to facilitate the NMTs' achievement of clinical competence.

Furthermore, the finding for the FGD showed that there were inadequate assessments performed for the NMTs' neonatal nursing clinical competence. The clinical teachers depended on the skills check offs performed prior to the clinical placements as well as the NMCM assessment which was conducted on the care of a healthy newborn baby during low risk postnatal care clinical experience. In some cases, the NMT was exposed to neonatal nursing scenarios during midwifery OSCE. During these assessments, the clinical teachers used a checklist developed by NMCM, incongruent with competency-based approach, to evaluate the NMT's performance. These findings were similar to that of the survey. Despite being commonly used for the assessment, the NMCM assessment checklist was reported to be outdated for assessing current practice, with an inconsistent grading for the items. For instance, there were no attributes to define the students' clinical performance for a given score. In addition, despite some participants indicating that the NMCM tool assessed all domains of competence, some participants reported that the tool was challenging when it came to the evaluation of attitude, making it subjective. Students also perceived the assessment as stressful and subjective.

In addition to NMCM and OSCE, the students were given green books which were comprised of the skills expected of the NMT in the clinical area. This was used as a record book for the basic skills which were performed and had no criteria for assessment of performance. The findings also showed that the students evaluated their own learning in the clinical area based on the clinical objectives and learning guides provided to them. However, lack of emphasis on clinical placements and assessment of clinical competence in neonatal nursing caused the participants to perceive neonatal nursing care as a neglected area in the training institutions. These results from both qualitative and quantitative strands are presented in table 4.12 below.



Table 4.12: Summary of phase one findings

Objective	FGD		Document Review	Survey
	Theme	Sub-theme		Average responses for clinical teachers, students respectively
Competencies taught to NMTs	Assessment and management of a neonate	Immediate care of a newborn baby Resuscitation Helping baby breath Initial and subsequent assessment of the newborn baby Initial examination of a neonate Subsequent examination Gestational age assessment Management of a neonate with complications Kangaroo mother care Observing infection prevention measures	Demonstration of knowledge of management of neonates with medical and surgical conditions and other complications. Immediate care of a neonate Initial and subsequent assessment Prevention of mother to child transmission of HIV Resuscitation Drug administration Kangaroo mother care	Immediate care of newborn baby (98%, 99.5% A) Resuscitation (91.6%, 100% A) Initial assessment (97.5%, 98.5% A) Subsequent assessment (100%, 98.4% A) Management of neonates with different conditions (91.7%, 95.9% A) Administration of medications (77.1%, 93.3% SA) Infection prevention (93.8%, 97.4% A) Kangaroo mother care (97.9%, 99% A) Communication skills (89.6%, 91.3% A) Collaboration (91.7% 91.8% A) Documentation (91.6%%, 90.7% A) Critical thinking (77.1%, 91.7% A) Ethical decision making (89.6% 88.3% A)

		Drug administration		
	Communication and collaboration skills	Documentation of care		
Approaches to assist NMT acquire clinical competence	Skills laboratory practice	Demonstrations Return demonstrations	Demonstrations	Demonstrations (95.9%, 85.5% A) Return demonstrations (89.5%, 81.6% A)
	Practice-based learning	Learning contract Clinical mentors and peer teaching Assignments and discussions Case studies and case presentations	Discussion Question and answer Case study Problem based learning Reflection Clinical conference	Discussions (81.3%, 65.5% A) Clinical assignments (81.3%, 64.1% A) Case studies (48%, 75.7% A) Case presentations (62.4% 55.9%D) Orientation (93.7%, 95.5% A) Support (97.9%, 73.2% A) Coaching (61.6%, 62.5% A) Guidance (95.8%, 73.3% A) Portfolio (70.8%, 82.1% D)

Approaches to assess clinical competence	Neonatal nursing has been neglected	Lack of emphasis on clinical assessment in neonatal nursing Skills check offs NMCM assessment for low risk babies OSCE Self-evaluation		Skills check offs (93,7%, 96.4% A) NMCM assessment (93.5%, 76.4% A) OSCE (93.8%, 92.9% A) Direct observation (93.8%, 79% A) Question and answer (93.7%, 84% A) Clinical assignments (77.1%, 60% A) Self-evaluation (68.8%, 86.7% A) Peer assessment (66.7%, 59.5% D)
	Assessment tools	Checklist NMCM tool Green book	Skills checklists NMCM tool Green book	Competency checklist (83.4%, 76.4% A) Green book (58.4%, 74.3% A) NMCM tool (98%, 75.9% A)
		Criteria for evaluation Students' performance graded as a percentage	Criteria for assessment of student performance graded as percentage	

4.3 Phase two: Development of the neonatal nursing care clinical competency-based assessment tool

This phase utilised the development stage of the design and development model and the last three steps of developing assessment tools to address objective four:

- To develop a neonatal nursing care clinical competency-based assessment tool for NMTs.

According to DWTD (2012:15) the design and development of assessment tools involve the systematic planning of instruments that provide procedures for gathering and interpreting evidence for the student's performance in a practical setting. In view of this, the data for this objective was generated through a consensus workshop with stakeholders in nursing education and neonatal health services. Thus, using the findings from phase one (section 4.2), a consensus workshop was conducted to generate a consensus on the neonatal nursing clinical competencies for NMTs and then develop the clinical competency-based assessment tool. This was to ensure that the development process met the needs and consensus of the stakeholders in nursing and midwifery education and practice. During the workshop, the researcher presented the study findings to the participants for sensitisation. This was followed by deliberations on the study findings by the participants to achieve consensus.

The workshop participants observed that neonatal nursing was a standalone course within the midwifery programme with a component of 160 hours clinical experience. As such, the participants agreed that identifying the required neonatal nursing clinical competencies and the assessment of achievement of these was an important aspect to ensure that the NMTs acquired the competence required for entry level practice. Thus, using the COPA and skills acquisition models, the participant's discussions and deliberations focused on generating a consensus on the

neonatal nursing clinical competencies required for the NMTs and development of a tool for assessment of the clinical competence achievement. To guide the discussions, the participants responded to five questions that guided the development of the assessment tool. These were:

- What competencies should be included for clinical assessment in neonatal nursing for the NMTs?
- How would these competencies be validated in the clinical area?
- Who would be involved in assessing the NMTs to validate achievement of clinical competence?
- Where will the assessments for clinical competence be conducted?
- When will the clinical assessments be conducted?

In response to these questions the participants identified and agreed, by consensus, on the required neonatal nursing clinical competencies for the NMTs and an assessment framework/tool that would work as a guide for teaching and assessments in neonatal nursing practice for the NMTs.

This section presents the data on the agreed neonatal nursing clinical competency areas and how these competencies would be assessed by responding to the above mentioned questions.

4.3.1 What competencies should be included for clinical assessment in neonatal nursing for the NMTs?

The study findings from phase one showed that the NMT's were expected to acquire knowledge and skills in the management of neonates with some complications as the core competencies required for neonatal nursing practice. As such, the NMTs were taught basic nursing knowledge and skills to enable them to provide basic care to the neonates and their families. Following the

presentation of these findings during the consensus workshop, the workshop participants observed that specifying the clinical competency areas for neonatal nursing practice was an important aspect for the training of NMTs. Hence, guided by the COPA model, the participants agreed on seven clinical competencies for inclusion in the assessment tool. These include assessment and management of a neonate, communication, critical thinking, teaching, ethical and professional practice, management, and personal and professional development. Thus the participants observed that the assessment tool should contain these competency areas with their related practice standards and behaviours defined, to enable a holistic assessment of the student's performance. Table 4.13 presents a summary of the clinical competencies and their related activities agreed upon by consensus at the workshop. Each clinical competency area has been presented separately in sections 4.3.1.1-4.3.1.7.

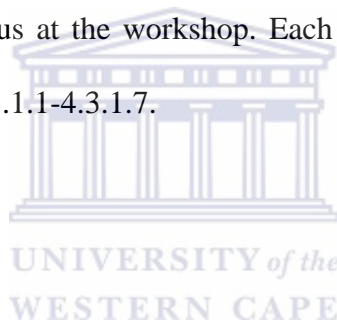
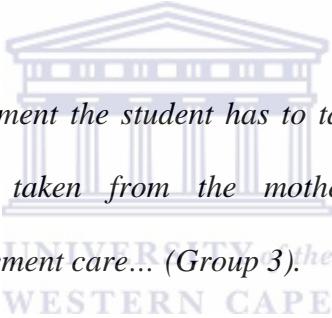


Table 4.13: A summary of clinical competency areas and related activities agreed by consensus at the workshop

Clinical competency	Some related activities
Assessment and management of a neonate	<ul style="list-style-type: none"> • Taking comprehensive history of the neonate • Conduct comprehensive head to toe examination including respirations, heart rate and temperature • Identify needs and problems of the neonate, develop a plan of care and intervene according to findings • Drug calculation and administration
Communication	<ul style="list-style-type: none"> • Build a rapport with the client/patient; the mother • Use of proper tone, clear language, eye contact, listening skills • Explain procedure and obtain consent • Document interventions
Critical thinking	<ul style="list-style-type: none"> • Make decisions based on assessment findings • Interpret neonates' cues (verbal or non-verbal) • Refer appropriately • Advocacy for the welfare of the patient
Teaching	<ul style="list-style-type: none"> • Identify health education needs of clients i.e. KMC, PMTCT, cord care, bonding, and educate the mother • Evaluate if the objectives have been achieved
Ethical and professional practice	<ul style="list-style-type: none"> • Work within the scope of practice • Work with teams from other disciplines • Accountability and responsibility • Being non-judgemental
Management	<ul style="list-style-type: none"> • Organisation of health centre • Task allocation
Personal and professional development	<ul style="list-style-type: none"> • Updated to current trends in practice • Source learning materials • Apply knowledge from other courses

4.3.1.1 Assessment and management of a neonate

The workshop participants agreed that assessment and management of a neonate is one of the core competencies expected of the NMTs in neonatal nursing practice. Some participants referred to this competency as assessment and intervention as presented in the COPA model. However, the activities and behaviours required to be performed by the NMT under this competency were similar among all the discussion groups. These included history taking, physical examination, identification of the neonates' needs and problems, and care planning and intervention based on the identified health needs and problems (table 4.9). This was revealed in the following contribution:



On intervention and assessment the student has to take a comprehensive history of the neonate, which will be taken from the mother or admission form...physical assessment...plan and implement care... (Group 3).

While the other groups specified the activities to be included under this core competency as follows:

On assessment, the NMT should perform the initial and subsequent assessment of a newborn baby...rapid assessment of danger signs...conduct a head-to-toe examination...drug calculation and administration (Group 1).

However, no group presented gestational age assessment, immediate and subsequent care of a health newborn baby, which were some of the procedures and skills reported in the phase one study findings. When the researcher mentioned these skills and procedures to the participants, it was agreed by all groups that these should be included under this competency area. The

participants observed that these activities should be clearly presented in the assessment tool to guide the NMT in neonatal nursing practice as well as for the clinical teachers' assessment of the NMTs' achievement of competence.

Unlike in the phase one findings, some of the workshop participants mentioned documentation as part of the assessment and management competency. However, this ignited a long debate among the participants on whether to consider documentation as a skill to be performed in the competency area of communication or assessment and management. Some participants felt that one of the reasons for documenting patient care was to communicate with other healthcare providers for continuity purposes. As such, it was agreed that documentation of patient care should be performed and assessed in the competency area of communication.

4.3.1.2 Communication

Communication was another core clinical competency expected of the NMTs in neonatal nursing practice. Similar to the findings in phase one, the workshop participants observed that communication is a core element in establishing a trusting nurse-patient relationship. This was demonstrated in group one's presentation: "Communication, the NMT needs to build rapport with the patient and the mother for effective care". As such the participants observed that the NMT should demonstrate the ability to build a rapport through both verbal and non-verbal cues including the demeanor and tone of voice. Other groups concurred with group one's contributions and added that the NMT should "interpret the neonate's communication cues" for appropriate nursing interventions.

4.3.1.3 Critical thinking

Critical thinking is one of the core competencies identified in the NMT curriculum and programme objectives. During the consensus workshop, the participants felt that critical thinking was an important element for the provision of quality neonatal care services. The participants observed that the NMT training programme objectives highlight decision making and appropriate judgement as some of the skills required of the NMT to provide quality patient care. As such, the NMT should be assessed on the acquisition of critical thinking skills during neonatal nursing practice. This was demonstrated in one of the group presentations: “The NMT needs to have critical thinking, that is, make decisions based on assessment findings...” While another group said that: “...assertiveness...and ability to refer sick neonates should also be one of the elements”. Following some discussions on this competency area, the participants agreed that critical thinking standards and behaviours in neonatal nursing practice should include clinical judgement based on the interpretation of assessment findings, and discharging appropriate nursing interventions and/or referral of a sick neonate based on the NMTs’ scope of practice.

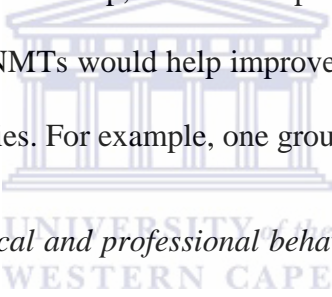
4.3.1.4 Teaching

The workshop participants observed that one of the core clinical competency areas for the NMTs should be patient teaching which should be relevant to the needs of the neonate and the family. The participants felt that the NMTs require knowledge and skills in patient education to ensure sustainability of quality health. As such, the NMTs should identify the needs of the neonate and the family and provide relevant health education to promote quality health and development as well as prevent complications. This was reported as follows in group one presentation: “The

NMT should identify the client's health education needs...identify the needs and provide health education to the mother". Some of the areas deemed important for health education as listed by the participants included Kangaroo mother care, maternal-neonatal bonding, cord care, neonatal safety and infection prevention, exclusive breast feeding and breast attachment and positioning (table 4.19).

4.3.1.5 Ethical and professional practice

The workshop participants observed that the NMTs need a competency in ethical and professional practice to enable them to acquire and appreciate the values of the nursing and midwifery professions. During the workshop, most of the participants believed that teaching and assessing this competency among NMTs would help improve the practitioners' attitudes towards the care of neonates and their families. For example, one group presented that:



...assessing the NMT's ethical and professional behaviour will enhance the development of positive attitudes towards the care of neonates...for example, if a mother comes to the ward with a neonate who was delivered at home, the NMT will be able to help this neonate without shouting at the mother (Group 2).

In agreement with this group's observation, the participants highlighted that the NMT's behaviour and standard of practice in this competency area should include recognition of cultural practices related to neonatal care, recognition and understanding of the scope of practice for NMTs, teamwork to enable the provision of quality neonatal care services, recognition of risks or harmful practices towards the neonates and taking action to prevent such occurrences as well as maintaining confidentiality and seeking consent for provision of care to the neonates (table 4.19).

The participants also observed that the NMT should take responsibility and be accountable for their decisions and actions taken in the provision of neonatal care services.

4.3.1.6 Management

The participants noted that the NMTs assume a managerial role at the primary healthcare facilities. As such, group three participants suggested that: “Management should be one of the competencies...because they are supposed to manage the health centre”. This was to equip the NMT with knowledge and skills that would enable them to make decisions in the management and referral of sick neonates, from the primary healthcare facilities to secondary or tertiary hospitals. In agreement with this, the participants highlighted that the NMT should collaborate with other members of the healthcare team. In addition, other participants observed that the NMTs should identify appropriate resources to enable them to provide quality neonatal care. Furthermore, the participants agreed that the NMT should recognise their limitations in practice and seek assistance where appropriate to ensure quality neonatal care services.

4.3.1.7 Personal and professional development

Under this competency, the participants observed that the NMT should be able to seek relevant knowledge and skills learnt in other disciplines and integrate these into neonatal nursing practice for quality care. Furthermore, some participants observed that the NMTs should demonstrate responsibility for their own learning by playing an active role in identifying their own learning needs and seek assistance where appropriate. This was demonstrated in the following statement from a group three presenter: “...the NMT should take responsibility for his/her own learning...should identify own learning needs and ask for assistance where necessary...to keep updated with the current trends in practice”. The participants also believed that including

professional development as a competency area would help the NMT to understand the concept of Continuous Professional Development (CPD) in future, thereby promoting lifelong learning and career development in neonatal nursing practice.

4.3.2 How would these competencies be assessed in the clinical area?

4.3.2.1 The assessment approach

Following the identification of the clinical competency areas, some of the participants suggested that the assessment of clinical competence in neonatal nursing should be done through direct observation of the NMT's performance. The participants observed that the clinical teacher or mentor can best assess the NMT by directly observing the performance while working with the student. This was demonstrated in the following statement by one of the presenters: "...the clinical teacher should observe the student during practice or performance of a procedure...and document how the student had performed before giving a grade". This would promote the integrity of the assessment outcomes. The participants observed that in most cases students were left unsupervised by clinical teachers yet they come at the end of the placements to assess the students: "...the tutors just come for assessments ...they are not there to assist the student, they need to observe students first..." The participants felt that this was not fair for the students. As such, the participants agreed that clinical teachers should directly observe the student during performance of the skill and provide evidence to support the student's performance outcome. In addition, the participants agreed that the students should be encouraged to conduct a self-assessment and provide evidence of his/her own performance of a skill: "...but then the student should also be encouraged to do self-assessment... it helps". The participants felt that using these approaches would promote the objectivity of assessments in neonatal nursing.

4.3.2.3 The competency-based assessment tool

Some of the consensus workshop participants suggested that during direct observation of the student's performance, a skills checklist should be used for assessment. These participants proposed that using the checklist, the assessor would be expected to indicate whether the student performed the skill or not by checking 'done' or 'not done' as indicated in this statement: "There will be terms, like done or not done, you can assign done and indicate to say what does 'done' mean". However, this received mixed reactions from other participants who observed that it would make no difference by having the current checklists (presented in sections 4.2.1.3.2.1 and 4.2.2.2). In addition, it was argued that the use of 'done' or 'not done' to indicate the students' clinical performance was confusing and left room for subjectivity. As such, this group of participants suggested that a competency-based assessment tool that incorporates the competency standards in a rating scale should be used to indicate the students' level of clinical performance during an assessment.

...a competency-based tool is better, but then the competencies should be presented in a rating scale, we should use a rating scale...you can assign and demarcate the numbers to say...if a student is given a score of 1, which is a novice, the student is not completely blank...(Group 3)

Following a prolonged debate, the participants agreed that a competency-based assessment tool, which will include a rating scale, would be ideal for assessing clinical competence among the NMTs. The participants emphasised that all the competency areas (presented in section 4.3.1) should be included in the assessment tool. In addition, the participants recommended that competency standards should be established to guide the assessors in terms of what to observe in

the student. This was evidenced in the following contribution: "...on the competency areas...the tool should also specify the practice standards, skills, to guide the assessor, and the student as well...some of the tools now, they don't have these things (participant, group 3). The participants agreed that the competency standards should be presented on the rating scale of 1-4. This was demonstrated in the following statement from a participant, who referred to the standards as learning outcomes: "In this case we have to use the rating scale of 1-4...based on the novice model...the learning outcomes should be specified on the rating scale to guide the assessment" (Group 2). In view of this, eight competency standards (Box 4.1) were identified one on each competency area except for the competency area on 'assessment and management of a neonate' which had two competency standards. For this competency area, one competency standard was identified on assessment of the neonate (competency standard 1) and another on management of a neonate (competency standard 2). This was done to ensure that all the aspects of the student's performance expected under this competency area were captured. Furthermore, for each competency standard, specific behaviours or related activities (table 4.19) were presented on the rating scale 1-4. The rating scale of 1-4 was opted for based on the first four stages of the skills acquisition model namely; novice, advanced beginner, competent and proficient which guided the development of the competency-based assessment tool. Thus, instead of using other qualitative descriptors, satisfactory or unsatisfactory, the participants recommended that these four stages would be used to interpret the student's level of clinical performance during the assessment. For example, if a student is assigned a score of one on the rating scale, it will indicate novice in the skills acquisition stages and so forth.

Box 4.1: Competency standards agreed by consensus

1. Carries out a comprehensive and accurate assessment of a newborn baby and the family that will lead to quality neonatal health and development
2. Demonstrates knowledge and skills when assisting with nursing interventions contributing to quality neonatal health and development
3. Ensures effective communication throughout the provision of neonatal nursing care
4. Demonstrates critical thinking when carrying out the basic neonatal care and delegated activities
5. Provides accurate and relevant health education to the individual or a group to maintain and promote neonatal health and development
6. Demonstrates understanding of the professional, legal and ethical standards of nursing and midwifery practice
7. Participates in management activities to promote quality neonatal healthcare services within the primary healthcare setting
8. Participates in activities contributing to personal and professional development to improve own knowledge and skills in neonatal nursing

4.3.2.4 The assessment criteria

The participants agreed that a criterion-referenced assessment should be used to grade the NMT's performance outcome or clinical competence. To this effect, the participants proposed that the tool should define the attributes to be demonstrated by the NMT during practice, to aid the clinical teacher's interpretation of the performance based on the four stages of skills acquisition. This was presented in the following statement: "the tool should include an interpretation of the student's performance, using the four stages..." The participants also emphasised that during practice in neonatal and/or postnatal clinical settings, the clinical teachers or mentors should provide evidence to justify the student's level of performance on the rating scale. This was presented in the following contribution:

...the assessor should provide evidence of the student's performance...the tool should capture all this information...rating the student's performance with evidence for easy interpretation. Because sometimes you wonder how a student's score was arrived at (Group 3).

In view of this, attributes were pre-defined in a rubric (table 4.14) on the rating scale of 1-4. The attributes defined the student's expected performance focusing on knowledge, standard of work, autonomy and attitude and perception of the context. The participants agreed that, following the observation of the students' performance, the assessor should rate the performance by checking in the appropriate box against the observed behaviour or demonstrated learning outcome on the rating scale. The clinical teacher should then interpret the student's performance score by using the rubric to determine the student's level of clinical competence depending on the student's demonstrated attributes.

In addition, the participants agreed that upon completion of the clinical placement, the student would be assigned a final performance grade as either 'clinical competence achieved' if the average score is either three or four, or 'clinical competence not achieved' if the average score is either one or two, under a particular competency area. This was presented in the following statement from one of the participants: "...the interpretation of the student's performance should use the four stages yes...but then the final classification of the performance would be indicated as achieved or not achieved". The participants agreed that if a student does not demonstrate the required standard of performance for a particular competency, he/she should be assisted to achieve the clinical competency during another allocation before the end of the training. This would ensure that students acquire the required clinical competence in preparation for entry level practice in neonatal nursing.



Table 4.14: The criterion-referenced rubric for NMTs' neonatal nursing practice (Modified from Lester, 2005)

	Knowledge	Standard of work	Autonomy	Attitude and perception of context
1. Novice	Has some theoretical knowledge of basic neonatal nursing concepts but fails to relate it to practice	Unable to select and perform any neonatal nursing skill, attempts to perform simple skills under supervision, though unsafe and takes more time to accomplish the skill	Does not feel responsible for any action. Needs instruction and assistance in both identification of neonatal health problems/needs and interventions. Follows rules to perform an action	Has fragmented ideas and unable to act in any situation. Has difficulty in interacting with neonate and family members, seems uninterested and confused. Gives contradictory explanations to family members and is not sensitive to the needs of the neonate. Unable to see the need for self-improvement.
2. Beginner	Has some knowledge of neonatal nursing basic concepts and tries to relate these to important aspects of practice	Is uncertain and ineffective in carrying out neonatal nursing actions but may perform simple and straight forward skills, and can practise safely only under supervision	Follows rules to perform an action. Able to achieve some steps using own judgment but performs better under close supervision	Perceives actions as a series of activities. May understand the neonatal health problems/needs in a situation but only achieves part of the actions. Makes effort to interact with neonate and family, but seems not sure what information is required. Is self-protective.

	Knowledge	Standard of work	Autonomy	Attitude and perception of context
3. Competent	Has good knowledge of neonatal nursing concepts and applies these in practice	Performs some basic neonatal nursing skills safely. Supervision is needed to improve speed and accuracy	Feels responsible for some actions. Able to achieve most of the basic tasks using own judgement.	Able to foresee the outcome of an action. Effective in establishing rapport. Active in seeking information. Recognises own limitations and seeks assistance. Some confidence and calm when handling patients. Stressed in complex situations.
4. Proficiency	Has good knowledge and understanding of the neonatal nursing concepts, applies these in practice. May use memorised principles to solve a problem.	Performs most basic neonatal nursing skills safely based on routine. Is accurate though supervision is needed to help the student to refine own performance of a skill.	Feels responsible for own work. Makes own decision to perform some basic skills.	Is confident and views a situation in its complexity, involves others for assistance. Communicates effectively with patient and family, and gives reassurance. Recognises own limitations and seeks assistance. Adequately handles feedback and is willing to improve own behaviour.

4.3.2.5 Learning approaches to be integrated in the tool

The participants observed that the assessment tool should include specific learning/teaching approaches that would enable the NMT to perform self-assessment and promote self-directed learning which included a learning contract, reflection, and demonstration and return demonstration. This was suggested considering that clinical teaching in neonatal nursing was not emphasised for the NMTs. As such, some of the participants perceived that integrating some clinical teaching strategies into the assessment tool would enhance responsibility and accountability among the clinical teachers and students in the clinical setting, thereby improving clinical competence. The participants believed that, with this integration, clinical teachers would not be allowed to assess the NMT in neonatal nursing practice unless there was evidence that the student was supported and coached during the learning experience by the assessing clinical teacher or mentor. This was revealed in the following statement:

We want evidence...most of the times tutors go there for assessment only...the student should be assisted to acquire these competencies...the tool should include these strategies (Group 3).

The suggested learning contracts have been presented in the following sections.

4.3.2.5.1 Learning contract

The participants observed that despite the fact that the students have been encouraged to develop their own clinical learning objectives from the list of objectives provided, this was not seen as a learning contract. Some of the participants believed that the use of learning contracts should be formal:

...they must be strengthened...what happens is, we just give them the objectives, it's not formalised so that's why it causes problems, its high level learning sort of but we can do it at that level...formalise...the student will know that I will be supervised...it can also improve accountability on the part of the lecturer and the student (Participant, group 3).

According to the participants, the learning contract would be used as a guide of what the student or clinical teacher is expected to do to enhance the acquisition of skills. However, some participants demonstrated fear that integrating a contract in the assessment tool would not be appropriate for this cadre of training as the concept seemed to imply a high degree of performance. This was revealed in the following contribution from one participant:

People need to understand what are these learning contracts, the teacher and the students agree whatever needs to be done, you document those things and then you are also supposed to sign, because it is a contract...which means a learning contract may not be applicable to an NMT, it's a bit deeper (Participant, group 2).

Following a prolonged debate on the issue, the workshop participants observed that in one way or another clinical teachers and students are involved in an informal learning contract, with clinical teaching, supervision and assessments as part of the informal contract. As such, there is need to strengthen this contract with some modifications to minimise the current challenges faced in the clinical setting. This was revealed in the following contribution from a group one participant:

...like the current situation ... we have so many challenges ... the learning contract is left at the level of the laissez-faire...the problems may not be solved... I would recommend

that we need to qualify the type of learning contract that we are using based on the level of the NMTs, otherwise the learning contract is not something deeper but something that is very formal... so we can modify the learning contract in terms of responsibilities for this NMT (Participant, group 2).

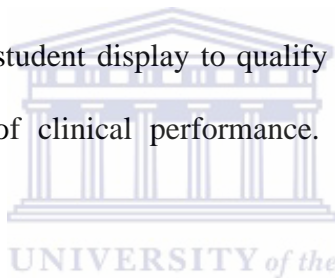
As such, the participants resolved that a modified version of the learning contract, stipulating the roles of both the student and the clinical teacher, should be integrated in the assessment tool to enhance accountability and responsibility in clinical teaching and learning experience. This would also promote self-assessment and reflection among the students, thereby promoting lifelong learning. To this extent, the participants identified and agreed on the roles and responsibilities of both students and clinical teachers presented in boxes 4.2 and 4.3 respectively.

4.3.2.5.2 Reflection

Another approach considered by the workshop participants for integration in the clinical competency-based assessment tool was reflection. Some of the participants observed that nursing and midwifery practice requires that the practitioners reflect on their behaviour and actions regardless of the level of training to ensure quality patient care. This was evidenced in this contribution from one of the participants: “We should include reflection because nowadays they are encouraging reflective practice..., and reflection has always been there in nursing”. However, as with the learning contract, some participants viewed reflection as an approach that is suitable for registered nurse training programmes. On the other hand, some participants observed that reflection has been informally used for the training and assessment of NMTs as indicated in this statement:

But sometimes in the wards we meet some conditions which are critical, but are not common, so sometimes the students are asked to reflect on the care...they are involved in reflection...I think even the NMTs should be encouraged to reflect on their actions during practice...like a self-evaluation (Participant, group 1).

In view of this, the participants agreed that the assessment tool should include simple reflective questions, ‘what have I learnt about this competency?’ ‘What should I improve on?’ This will encourage the NMT to reflect on his/her actions and to assess their own performance as well as measure whether he/she has achieved what was intended during the learning process. Similarly, the clinical teacher or mentor should reflect on the student’s performance by responding to the question; ‘what attributes did the student display to qualify for the assigned score?’ to provide evidence of the students’ level of clinical performance. This was evidenced in what one participant said:



Even the assessors, a simple reflective question should be included...to provide evidence on the student’s performance. Because most of the time, the student just gets percentages, like 70%, without any comments to justify the 70 percent (Participant, group 3).

The participants felt that this would also assist the clinical teachers to identify areas requiring further coaching and support to assist the NMT to achieve the required clinical competence in neonatal nursing practice.

4.3.2.5.3 Demonstration and return demonstration

The participants also agreed that the tool should outline the skills requiring demonstration to the NMT prior to clinical placements in neonatal nursing. This was suggested following the

observation that students fail to perform some procedures because they are not given a demonstration on how to do it. As such, evidence that the NMT has pre-requisite knowledge and skills in neonatal nursing, when entering the clinical placement area, was needed as reported in this statement:

You know, sometimes students fail to perform a skill in the clinical area, when you ask they will tell you that they did not learn or it was not demonstrated to them...evidence is needed...whether the student was given a demonstration, that's what we want...it has to be signed if the student was given a demonstration of the skill (Participant, group 2).

In view of this, a list of skills was identified as presented in table 4.15. However, the participants emphasised that other learning approaches would also be used to assist the NMT in acquiring clinical competence apart from the ones included in the tool, depending on the identified needs. Nevertheless, the approaches suggested for integration in the assessment tool were favoured in order to provide evidence that the student was coached and supported during the clinical learning experience prior to clinical assessments.

Table 4.15: Skills to be demonstrated to NMT prior to clinical placement

Skills/procedure	Demonstrated	Date	Signature	
			Student	Clinical teacher
Examination of a newborn baby				
Gestational age assessment				
Resuscitation				
Bathing a newborn baby				
Cord care				
Breast attachment and positioning				
Kangaroo mother care positions				
Insertion of nasogastric tube				
Nasogastric tube feeding				
Oxygen administration				

Box 4.2: Roles and responsibilities of the student agreed by consensus

During clinical practice the student will keep custody of the tool. The student is expected to:

1. Provide the required personal information by filling in the information as indicated on the cover page of the assessment tool
2. Understand the clinical placement requirements prior to clinical allocations and practice
3. Plan for his/her learning experience in the neonatal clinical placement in conjunction with the clinical teacher at the training institution, and the mentor in the clinical setting
4. Make sure that he/she was demonstrated the required skills in neonatal nursing and signed for it prior to clinical placement
5. Make sure that she/he is oriented to the clinical setting before engaging in learning and clinical activities, preferably on the first day of clinical placement
6. Perform a self-assessment to identify his/her strengths and learning needs and seek assistance from the clinical teachers or mentors where appropriate
7. Make sure the competency areas are signed for by the clinical teacher or mentor who observed the performance, immediately after performance
8. Make sure the reflective questions are answered before having the competency signed for by the mentor or clinical teacher
9. Make sure she/he had at least one formative assessment and received feedback from the clinical teacher/mentor prior to a summative assessment
10. Make sure she/he counter signs in all areas requiring signatures in this assessment tool
11. Submit the completed assessment tool to the clinical teacher upon completion of the clinical placement.

Box 4.3: Roles and responsibilities of the clinical teacher agreed by consensus

The clinical teacher/mentor should:

1. Demonstrate the required skills (as presented in section 6.3.2.8) to the student in the skills laboratory to prepare the student for the clinical placement. The student will be given a chance to do a return demonstration for each clinical skill
2. Ensure that all the demonstrated skills have been checked by the student immediately following the demonstration and that the date has also been indicated
3. Provide adequate information regarding the clinical placement area and the required objectives prior to the clinical placement, including how to use the assessment tool. Students should be provided with the required resources to aid the achievement of clinical competence in neonatal nursing
4. Orient the student to the clinical placement on the first day of placement for familiarisation
5. Re-demonstrate the skills to the student in the clinical setting where necessary
6. Support, guide and coach the student throughout the clinical placement
7. Conduct at least one formative assessment of the student prior to a summative evaluation and write a report on the student's performance; strengths and challenges as well as strategies needed to assist the student improve on his/her clinical performance. This should be done by completing the formative assessment performance report form provided in the assessment tool
8. Ensure that only that performance of the student which was observed should be signed for on the clinical assessment tool

9. Provide feedback to the student on his/her performance following each encounter to enhance skills acquisition and performance improvement
10. Document the observed student behaviours that provide evidence of the level of clinical competence under each competency area
11. Provide a final assessment report for students' overall clinical performance at the end of the clinical placement by completing the summative assessment performance report form in the assessment tool. All assessments should be done in conjunction with the clinical placement staff who had been working with and assisting the student.

4.3.3 Who would be involved in assessing the NMTs' clinical competence?

The workshop participants observed that during the clinical placements the NMTs spend most of their time with the clinical staff. For purposes of objectivity, the participants agreed that clinical assessments should be performed by those clinical teachers and mentors who have been observing and assisting the students during the clinical learning experience as well as the student him/herself. This was demonstrated in the following contribution:

...the tutors should be present to assess the students, those who have been involved in teaching the student...but also the mentors and the student him/herself should be involved in the assessment (Group 1).

Thus, the participants advocated for a collaborative approach to the assessment of clinical competence to ensure that all the domains of clinical practice are assessed objectively.

4.3.4 Where will the assessments for clinical competence be conducted?

Considering that most of the clinical practice and learning take place in the ideal clinical environment, the participants agreed that the assessment of clinical competence should be done in the clinical setting. This was to ensure that the student is assessed in a familiar environment, thereby minimising stress that could arise as a result of a manipulated assessment environment.

This was evidenced in the following contribution:

Clinical assessments should be performed in the wards, the clinical setting, observing the student during practice...if the assessment is done outside the clinical environment...a lot of manipulations are made...not good for the student (Participant, group 3).

However, some participants observed that if the assessment is being conducted outside the ideal clinical setting, the skills laboratory for example, the setting should be made to be less stressful to the student: "...if the assessment is in the skills laboratory, like OSCE, then the environment should be conducive for the students..." The participants agreed that assessment of the achievement of clinical competence for the NMTs should be done in the clinical settings during the clinical practice as well as in the clinical skills laboratory if a particular skill needs to be verified.

4.3.5 When will the assessment be conducted?

The participants observed that students' learning and acquisition of skills is ongoing, requiring coaching and support from mentors and clinical teachers in the process, to improve performance. This was noted in the following contribution from one of the participants: "...student clinical learning is continuous...the tutors should be present to support the students...to teach and assess

the skills”. It was also noted that assessment of clinical competence goes hand-in-hand with clinical teaching for it to yield positive results. As such, the participants observed that the assessment of clinical competence among NMTs should be conducted throughout the learning experience. This was presented in the following statement:

...the student should be assessed before going to the clinical areas during the clinical practice...and at the end of the clinical placement...because we cannot separate the two, clinical teaching and assessment (Group 3).

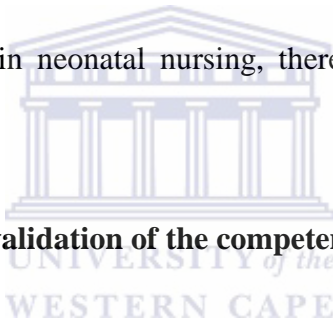
To this effect, the participants agreed that both formative and summative assessments should be conducted to ensure objectivity.

4.3.5.1 Formative assessment

The participants agreed that a series of clinical assessments should be done prior to the final assessment to ensure objectivity. The participants observed that this approach would help the students to identify areas requiring further support through feedback and self-assessment. This was revealed in a statement by one participant that: “...objectivity can be achieved through a series of assessment and not just one assessment...tutors should be present to monitor the transition, from the beginner to proficient...” In this regard, the participants agreed that the formative assessment should be performed subsequently with clinical teaching, and the observation of the student’s performance should be clearly documented by completing a formative assessment form in the assessment tool.

4.3.5.2 Summative assessment

The participants also observed that apart from the formative assessment of the student's performance, an assessment should also be conducted at the end of the clinical placement. This was presented in the following statement: "...at the end of the clinical placement...especially summative, if the student is assessed as a summative... for the final clinical grade". During this assessment the clinical teachers will validate the students' achievement of clinical competence to contribute to the final clinical grade, by evaluation the student's overall performance for competency standards and completing a summative assessment form. The participants felt that the summative assessment will provide information on the student's overall performance and clinical competence achievement in neonatal nursing, thereby ensuring quality neonatal care services upon entry into practice.



4.4 Stakeholders review and validation of the competency-based assessment tool

Following the consensus workshop, the researcher designed the clinical competency-based assessment tool (Appendix 12) incorporating all the contributions and suggestions. The drafted tool was then sent back to the workshop participants for review and comments based on suitability and applicability for NMT's assessment of clinical competence in neonatal nursing. The participants reviewed the tool focusing on the components and clarity of the content. The researcher used an individual review and consensus agreement form (Appendix 11) which was sent together with the draft clinical competency-based assessment tool, to guide the reviewers in the process. The form comprised of a scale of 1-3; 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement. The participants were expected to choose one option

from these. The form enabled the participants to review each element and statement in the assessment tool, thereby contributing to the final assessment tool.

The results of the participant review and consensus were as follows. Of the 21 participants who received the tool for review, 18 (90%) participants reviewed the tool, 3 (10%) participants did not respond even after the researcher's several attempts of follow up were made. Of those who reviewed the tool 15 (83%) participants agreed to all the statements and elements of the assessment tool, while one (5%) participant made some additions on the skills requiring demonstration to the NMT prior to clinical allocation as well as personal information. On the other hand, two (11%) participants suggested modification (rephrasing) and/or reallocation of some competency or practice standards statements under assessment and management of a neonate and ethical and professional practice.

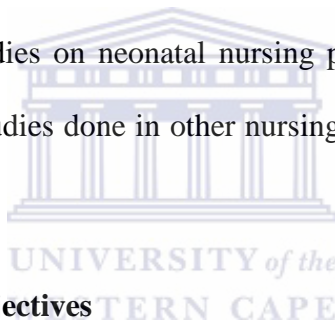
All the suggestions and comments from the reviewers were taken into considerations. For instance, three clinical skills were added for demonstration and duration of clinical experience and name of training institution were added on the student's personal information. In addition, two statements and four other statements were rearranged under competency areas of assessment of a neonate and ethical and professional practice respectively.

CHAPTER FIVE

Discussion

5.1 Introduction

In this chapter, the researcher discusses the study findings in relation to available literature. The discussion focuses on the study findings based on the study objectives. In the chapter, the researcher starts by giving a reflection on the objectives then discusses the major issues that emerged from the study findings. The proposed neonatal nursing clinical competency-based assessment tool and criteria for assessment have also been discussed. However, it should be noted that there is scarcity of studies on neonatal nursing pre-registration clinical competence and as such the researcher used studies done in other nursing fields. The chapter concludes with a summary on the discussion.



5.2 Reflection on research objectives

As presented in chapter one, this study aimed at developing a neonatal nursing care clinical competency-based assessment tool for the nurse-midwife technicians. The study focused on four objectives. In this section, the researcher makes a reflection on whether the research objectives were met or not. In addition, a detailed discussion on the study findings in relation to available literature is presented based on the research objectives. However, as pointed out earlier, there is a dearth of literature on studies done on the cadre of the mid-level nurse/midwife providers and on neonatal nursing clinical competence assessment for pre-registration training. As such, the researcher utilised findings from other researches on competence done in nursing, focusing on

registered nurses or on disciplines other than nursing. In the discussion each objective has been presented and discussed separately.

5.2.1 Objective one: To explore and describe neonatal nursing clinical competencies taught to the NMT in CHAM nursing colleges

The researcher used both qualitative and quantitative approaches to generate data to meet this objective. The findings showed that the NMTs were expected to acquire knowledge and skills in the management of neonates as core competencies for neonatal nursing practice. As such, the NMTs were taught basic nursing skills that would enable them to provide basic care to the neonates and their families. These include resuscitation of the newborn baby, provision of immediate care, initial and subsequent assessment, helping the baby breath, Kangaroo mother care and administration of medication. There is a dearth of literature on studies done to assess the competencies taught to nursing and midwifery students in neonatal nursing during the pre-registration training. Nevertheless, the skills mentioned by the participants in this study were consistent with the document review, reflecting that the NMTs were taught the skills as presented in the curriculum without specifying the clinical competencies expected of them for entry level practice in neonatal nursing. Furthermore, the content taught to the NMTs in this study is consistent with that stipulated by the International Council of Midwives (ICM) (2011:16-17) and WHO (2012:86), required for the training of midwives to enable them to provide essential care to the newborn baby.

Turrill (2014:505) observes that during entry into practice nurses are expected to transfer the generic nursing competences acquired during training without necessarily demonstrating the unique knowledge relevant for neonatal health care. In other words, there are no specific

neonatal nursing competencies identified for the pre-registration training. As such, the nursing students are expected to provide basic nursing care to the neonates based on the basic skills acquired in other clinical courses during the course of training. However, Jones, Rosenberg, Gilhooly and Carraccio (2010:161) argue that clinical competence is not congruent to the attainment of basic nursing skills only. It includes the understanding of knowledge, clinical, technical, and communication skills, and the ability to solve problems through the use of clinical judgment. In nursing practice, clinical competence focuses on the nurse's ability to effectively demonstrate these attributes including personal characteristics, professional attitude, values, knowledge and skills and to fulfill his/her professional responsibility throughout practice (Takase & Teraoka, 2011:398). In this study finding, the participants mentioned the skills and/or procedures that are expected to be performed by the NMT in neonatal care. Similarly, the wording of the clinical competency, as presented in the course outlines, was similar to a skill or a learning outcome. This could be because the participants viewed and equated the competency with the skills needed for the training of NMTs. But, Jones et al. (2011:161) argue that the patient care which students learn in class is not consciously structured around mastery of general competencies in the clinical area. Unless these competencies are specified and clearly linked to clinical care, it is difficult for the students to grasp them.

Furthermore, in this study, emphasis for the NMT's learning and practice in neonatal nursing was on the acquisition of knowledge and skills for the management of neonates leaving out the affective domain, attitude. Hartel and Foegeding (2004:69) suggest that a competency should provide general details of the desired knowledge, skills and attitudes of students. Additionally, Dubois and Rothwell (2004:69) warn that training of health care practitioners may require more

than providing knowledge, building skills and changing attitudes, but rather integrating these for the provision of quality care. As such, the aspect of 'attitudes' in the knowledge, skills and attitudes triad must be specified for successful performance when developing competency areas required for clinical practice. In view of this, Turrill (2014:504) observes that neonatal nursing clinical competencies can follow the generic domains of professional development, research evidence and legal and ethical considerations to ensure quality care.

Taking these into account, this study identified seven clinical competencies through a stakeholders' consensus, to enable the NMTs acquire the required skills for quality neonatal nursing care. These included assessment and management of a neonate, communication, critical thinking, teaching, ethical and professional practice, management and personal and professional development. These competencies are similar to what other researchers have classified as general clinical competencies for entry level practice which include assessment and intervention (Lenburg (1999:par. 9) or patient management (ICM, 2011:16; NMCM, 2010:4; National Association of Neonatal Nurses, 2010:3; Institute of Medicine, 2003:260), communication (Turrill, 2014:505; Zavertrnik et al., 2010:65-71; Suter et al., 2009:41-51; Lenburg, 1999: par 9; Chant et al., 2002:12-21), critical thinking (Fullerton et al., 2011:400; Turner, 2005:276; Lenburg, 1999: par 9; Benner, 1982:36), teaching (Lenburg, 1999: par 9), ethical and professional practice (National Association of Neonatal Nurses, 2010:3; ANMC, 2002:3), management (Lenburg (1999:par. 9) and acquisition and development of knowledge (NMC, 2009:7). All the specific knowledge and skills reported in this study, as being taught to the NMTs, could be aligned to these clinical competencies for attainment and assessment. Upon entry into practice in a neonatal health care setting, the nurse-midwife technicians would be

expected to transfer these clinical competencies to enhance the provision of quality neonatal care.

Though these competencies have been development with a focus on neonatal nursing care, Lenburg (1999: par 9) points out that they can be universally applicable in all settings of practice environment. The key element for the clinical competency is the practitioners' ability to integrate knowledge and skills across these competency areas. Thus, as mid-level practitioners, the NMT monitors the impact of nursing care and maintains ongoing communication with the registered nurse/midwife regarding the health and functional status of the neonate. The NMT is expected to demonstrate critical and reflective thinking skills in contributing to decision making and to report changes in health and functional status, as well as individual patient responses, to health care interventions. To achieve this, the NMT must acquire effective communication skills to enhance the exchange of information contributing to positive neonatal health outcomes.

While some researchers may argue that including such competencies is not mandatory for foundational training and practice 'related to sick or preterm babies' (Turrill, 2014:505), in Malawi, the NMT's scope of practice goes beyond the provision of care to healthy newborn babies. It also includes management of neonates with complications and infection (NMCM, 2010:11) under supervision. In addition, WHO (2012:86) recommends that mid-level nurse-midwife practitioners in low-resource settings require sufficient training to equip them with adequate knowledge and skills for quality neonatal health outcomes. As such, incorporating these clinical competencies for pre-registration training of the NMTs is integral to the survival and long term wellbeing of the newborn baby. Furthermore, the Nursing and Midwifery Council (2010:42) specifies that all nurses and midwives, working with children, must use a range of

skills and technologies to support person-centred care and enhance quality and safety through an understanding of all aspects of development. Since the NMTs are faced with the challenge of working in remote and poor resource settings, adequate and focused initial preparation will enable them to provide safe and effective neonatal care, thereby contributing to sustainable strategies for further reduction of neonatal mortality in the country.

5.2.2 Objective two: To explore how clinical teachers assist the NMT in acquiring competencies in neonatal nursing.

Objective two of the study sought to explore approaches used to facilitate the NMT's achievement of clinical competence in neonatal nursing. As with objective one, both qualitative and quantitative research methods were used to gather data for this objective. The study findings showed that the clinical teachers utilised the skills laboratory and practice based learning to enhance the NMTs acquisition of skills in neonatal care. This approach was used to ensure that the NMTs understood the clinical skills prior to clinical placement and then integrated these skills in the ideal clinical setting. Similar to this finding, Gaberson and Oermann (2010:183) report that a combination of laboratory skills experiences and direct observation of skilled clinicians in actual clinical practice enhances nursing student's acquisition of clinical skills. This is because, through these practice experiences with neonates and interaction with healthcare providers, the students develop their psychomotor skills, learn how to use technology and gain the necessary skills for implementing nursing and other health related interventions. In this study, the NMTs spent a period of 2-3 weeks, in the clinical setting, of hands on practice with the sick neonates and their families as well as interacting with multidisciplinary professionals. This enabled them to enrich their knowledge and development of clinical competence as well as

professional related values. In contrast to this study finding, Turrill (2014:2) report that clinical practice with sick and premature neonates is not a requirement during the pre-registration basic phase. In such cases, the students are expected to apply the competency domains acquired from other clinical nursing experiences to neonatal care, without actual demonstration of the specific skills upon entry into practice. However, Clarke and Davis (2004:23) observe that neonates should not be considered as small adults; hence they need to be cared for by practitioners who have acquired competent skills in neonatal nursing clinical settings. As such, allocating the NMTs' for neonatal nursing experience was an important aspect to enable them acquire the necessary skills for quality neonatal care. Furthermore, the practice-based learning experience prepared the students for their transition from students to qualified practitioners, thereby enabling them to provide quality neonatal services upon entry into practice.

Despite spending time in the clinical practice environment, the study finding showed that there was lack of emphasis on neonatal nursing clinical teaching for the NMTs, with most of the clinical teachers concentrating on maternal health than the neonate. This made the NMTs to perceive neonatal nursing practice as less important and lacked confidence for practice in neonatal nursing settings upon entry into practice. Similar to this finding Löfmark, et al. (2012:168) observe that lack of emphasis in clinical teaching for nursing students affects the fulfillment of learning outcomes. As such, the students feel inadequately prepared to take the responsibility of patient care, thereby compromising quality neonatal services. Being the majority in the healthcare service, the NMTs are entrusted with the responsibility to provide primary health care services in all clinical settings including neonatal care services. As such, they

need to be sufficiently prepared for them to acquire and gain confidence in the skills needed when caring for the children.

Nevertheless, this study finding showed that some of the clinical teachers utilised different approaches to facilitate the NMT's acquisition of clinical competence in both the skills laboratory and practice based learning. These included demonstrations and return demonstrations, learning contract, mentoring and peer teaching, assignments and discussions, case studies, presentations and reflection. These approaches are discussed in detail in the following sections.

5.2.2.1 Demonstrations and return demonstrations

This study finding showed that demonstration and return demonstration were the most reported approaches used to facilitate the NMTs' acquisition of clinical competence in neonatal nursing care settings. During practice, either in skills laboratory or practice based learning, the clinical teachers demonstrated the skills as the students observed before giving each student a chance to do a return demonstration. This was done to help the NMT understand and internalise the skills learnt in class and the actual practice requirements respectively. This study finding is similar to what other researchers have previously reported that demonstration and return demonstration have been used as a strategy for teaching students in clinical practice (Carlson, Wann-Hansson, & Pilhammar, 2009:524; Tveit et al., 2009:21). Using this approach, the clinical teacher demonstrates and explains the skill to a student or a group of students while the students listen and observe. In turn, the student is given a chance to practise the skill as was demonstrated by the clinical teacher. The study finding showed that demonstration and return demonstration were favoured by both clinical teachers and students because they enabled the student to internalise

the skills prior to practising on the neonates. Similarly, Bloomfield, Cornish, Parry, Pegram and Moore (2013:250) report that demonstrations and return demonstrations are favoured by both students and clinical teachers to enhance skills acquisition and consolidation in practice. Furthermore, the students practised and acquired the skills in a less threatening and safer environment (Houghton, Casey, Shaw, & Murphy, 2012:29), in the skills laboratory or in the presence of the clinical teacher, thereby contributing to the development of safe and competent practitioners. Despite this being the most commonly used approach, it is considered as a didactic approach to student learning (Tvet et al., 2009:21) as the students remain passive, waiting for the clinical teachers to initiate the demonstrations. Lisko and O'dell (2010:106) observe that the use of didactic traditional approaches to facilitate students' clinical skills acquisition through demonstrations and return demonstrations does not facilitate critical thinking skills, which is one of the clinical competencies required for the NMT to provide quality patient care. As such Lisko and O'dell (2010) recommend the use of other approaches in conjunction with the didactic approaches to enhance the acquisition of clinical competence.

5.2.2.2 Learning contract

The study findings also showed that the NMT was encouraged to develop his/her own clinical objectives, as a learning contract, for daily practice in neonatal care units or postnatal wards. This worked as a guide for the student to focus on specific areas for the learning experience as well as for the clinical teachers to plan areas for student learning. The use of a learning contract for teaching pre-registration nursing students has also been reported by other researchers (Chien, Chan, & Morrissey, 2002:685; Chan, & Wai-tong, 2000:298). A learning contract is an important approach to enhance self-directed learning among the students. Using this approach, individual

students take the initiative to identify and diagnose their own learning needs with the assistance of a clinical teacher, formulate learning goals, identify human and material resources for learning, choose and implement appropriate learning strategies, and evaluate the learning outcomes (Murad et al., 2010:1058).

However, in this study, the student did not go through the ideal process of developing the learning contract with the clinical teachers. A learning contract is effective when it is formally written and agreed upon by both the student and clinical teacher and where it sets out clearly what will be learned, how the learning will be achieved, and how it will be evaluated (Rye, 2008:1477). In addition, the student establishes the level of support required from the clinical teacher to provide ample time for independent practice. In this study, the student was expected to develop his/her own learning objectives, from the list of clinical objectives provided by the clinical teachers, to guide the student for daily clinical learning experience independent of the clinical teacher, thereby making it an informal strategy. This could be attributed to lack of knowledge and experience in the use of the learning contract by the clinical teachers, hence giving poor orientation to students that equated learning contracts with daily learning objectives. In addition, lack of emphasis on the development of an ideal learning contract for students' learning would have contributed to the students' lack of commitment to neonatal nursing practice, leading to less effort made in this area of practice.

If used appropriately, learning contracts have been reported to improve students' learning experience and acquisition of clinical competence as the clinical teachers focus on individual students' needs (Chan & Wai-tong, 2000:303). In addition, students are motivated to learn and become autonomous for their own learning. Similar benefits from using learning contracts to

enhance students' acquisition of clinical competence have been reported by Rye (2008:1475). According to Rye (2008:1475), in addition to increasing the chances of meeting the student's individual needs and promotion of learner independence, the learning contract also enhances the development of lifelong learning behaviours among students, thereby improving clinical competence. As such, formalising the use of learning contracts would enhance its effectiveness for the facilitation of clinical competence in neonatal nursing among the NMTs.

5.2.2.3 Mentors and peer teaching

The study findings also showed that the use of mentors and peer-teaching was encouraged to facilitate the NMTs' achievement of clinical competence in neonatal nursing. A mentor is a nurse or midwife who facilitates learning, supervises and assesses students in a practice setting (NMC, 2005:17). He/she provides guidance and support to the nursing student in the clinical learning environment. In this study, the students were allocated to a clinical facility where they were expected to be assisted by a clinical mentor in the neonatal care clinical placement. The clinical mentors facilitated the student learning experience through supervision, support and guidance, and participated in student assessments. The use of mentors to assist students' acquisition of clinical competence has also been reported in other studies (Huybrecht et al., 2011:274; Stenfors-Hayes et al., 2010:148). Mentors enhance professional and personal development and improve clinical competence. According to Huybrecht et al., mentors help the nursing student to develop competence, self-confidence, networking as well as socialisation and career opportunities. It is a key strategy for nursing and other healthcare professional education as the learner is attached to professionals in the clinical setting to learn the skills through interaction.

In this study, the student was expected to interact with the mentor throughout the period of clinical experience. However, in some situations, students reported having no formal interaction with the mentor or the mentor was not available to assist the students. In such situations, the students relied on the informal interaction they had with other healthcare team members and peers. Considering the increased student-nurse ratios reported in this study, students' informal interaction with clinical nurses could be a challenge in facilitating the acquisition of clinical competence. Usually, clinical nurses find themselves in a dilemma of providing care to an increased number of patients against teaching the increased number of students. In most cases, patient care is given a priority as a primary role of the mentor rather than student teaching, thereby affecting the student's acquisition of clinical competence.

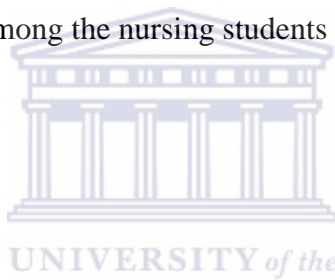
The study findings also showed that, in the absence of mentors or clinical teachers, peer teaching was encouraged to assist the students to acquire clinical competence. Peer teaching was perceived as an important strategy to enhance students' learning experience in a less stressful environment. As such, the students were able to practise the skills comfortably and with confidence. Similar to this finding, the use of peer teaching to facilitate the acquisition of clinical competence among nursing students has been reported in previous studies (Brannagan et al., 2013:1440; Christiansen & Bell, 2010:803; Kurtz, Lemley & Alverson, 2010:38). Using peer teaching reduces students' fears of a clinical environment and feelings of social isolation resulting from lack of self-confidence in performing some clinical skills, thereby maximising learning opportunities. Furthermore, the student values his/her own knowledge when involved in peer-teaching, in so doing enhancing clinical decision skills.

5.2.2.4 Assignments, case studies, discussions and presentations

Apart from the use of peer-teaching, the study findings also showed that assignments and discussions were some of the strategies used to facilitate acquisition of clinical competence among the NMTs. The assignments were in the form of either a case study in which the student was expected to provide care to a neonate or reading a particular skill/procedure. Congruent to this study finding, on the nature of clinical assignments given to the students, is the observation by Gaberson and Oermann (2010:121) that students' assignments can range from directing a student to provide comprehensive patient care or focus on a particular skill as long as it is in line with the expected learning outcomes. Case studies have been reported as one of the effective and interactive teaching strategies that involve the student and provide opportunities for the student to apply knowledge and problem-solving skills as well as evaluate their own learning needs (Lauver et al., 2009:5). In addition, using clinical assignments and case studies for clinical teaching facilitate and promote the development of critical thinking skills among the students (Popil, 2011:204-207). Using these strategies, the students are actively engaged in their own learning and reflect on their performance, thereby promoting the development of problem solving skills. In this study, the use of clinical assignments and case studies enabled the students to apply knowledge to practice as well as develop the required clinical competence for that particular condition or skill, thereby promoting professional values and socialisation to the role of a nurse.

In addition, the student was expected to make a presentation on the care provided to the neonate during post-clinical conference or discuss issues with other students as a group, with the clinical teacher as a facilitator. This enabled the students to share information and develop critical

thinking skills as well as to learn to collaborate with others in a group. During the post-clinical conferences, the students discussed situations and clinical experiences which represented the “real world” practice different from the classroom teaching. Winter and Echeverri (2012:51) point out that encouraging the students to share experiences and clinical situations as a group provide an opportunity to discuss the nursing interventions and level of evidence. Furthermore, students reflect on their own learning experience to identify gaps in their understanding and learn from others in a non-threatening environment. The students interact with each other, critique each other’s ideas, and learn from others (Gaberson & Oermann, 2010:232). Thus post-clinical conferences and discussions are important in order to facilitate the development of clinical competence in different domains among the nursing students as well as promote the development of communication skills.



5.2.2.5 Reflection

The study findings also showed that, in some situations, the clinical teachers encouraged the students to reflect on their clinical experience. The students were asked to reflect on the care provided to the neonates especially when the task involved a rare clinical condition. This helped the student to review his/her own practice experience, identify strengths and challenges faced during the provision of care as well as strategies to improve practice in future if a similar situation was encountered. This matches the results reported by Carlson, Wann-Hansson and Pilhammar (2009:526) that reflection helps the student to gain a deeper understanding of the experienced nursing situation as the student reviews how the day went and how the student felt about it. Similarly, Bulman, Lathlean and Gobbi (2012:e10) view reflection as a process of searching for solutions to practice experience with the aim of improving the practice. With

reflection, the student critically analyses the situation, feelings and knowledge and discusses the future actions with colleagues and mentors. Thus apart from enhancing the practical skills, reflection enables the student to improve critical thinking and collaboration skills thereby improving quality patient care.

In this study finding, clinical teachers used a combination of the strategies to facilitate students' acquisition of clinical competence in neonatal care through students' interaction with patients, peers, clinical teachers and the healthcare team members. The strategies were selected based on individual student's needs and/or the clinical teachers' assessment of the clinical situation. For instance, if the clinical teacher observed that students were unable to perform a particular skill correctly, he/she could withdraw them for a discussion and then re-demonstrate the skill to the students. Similarly, Carlson et al. (2009:524) report that selection of clinical teaching strategies should fit the activity at hand and be adjusted according to the students' prior knowledge or level of skills. In addition, Cant and Cooper (2010:3) observe that effective clinical teaching strategies should focus on enabling students to assimilate clinical knowledge and skills, leading to the development of pre-requisite clinical competence for entry level practice. Furthermore, in the COPA model, Lenburg (1999:par17) advocates for approaches that are interactive in nature and promote critical thinking. This promotes the students' understanding and helps the student to internalise the skills, thereby enhancing achievement of clinical competence.

5.2.3 Objective three: To explore and describe how the NMT's clinical competence in neonatal nursing is assessed.

The clinical assessment of learning among nursing students is a prerequisite in ensuring competent and safe practitioners. Assessment of achievement of clinical competence refers to the

capacity to evaluate evidence, appraise situations and circumstances pertaining to a students' performance spontaneously (Joughin, 2009:3). It also draws valid conclusions about the student's level of performance. Thus, the assessment of clinical competence aims at making a judgement about the achievement and is concerned with the students' performance in relation to the set course of programme objectives or learning outcomes. In this study, the validation of achievement of clinical competence was concerned with the NMTs' performance in neonatal nursing based on the identified clinical competencies. Similar to objectives one and two, the researcher used both qualitative and quantitative research methods to generate data for this objective. The findings showed that there were inadequate assessments done in neonatal nursing clinical practice to validate the NMTs' achievement of clinical competence coupled lack of competency-based assessment tools.

5.2.3.1 Neonatal nursing clinical assessment has been neglected

The study findings showed that there were inadequate assessments done to validate the NMTs' achievement of clinical competence in neonatal nursing practice. Despite acknowledging the importance of assessing clinical competence, some participants perceived that the clinical objectives provided to the NMTs for guiding neonatal nursing practice, with sick and preterm babies, was enough for the students' achievement of clinical competence in the area. As such, there were no measures put in place for the clinical teachers to validate whether the student had achieved the clinical objectives or not. There are no documented studies on pre-registration students' clinical performance assessment in neonatal nursing care as done in other countries. However, Levett-Jones (2007:113) argues that simply undertaking a clinical placement does not

necessarily lead to the nursing students' development of clinical competence since being in a healthcare environment does not guarantee that learning will take place.

The assessment of clinical competence is an important aspect in the students' professional development as it provides the clinical teachers with information about the students' learning and clinical performance over time. Oermann et al. (2009a:274) observe that clinical teachers cannot make good decisions about the students' learning experience and professional development without good information obtained from assessments. Thus, despite reports that clinical learning objectives facilitate the students' acquisition of clinical competence (Rye, 2008:1476; Chan & Wai-tong, 2000:300), clinical teachers should make efforts to gather evidence for the students' level of clinical performance achieved during practice. In this study, lack of emphasis on neonatal nursing clinical assessment increased fears of inadequacy and lack of practical skills among the students. This led to perceived future challenges for neonatal nursing practice. Being the majority of the healthcare providers in the country, the NMTs need to acquire adequate skills to enable them to provide basic neonatal care services confidently.

However, the study findings also showed that, in some institutions, clinical teachers evaluated the NMT's acquisition of some neonatal care skills through the NMCM assessment or midwifery OSCE. These assessments focused on assessing a particular technical skill. In addition, some of the students performed an informal self-assessment to evaluate if they had achieved the learning objectives or not. These approaches have been discussed in the following sections.

5.2.3.1.1 NMCM assessment and OSCE

The study findings showed that some clinical teachers utilised the NMCM assessment of the student's clinical competence in neonatal care. The NMCM assessment, which was similar to OSCE, focused on the students' performance in caring for a healthy newborn baby, with an emphasis on the physical examination and the provision of health education to the mother. The assessment was performed in the clinical setting on a real healthy newborn baby. In addition, the student performance of some procedures, which were deemed critical for the survival of the newborn baby, was assessed during midwifery OSCE at the end of the clinical placement. Such skills included resuscitation and/or helping the baby to breath. Similar to this finding, the use of OSCE to assess students' acquisition of skills in clinical practice has also been widely reported in other studies (Cant, McKenna & Cooper, 2013:164; Hemingway et al., 2013:15; Oranye et al., 2012:233-241; El-Nemer & Kandeel, 2009:1265-127; Jahan et al., 2013:94). In these studies, OSCE was reported to motivate students to learn and was valued as a practically based learning and assessment strategy to assist the students in developing their clinical skills.

However, the findings from this study showed that the use of OSCE and the NMCM assessment was stressful and made the students feel nervous during the assessment. The students became nervous because of the assessment environment as well as the reaction of the assessor when the student performed a skill. This led to student confusion which caused them to forgetting their skill, despite having practised the same skills in the clinical setting. This finding is similar to that reported by other researchers (Muldoon et al., 2014:468; Einion, 2013:896; Rouse, 2010: 27; El-Nemer & Kandeel, 2009:1272; McWilliam & Botwinski, 2012:38) that OSCE generates uncertainty and stress among students. Similarly, Hemingway et al. (2013:15) observe that

OSCE related examination stress could affect students' performance. This is usually because the determination of clinical competence is influenced by a student's level of comfort, confidence, and self-efficacy during the course of assessment (Garside & Nhemachena, 2013:543). As such, assessing a student's performance under stressful conditions leaves room for subjectivity as the student's performance during the assessment may not represent the actual student's performance in the clinical setting.

Furthermore, the assessment of students' performance in this study focused on specific skills and not necessarily the students' overall clinical performance in neonatal nursing practice. In addition, some participants reported that it was difficult to evaluate other domains of clinical performance using OSCE and NMCM assessments because they were not included in the assessment tool, citing attitude as the missing domain. Similar problems with assessment of the affective domain have been reported by Miller (2010:2) who proposes clustering of the domain into areas of presentation, preparedness and interaction to aid clinical teachers in the assessment as well as to assist the students in understanding what is required of them. In addition, Oermann et al. (2009b:353) argue that in clinical assessments, all aspects of the students' performance; cognitive abilities, communication skills, psychomotor and technological competencies, and values and professional behaviour should be addressed during evaluation. As such, different strategies should be applied to ensure that the important aspects of the students' performance are assessed.

The study finding also showed that during OSCE and the NMCM assessment the clinical teachers used observation to evaluate the students' performance. Similarly, Oermann et al. (2009b:354) reported observation of students' performance as the predominantly used strategy to

collect students' evaluation data in nursing practice. This enables the assessors to critically analyse and evaluate the students' behaviour during practice other than evaluating the technical skills performance only.

5.2.3.1.2 Self-assessment

The study findings also showed that some students performed informal self-assessments to evaluate if they had achieved the clinical objectives or not. This was done by reading through the listed clinical objectives to assess which of the objectives was encountered or attempted during the course of practice. This enabled the student to identify his own learning needs and strategies to improve clinical performance. Concurring with this study finding, Kajander-Unkuri et al. (2014:799) and Oermann et al. (2009b:353) report that self-assessments in clinical practice are important for the students' development of clinical competence. However, for self-assessment to be effective, clinical teachers should fully engage and provide guidance to the student (Sargeant et al., 2011:639). In addition, Andrade (2008:60) report that in effective self-assessment the student uses reflective diaries and/or portfolios to help judge his/her own performance and abilities. Using these strategies, the student keeps a record of the performance to assist in the self-assessment. In this study, despite the students' reports that self-assessment worked as a motivation for their learning, the students performed the self-assessment on their own by perusing through the listed clinical objectives without any guidance and support from the mentors or the clinical teachers, making it informal. As such, the students may not have critically assessed their own performance to promote lifelong learning. Levett-Jones (2007:114) views self-assessment as a skill central to professional development as well as a defining attribute of a practitioner as it enhances critical reflection and promotes self-directed learning. According to

Levett-Jones, practitioners have the ability to assess their own competency for practice. As such, students should be given the opportunity to perform a self-assessment of their performance during training to develop and refine this ability. Through self-assessment, the student uses the set clinical objectives to apply to their own practice and is then able to judge the extent to which she/he has met these objectives. One way of facilitating self-assessment is through reflection. Engaging students in reflection requires that the students critically review their own practice with the aim of refining or improving performance (Langley & Brown, 2010:13; Levett-Jones (2007:114). However, in this study finding, self-assessment and reflection were not formally used to facilitate and assess students' achievement of clinical competence in neonatal nursing. If formalised, the approach would enhance the achievement of clinical competence as students would be fully involved in their own learning.

5.2.3.2 Assessment tool: The checklist

The study findings showed that the use of checklists to assess the NMTs' acquisition of some neonatal nursing skills was common. During the clinical placements, the NMT was provided with a checklist comprising of different skills expected of him/her to attain in the clinical area. The student, with assistance from the clinical mentor, was expected to tick or record the skills achieved during the course of clinical practice as evidence of performing the skill. On the other hand, during the OSCE and NMCM assessment, the assessors used checklists to observe if the student had performed the skill or not. These checklists were not similar to those provided to the students. However, all the skills checklists were developed based on the practice guidelines and a manual for basic emergency management of obstetric conditions. This finding corresponds with

Cant et al. (2013:174) who observe that skills checklists used for clinical evaluation are derived from best practices, thereby incorporating clinical skills required for competent practice.

During clinical practice, the assessor(s) or mentors observed the student as she/he performed the skills and recorded the observed behaviour or skill on the predetermined checklists. This information was then used to provide a grade to the student by counting the number of activities or skills performed correctly. The use of skills checklists for assessment of clinical competence have also been reported by other researchers (Cant et al., 2013:164; Taylor et al., 2013:24; Morris et al., 2012:1; Richter et al., 2012:1077). However, Oermann et al. (2009b:353) view the checklists as a tool that closely evaluate some aspects of clinical performance, hence missing out some important areas required for competent practice. As such, using this checklist, the assessment outcome may not necessarily represent the NMT's actual clinical performance in the clinical setting. In addition, the use of checklist has been reported to be unreliable in facilitating student's acquisition of skills and application of critical thinking when performing the procedures (McWilliam & Botwinski, 2012:38; Oranye et al., 2012:240). This has been attributed to the fact that checklists comprise of step-by-step skills on a particular aspect and/or procedure (Fastre et al., 2010:518). The student is expected to follow these skills chronologically during the provision of care to the neonate or when performing the procedure. However, Ashcraft et al. (2013:125) and Fastre et al. (2010:518) argue that this approach to performance assessment forces the student to focus on completion of the task by memorising the skills required for the procedures without applying critical thinking and reasoning, thereby compromising the quality of care. Similar to these observations, the checklists in this study comprised of a step-by-step skills for a specific procedure either on assessment of a health

newborn baby or helping the baby breathe. The student was expected to follow these skills during the assessment, thereby affecting the nature of the students' clinical competence achievement.

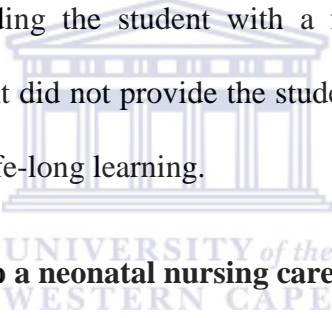
Contrary to the findings reported by Hwang (2013:513) that using checklists to evaluate students' performance proved to be objective for the assessors, in this study, participants reported having problems with the objectivity of the checklists. For example, the checklist was reported to be outdated for current best-practice standards and did not include all the domains required for competent practice, making it a challenge for the assessors to evaluate all the aspects of performance. Furthermore, there was inconsistency in grading clinical performance with no predetermined criteria to define the student's observed level of performance. In addition, the allocation of one point for students' skills performance did not give any meaning about the actual performance of the students, making the interpretation of clinical competence more subjective and inconsistent. Concurring with this finding, Erikson (2011:e1) observes that checklists provide absolute 'yes' or 'no' responses without providing information to aid in making a judgement on the student's quality of performance. Hence, the use of checklists may yield inconsistent and subjective results regarding the student's level of clinical performance because they do not provide evidence on how the student performed the skill or whether the student demonstrated an understanding or proficiency performance of the skill. Furthermore, in this study, some of the checklists provided to the students during clinical practice were meant for recording clinical experience and not necessarily for learning and assessment. As such, the students may not have made efforts to utilise these checklists to improve their own learning and the achievement of clinical competence.

5.2.3.3 Assessment criteria

The study findings showed that there was no defined criterion for assessing student's level of performance in neonatal nursing skills. However, using the NMCM checklist, the student's performance was graded using numeric numbers which were then converted to a qualitative expression; outstanding, satisfactory and unsatisfactory. Using this qualitative information, the student was either assigned a pass and/or fail grade. This finding is congruent with the findings reported by Oermann et al. (2009b:354) and Garside and Nhemachena (2013:543) that nurse educators usually grade students' clinical performance as pass/fail rather than the use of qualitative descriptors. However, Heaslip and Scammell (2012:95) argue that a pass or fail provides limited feedback to the student concerning exactly how well or poorly he/she had performed. According to Heaslip and Scammell (2012:99), using this grading criteria, clinical teachers' give evidence in the form of comments which usually mismatch with the awarded grade, thereby lacking reliability in support of the students' level of performance. It is recommended that students should be given feedback that provides adequate evidence regarding his/her clinical performance to direct and support further development of his/her clinical skills. As such, the grading criteria should include descriptors to guide the assessor as well as the students to monitor progress of their own performance (Heaslip & Scammell, 2012:98; Fitzgerald, Gibson & Gunn, 2010:161). In this study, as previously discussed, there was no evidence to accompany the students' performance and grading criteria, making the assessment results subjective.

Helminen et al. (2014:1174) recommend assessment strategies that enhance students' achievement of their learning goals in clinical education. Concurring with this, Lenburg (1999:

par18) emphasises on objective, summative, and criterion referenced assessment of student's clinical competence, with predetermined criteria, to ensure consistency. As such, clinical teachers must evaluate data from many sources to provide evidence when deciding whether the student has successfully passed the clinical course (Oermann et al., 2009:356). To achieve this, Oermann et al. (2009a:274; 2009b:353) recommend the use of both formative and summative approaches to students' assessment of clinical competence. This acts as a diagnostic measure of students' performance, thereby leaving room for students' improvement and further development of clinical competence in addition to assigning a final clinical performance grade. However, in this study finding, the students' clinical performance assessment was a form of summative evaluation which aimed at providing the student with a final grade for midwifery clinical experience. As such, the assessment did not provide the student with the opportunity to improve clinical competence and promote life-long learning.



5.2.4 Objective four: To develop a neonatal nursing care clinical competency-based assessment tool for NMTs.

Objective four of the study sought to develop a neonatal nursing care clinical competency-based assessment tool to the NMT's clinical competence. The development of the tool was proposed to meet the need for "competency-based assessment tools that provide evidence of the student's performance and progress" (NMCM, 2012:9). To achieve this, the researcher utilised a consensus workshop to design and development the clinical competency-based assessment tool. The tool provides clear guidance and support for students' learning to avoid ambiguity about what is expected of them as well as for the clinical teachers' decision making process regarding the student's clinical performance.

5.2.4.1 Composition of the clinical competency-based assessment tool

An assessment tool contains both the instrument and instructions (guidelines) for gathering and interpreting evidence about a student's performance (DTWD, 2012:15). It specifies the learning outcomes, proficiencies or essential skills clustered for the student (NMC, 2010:4) as well as the criteria for defining the student's level of clinical competence. Similarly, in this study, the neonatal nursing care clinical competency-based assessment tool developed for the NMTs comprises the instrument and guidelines for interpreting the student's level of performance.

5.2.4.1.1. The instrument

The instrument refers to the actual assessment tool that was developed to assess the NMTs' clinical competence in neonatal nursing (Appendix 1). The instrument contains the student's personal information, competency areas and standards and a rating scale.

5.2.4.1.1.1 Personal information

The student's personal information forms the cover page of the assessment tool. The NMT is expected to fill in his/her personal details which include the name of the student, training institution, clinical placement area, clinical mentor/teacher responsible for assisting the student in that particular clinical allocation and the date for starting and completing the clinical allocation. This would be used for identification of the student as well as to provide evidence of the student's completion of clinical placement in neonatal nursing practice.

5.2.4.1.1.2 Competency areas and standards

The competency areas are units of performance which help practitioners to understand how work items and jobs are organised within practice (Institute for Adult Learning, 2013:8). In this assessment tool, the competency areas, also referred to as competencies in the previous chapters, represent the units of performance organised for the NMT's achievement in neonatal nursing practice. These include assessment and management of a neonate, communication, critical thinking, teaching, ethical and professional practice, management and personal and professional development. All the skills required of the NMT's in neonatal nursing practice have been clustered around these competency areas.

For each competency area, a competency standard has been described to guide the practice and assessment of the NMTs. The competency standard is an outcome statement describing the requirements and expectations for effective workplace performance (Adrian, 2005:5). It states performance standards that are validated and endorsed to be the minimum requirements for practice. The competency standard helps the practitioners to understand how well a person must perform in a job (Institute for Adult Learning, 2013:8) by specifying the knowledge, skills, attitudes, values and abilities underpinning the effective performance of the nursing role. In this assessment tool, eight competency standards were identified. Upon completion of clinical placement in neonatal nursing, the NMT's level of clinical competence would be defined against these standards.

5.2.4.1.1.3 *The rating scale*

For each competency standard in the assessment tool, a rating scale is presented to guide both clinical teachers and students for the assessment of specific performance standards. The rating scale comprises of a description of the specific skill or behaviour or performance standards (activity) expected of the student (on the left) and graduated clinical indicators or performance score (on the right) ‘identifying the degree to which an individual has demonstrated the skill or behaviour’ (Tolhurst & Bonner, 2000:24). This would be used to provide a benchmark for the clinical teachers to gather information and make judgements about students’ performance as well as for the students’ self-evaluation of own performance.

5.2.4.1.1.3.1 Activity

In the rating scale, the activity refers to the specific performance standards or indicators of actual practice expected of the NMT in a particular competency area. It is the cluster of abilities, skills or behaviours needed by the NMT to fulfill the expected overall competency standards in neonatal nursing practice; ‘what the student actually needs to be able to do’ (Lenburg, 1999:par.20). During practice in neonatal nursing, the NMTs’ assessment of actual performance will be evaluated against these standards or indicators to determine the achievement of clinical competence. Apart from setting the standards for effective performance, the specific activities will also provide the NMT with information for setting individual learning goals and improving clinical performance through a self-assessment. The NMT is expected to demonstrate minimum proficiency of these specific skills and behaviours to enable him/her to provide basic neonatal care upon entry into practice.

5.2.4.1.1.3.2 Performance score

To help the clinical teachers indicate the degree of behaviour, skill and ability displayed by the NMT during clinical practice, the scale uses numeric numbers 1-4 to quantify the NMT's level of clinical performance. During clinical assessment in neonatal nursing, the clinical teachers are expected to rate the student's level of performance based on these numeric numbers, representing the first four stages of skills acquisition.

5.2.4.1.2 Guidelines for gathering and interpreting evidence for the level of performance

The neonatal nursing care clinical competency-based assessment tool developed in this study aims to improve self-directed learning among the NMTs, in addition to assessing clinical competence. As such, the tool includes a component of instructions to guide both the clinical teachers and students for the effective use and interpretation of the NMT's level of clinical performance. These include the criterion referenced rubric, reflective questions and roles and responsibilities of the clinical teacher and student.

5.2.4.1.2.1 The criterion referenced assessment rubric for NMTs

The clinical competency-based assessment tool incorporates a criterion referenced assessment rubric to guide both the students and clinical teachers in interpreting the level of performance and make judgements. Using this competency-based assessment tool, the NMT's performance will be assessed following a criterion-referenced approach. In criterion-referenced assessment, the student's clinical performance and achievement is validated against the set standards (Connoley, 2004:3; Gonczi, 1999:189) and judgement about the student's quality of performance is made based on a scale with predefined attributes (Bondy, 1983:376). In the assessment tool,

the standards for which the NMT should be assessed are the specific performance standards and behaviours clustered under ‘activity’ for each competency area. Following observation of the students’ performance of the skills, the clinical teacher will rate and interpret the performance using the criterion referenced rubric (table 4.20).

The rubric presents the characteristics or evaluation criteria which define the NMT’s performance or proficiency level of practice. Montgomery (2000:325) describes a rubric as an assessment tool that clearly specifies the evaluation criteria and proficiency levels of the students’ achievement. It provides a description of the attributes that students are expected to do at a specific level of clinical performance, thereby enhancing the objectivity of assessments. The rubric helps clinical teachers and mentors to evaluate the learning process, as well as communicate to students the standards for clinical competence. In addition, the use of rubrics for clinical evaluation have been reported to improve feedback on students’ performance thereby fostering students’ improvement in clinical performance (Isaacson & Stacy, 2009:137). Furthermore, the rubric guides students in performing critical self-reflection and self-assessment, thereby improving their skills in the clinical area. In the assessment tool, the rubric for the interpretation of NMTs’ performance in neonatal nursing defines the attributes on a rating scale of 1-4 representing the first four stages of the skills acquisition model; novice, beginner, competent and proficiency respectively. For each stage of skills acquisition on the rubric, the attributes define the student’s expected performance within the three domains of knowledge, skills and attitudes. For instance, the student would be assessed for the level of knowledge displayed, the standard of work demonstrated, the level of autonomy displayed when performing the actions as well as the attitude and perception of the context within which the action is being

performed. These aspects of performance have been described separately in the following sections.

5.2.4.1.2.1.1 Level of knowledge

The theoretical knowledge that students gain from classroom sessions is a pre-requisite for neonatal nursing practice. As such, the student is expected to apply this knowledge to the provision of neonatal nursing care. The NMT is expected to develop a clear understanding of the basic concepts of neonatal nursing and apply these concepts in practice. However, the understanding and utilisation of this knowledge will differ across the skills acquisition stages. For instance, despite having the pre-requisite knowledge, the novice sees actions in isolation of what was learnt in class while the beginner may find some connections between what was learnt in class and what needs to be done in practice. On the other hand, the competent student develops an understanding of the relationship between the concepts learnt in class and activities that are carried out in the clinical area. The proficient student has a good background and understanding of the neonatal nursing concepts and practice and may use some prior experience to perform tasks.

5.2.4.1.2.1.2 Standard of work

This is concerned with the actual technical performance of the skills by the student. The NMT should be expected to perform basic nursing skills to contribute to the health and wellbeing of the neonate and the family. Safety of the actions performed as well as the ability to select and perform the skills is a pre-requisite for quality neonatal health outcomes. However, the novice may be unable to select and perform the skills but attempts are made when she/he gets

instructions from the clinical teacher or mentor. In such cases supervision is needed throughout the performance for the NMT to complete a simple task. Similarly, the beginner is uncertain about what actions would be performed and performs simple tasks better under supervision. On the other hand, the competent student performs some of the basic skills but requires constant supervision to improve speed and accuracy. The proficient student is able to perform most of the basic skills as a routine but needs supervision for refinement of the performance.

5.2.4.1.2.1.3 Autonomy

This is concerned with the level of independence and responsibility demonstrated by the student during the performance of a skill. A student performing at the novice level does not make his/her own decision to execute an action unless she/he gets instruction and assistance from the clinical teacher or mentor. Likewise, the beginner follows rules to perform an action and does not feel responsible for the outcome of his/her actions. However, the competent student will demonstrate some responsibility and performs some tasks based on his/her own judgement. Similarly, the proficient student takes responsibility and makes some decisions to perform most of the basic skills required for neonatal health within the NMT's scope of practice.

5.2.4.1.2.1.4 Attitude and perception of context

This is concerned with the student's approach and sensitiveness around patient care and interaction. The behaviour and attitude portrayed by nurses and midwives during the provision of care may affect the outcome and quality of neonatal health. In view of this, assessment of attitude and perception of the NMTs during the provision of neonatal nursing care is important to enhance professional development and quality care. Thus, the activities to be assessed under this

element might include students' interpersonal relationships and communication. A student performing at the novice stage has fragmented ideas, is unable to interact with the patient and family members and seems confused and uninterested in performing any task. The beginner may have some ideas of the situation but he/she is not sure what information would be needed, and usually becomes self-defensive because of confusion. On the other hand, the competent student is good at establishing rapport and seeks assistance when needed but becomes easily stressed and confused in complex situations. The proficient student is confident with good interpersonal relationships and seeks assistance wherever she has identified limitations.

Thus, the clinical teachers or mentors would be guided by this rubric to interpret the NMT's performance for each clinical competency area in neonatal nursing. However, neonatal nursing being a course taught in the final year of the NMT's training programme, midwifery part 2 module, the student is expected to apply some basic knowledge and skills obtained during the midwifery part one module to provide care to the neonate and the family. As such, the NMT may not necessarily move from one stage to the other, sequentially, in the process of skills acquisition. For instance, during the neonatal nursing practice, the NMT may demonstrate some skills as either a beginner or novice or competent or proficient depending on the complexity of the skill or previous encounter with a similar situation. Nevertheless, the NMT is expected to demonstrate the minimum level of proficiency in the provision of basic neonatal care services throughout the midwifery and neonatal nursing training programme. It is believed that using this rubric for the competency-based clinical assessments would enhance the objectivity and fairness of clinical assessment outcomes for nurse-midwife technicians.

5.2.4.1.2.2 Reflective questions

Following the rating scale, the assessment tool includes a component of reflection for each competency area to guide the student and clinical teacher provide evidence of the level of clinical performance. For instance, the NMT will be required to provide evidence regarding his/her performance for each competency area by responding to the reflective questions. This will enable the NMT to give evidence of his/her own performance through a self-assessment on the progress towards the targeted performance 'in relation to the established standards and criteria' (McMillan & Hearn, 2008:42). In addition, using this approach, the NMT would be encouraged to identify his/her strengths and challenges faced during practice and strategies for further improvement of own clinical performance.

Similarly, to ensure credibility of the assessment outcome, the clinical teacher who had observed the student performing the skill will be required to provide evidence of the student's level of performance also by responding to reflective questions. This will help them to describe the attributes demonstrated by the student in the course of practice, thereby aiding the interpretation of the level of performance on the scale of 1-4. In addition, the clinical teacher will utilise this information to provide objective feedback to students that clearly relate to the established performance standard and criteria (McMillan & Hearn, 2008:4) as well as help in devising ways to assist the student improve his/her clinical competence where necessary.

5.2.4.1.2.3 Roles and responsibilities

In addition to the rubric and reflective questions, the assessment tool includes the roles and responsibilities expected of both the clinical teachers (Box 4.3) and students (Box 4.2). These

roles and responsibilities define the specific tasks and activities expected of the two parties during clinical practice in neonatal nursing. Upon understanding all the requirements of the clinical teaching and assessments, stipulated in the tool, both the clinical teacher and the student will be required to sign in the provided spaces to show commitment. This would promote accountability in clinical teaching and learning, thereby enhancing the achievement of clinical competence.

5.3 Summary

In this chapter, the researcher has discussed the study findings in relation to available literature on the subject, focusing on the study objectives. It has been noted that there is a dearth of literature on studies done to assess or describe neonatal nursing clinical competencies for pre-registration training. In addition, it has been noted that neonatal nursing practice for pre-registration nursing students is not a requirement for pre-requisite knowledge in other countries. Students are expected to apply knowledge and skills acquired from other areas for entry level practice in neonatal nursing. As such, clinical placement and assessments in neonatal care settings for pre-registration nursing students is not emphasised in the literature. However, in Malawi, neonatal nursing services are provided by nurse-midwife practitioners, most of whom are midlevel practitioners, with knowledge and skills attained during the pre-registration training, hence the need for effective strategies to improve clinical competence for this cadre of healthcare providers.

It has been noted from the literature that clinical assessments are important to provide evidence of the student's performance in the clinical setting as well as aid the identification of effective teaching strategies to improve clinical competence in preparation for entry level practice. As

such, the identification of neonatal nursing clinical competencies as well as emphasis on clinical teaching and assessment of these competencies is an important aspect to ensuring quality neonatal health services. In view of this, the chapter has also discussed the neonatal nursing care clinical competency-based assessment tool that was developed to validate the NMT's achievement of clinical competence.



CHAPTER SIX

Conclusions and Recommendations

6.1 Introduction

In this chapter, the researcher makes a conclusion on the study findings. The researcher also highlights the contributions of the study, focusing on both the theoretical and practical aspects and its implications for future research. The chapter proceeds with some recommendations to improve neonatal nursing education and practice in Malawi.

6.2 Conclusion

The purpose of the study was to develop a neonatal nursing care clinical competency-based assessment tool for Nurse-Midwife Technicians' clinical competence, in CHAM nursing colleges in Malawi. This was proposed in an attempt to promote the acquisition of clinical competence among nursing and midwifery midlevel practitioners for entry level practice. In view of this, the researcher reviewed literature on competence and assessment of clinical competence in nursing and midwifery practice, to get an in-depth understanding of the topic and to identify gaps existing in clinical competency-based assessments. The literature revealed that there is no consensus on the definition and assessment of clinical competence. However, in nursing practice, clinical competence has been viewed as holistic involving the cognitive, affective and psychomotor skills (Gillespie et al., 2012:90). The nurse and/or midwife practitioner must demonstrate attributes within these domains such as personal characteristics, professional attitude, values, knowledge and skills (Takase & Teraoka, 2011:398) to be deemed competent.

In addition, the theoretical concept surrounding clinical competence and assessment was reviewed. It was noted that improvement of clinical competence does not only involve assessment, but rather a number of concepts that include competency-based, practice-oriented methods and outcomes that promote both effective and efficient learning and assessment of the competencies. As such the COPA model (Lenburg, 1999:par.1-21) and skills acquisition model (Dreyfus & Dreyfus, 1980:1-18) were used to form the foundation for the study and the establishment of criteria for the assessment of clinical competence respectively.

Utilising a design and development model, the researcher involved midwifery clinical teachers and third year students from CHAM nursing colleges in Malawi and a consensus workshop to collect data. In addition, the researcher reviewed the learning and assessment tools used in neonatal nursing practice for this cadre of nursing/midwifery students. The study finding showed that the NMTs were taught basic nursing skills that would help them to provide basic care to health newborn babies. However, there were inadequate clinical teaching and assessments done to facilitate and assess the NMT's achievement of these skills respectively. The clinical teachers used skills checklists to evaluate specific nursing procedures. This could be attributed to the complexity surrounding the definition and description of competence in the literature that led to 'nurse educators developing tools that closely measure clinical competence' (Nicholson et al., 2013:1089). If neonatal health services are to be improved to maintain and reduce neonatal mortality rates further in Malawi, pre-registration training should emphasise clinical teaching and assessment in this field to impart the midlevel practitioners with adequate skills for entry level practice. As such, the researcher developed a neonatal nursing care clinical competency-based assessment tool to facilitate the evaluation of the NMT's clinical competence. Using this tool,

clinical teachers would be assisted to gather evidence for the students' learning experience and level of clinical performance achieved in neonatal nursing practice, thereby contributing to quality student's outcome for entry level practice in neonatal nursing. In addition, the tool may work as a framework for clinical teaching and assessment by guiding the users, both clinical teachers and students, on the requirements for neonatal nursing practice.

6.3 Contribution of the study

As previously indicated in section 6.2 the study aimed at developing a neonatal nursing clinical competency-based assessment tool that would be used for evaluation of the NMT's clinical competence. Thus by developing this tool, the study has contributed to both theoretical and practical aspects of neonatal nursing by establishing a framework for clinical teaching and assessment to enhance midlevel practitioners' skills acquisition and clinical competence. As such, the researcher discusses how the assessment tool impacts on these areas in sections 6.3.1 and 6.3.2.

6.3.1 Theoretical contribution

The study increased an understanding of clinical competence and assessment in nursing and midwifery practice. The findings from the reviewed literature on the study area and the empirical results enabled the researcher to establish the neonatal nursing clinical competencies and develop the neonatal nursing care clinical competency-based assessment tool for NMTs. The assessment tool comprises seven clinical competencies and expected standards of practice for the NMTs in neonatal nursing practice. It also presents the criteria for determining and interpreting the student's performance and setting a consistent approach to the assessment and validation of clinical competence for pre-registration training in this field. From the reviewed literature on

clinical competence assessment, some assessment tools have been developed to assess the student's clinical competence in other nursing practice settings as opposed to neonatal nursing. In addition, these assessment tools focus on registered nurses. However, the literature shows that not all the domains have been assessed using these tools, with attitude being the most difficult domain to be incorporated.

However, in this study, the developed competency-based assessment tool brings a new knowledge to the assessment of clinical competence in that the tool addresses the assessment of attitude, by defining the attributes that would demonstrate the NMT's attitude during practice. In addition, it presents a framework for the assessment of clinical competence in pre-registration neonatal nursing practice by defining what is expected of the student. This would help the student to become involved in his/her own clinical learning and assessment through reflection, thereby enhancing the acquisition of clinical competence.

6.3.2 Practical contribution

The findings from this study and the developed neonatal nursing clinical competency-based assessment tool are important for neonatal nursing clinical practice, teaching and assessment. In this study, it was revealed that there was a lack of emphasis on neonatal nursing clinical teaching and assessment for the NMTs, thereby creating a gap between theory and practice. As such, the developed clinical competency-based assessment tool will form the basis for tracking students' clinical learning experience and support as well as the achievement of clinical competence for entry level practice, thereby improving the quality of neonatal healthcare services in Malawi.

In addition, the development of the clinical competency-based assessment tool involved stakeholders who are key to the implementation of nursing and midwifery education and practice

in Malawi. This allowed for the establishment of the clinical competencies and performance standards expected of the NMTs in neonatal nursing with consensus by incorporating the needs of the consumers. As such, its practical contribution is based on its relevance in assessing the achievement of clinical competence in neonatal nursing and how it would be used by the training and practice institutions. Furthermore, the development of the assessment tool followed the prescribed steps for developing reliable clinical assessment tools (section 4.3), making it reliable for the validation of clinical competence.

The clinical competency-based assessment tool is the first tool to focus on assessment of clinical competence in pre-registration neonatal nursing, not only in Malawi but globally as well, as well as targeting the midlevel nurse-midwife practitioners. Despite focusing on neonatal nursing, the tool might be helpful in guiding other researchers and educators to develop other assessment tools, specific to their fields, to bridge the existing theory-practice gap, thereby enhancing the acquisition of clinical competence for entry level practice.

6.4 Implications for research

The study findings showed that there are no clinical competency-based assessment tools developed to validate the achievement of clinical competence in neonatal nursing practice. As such, the researcher developed a neonatal nursing care clinical competency-based assessment tool for the NMTs in Malawi. However, the researcher did not proceed to test and implement the assessment tool within the study period because of time constraints. This will be part of subsequent research studies by the researcher to contribute to the quality of nursing and midwifery education and practice. Following the outcome of the proposed study, the assessment

tool will either be adopted for use in neonatal nursing or be modified to meet the future needs of the consumers.

6.5 Limitations of the study

The study faced some limitations, specifically due to time constraints and limited funding. For instance, the researcher did not proceed to the testing of the assessment tool to establish its psychometric properties for validity and reliability. As such, it was difficult for the researcher to confirm authenticity when using the tool in the intended clinical setting for the NMTs. However, considering that establishment of psychometric properties for clinical assessment tools is an important process to ensure the objectivity of clinical performance results, testing of the assessment tool will be conducted outside of this thesis.

In addition, the researcher faced challenges with gaining entry and access to some institutions and participants respectively. For instance, some training institutions did not allow the researcher entry. No reasons were given for the refusal. In other institutions participants were reportedly busy or unavailable, despite several attempts to meet them. This led to the researcher accessing fewer participants than previously planned. Despite these constraints, the researcher was of the view that there would have been no significant difference if these participants had given their contributions to the study because the training institutions used a single curriculum for the training of NMTs. As such, these findings could be generalised to other institutions offering a similar training programme.

6.6 Recommendations

The following are the recommendations for the use of the development neonatal nursing clinical competency-based assessment tool.

6.6.1 Nursing education

The study findings showed that there is a lack of emphasis on neonatal nursing clinical teaching for the NMTs. It was reported that most of the clinical teachers and mentors emphasised the teaching of maternal health rather than neonatal health during clinical supervision despite giving the students clinical objectives for neonatal nursing practice. Clinical teaching in neonatal nursing is important for the development and acquisition of skills that would enable the NMTs to provide quality neonatal health services within the primary healthcare setting. However, effective clinical teaching requires that the teachers have the necessary knowledge and skills to help them guide and assist the students in the learning process. The lack of emphasis on neonatal nursing clinical teaching could be attributed to the fact that the clinical teachers did not have adequate knowledge and skills in this field, therefore, lacked confidence when teaching the students. In view of this, the researcher recommends that training institutions should reinforce clinical teaching in neonatal nursing to ensure that the NMTs acquire the required clinical competence in this field. In addition, the training institutions should ensure that all the clinical teachers are oriented and encouraged to update their skills in neonatal nursing to ensure that students are taught and assisted by teachers who are knowledgeable and skilled.

Furthermore, the training institutions should put in place mechanisms to track the students' learning experience and clinical performance throughout the duration of clinical placement. For

instance, students can be encouraged to keep a diary of their clinical experience and the type of support received from the clinical teachers. In addition, clinical teachers should be allocated a group of students that she/he can be following during the clinical experience and submit a report of their clinical performance at the end of the clinical placement. This approach may promote responsibility and accountability for both the students and clinical teachers, thereby improving the quality of clinical teaching.

The study findings also revealed that there are inadequate clinical assessments conducted in neonatal nursing clinical placements. It was reported that the student's achievement of some of the clinical skills was assessed through OSCE or NMCM assessments. However these two assessments took the form of a summative assessment which focused on the technical skills and knowledge, leaving out the affective domain. Focusing on summative assessments for students' performance put the student at a disadvantage as the student did not have room to improve performance during the process. In view of this, the researcher developed the clinical competency-based assessment tool that would be used to assess the achievement of clinical competence, both formative and summative. The tool may help clinical teachers to assess the students' clinical performance during the clinical teaching process, thereby allowing for the improvement of clinical competence among the students. Considering that this tool is new and has never been used for pre-registration neonatal nursing practice there will be need for the clinical teachers to become acquainted with the tool. As such, the researcher recommends that in-service training and orientation on how to use the tool should be conducted for all those involved in neonatal nursing clinical teaching and assessment of students. This would promote the

effective use of the tool thereby improving the quality of clinical assessments and student outcomes.

The study findings also showed that the clinical teachers utilise a skills checklist developed by the Nurses and Midwives Council of Malawi to evaluate the NMT's clinical performance for specific procedures. Having reviewed the NMT syllabus to adopt a competency-based approach, there is need for the NMCM to adopt tools that would enable the clinical teachers to validate the achievement of clinical competence congruent with competency-based nursing education. As such, the NMCM may consider incorporating the developed neonatal nursing care clinical competency-based assessment tool, as a framework for clinical teaching and assessment, to accompany the competency-based syllabus for use in the nursing colleges. Furthermore, the tool may work as a guide to assist NMCM and CHAM nursing colleges to develop competency-based assessment tools for other nursing field other than neonatal nursing.

6.6.2 Nursing practice

Despite focusing on pre-registration neonatal nursing clinical teaching and assessment, the tool highlights clinical competencies and competency standards defining the minimum requirements for neonatal nursing practice. As such, the tool may also work as a guide for the evaluation of clinical competence for practicing nurse-midwife technicians. To this effect, clinical practice institutions may consider adopting and/or modifying this tool for the evaluation of clinical performance and appraisal, thereby contributing to the development of competent practitioners and quality patient care.

6.6.3 Nursing research

The neonatal nursing care clinical competency-based assessment tool development in this study is new and has never been used for clinical teaching and assessments anywhere. As such, this opens more opportunities for further research to ascertain the tool's psychometric properties and reliability in validating the achievement of clinical competence in neonatal nursing. In addition, this study focused on neonatal nursing clinical teaching and assessment. Considering that the nurse-midwife technicians are trained as general nursing/midwifery practitioners, more research should be conducted to establish how the students are assisted to acquire and/or are assessed to validate the achievement of clinical competence in other clinical settings.

6.7 Summary

In this chapter the researcher makes a conclusion and recommendations on the study and the developed competency-based assessment tool. The study identified that the NMTs were taught basic nursing skills yet there were inadequate clinical assessments for competence. Furthermore, there was no competency-based assessment tools developed for the assessment of clinical competence in neonatal nursing. As such the researcher developed a clinical competency-based assessment tool. The tool is the first of its kind for the assessment of pre-registration clinical competence in neonatal nursing practice among nurse-midwife technicians. As such, the tool will contribute to the training and assessment of competent nurse-midwives, by guiding the clinical teachers and tutors on areas of assessment for students in clinical practice. However, the researcher recommends further research to ascertain the psychometric properties of the assessment tool for adoption in various clinical practice settings.

References

- Adam, S. (2007). Introducing Bologna objectives and tools: An introduction to learning outcomes. Accessed 25 July 2014,
http://is.muni.cz/do/1499/metodika/rozvoj/kvalita/Adam_IH_LP.pdf
- Adegoke, A.A., Mani, S., Abubakar, A. & van den Broek, N. (2013). Capacity building of Skilled birth attendants: A review of pre-service education curricula.
Midwifery, 29, 64–72.
- Adrian, A. (2005). *Competency standards for the advanced registered nurse*. Melbourne: Australian Nursing Federation.
- Ahmad, M., Karim, A.A., Din, R. & Albakri, I.S.M.A. (2013). Assessing ICT competencies among postgraduate students based on the 21st century ICT competency model.
Asian Social Science, 9, 32-39. Accessed 3 February 2014,
<http://dx.doi.org/10.5539/ass.v9n16p32>
- Aldred, C. (2013). *Immediate care of the newborn. East Cheshire NHS trust*. Accessed 26 July 2014,
<http://www.eastcheshire.nhs.uk/Immediate%20Care%20the%20Newborn%201891.pdf>
- Andrade, H. (2008). Self-assessment through rubrics. *Educational Leadership*, 65, 60-63.
- Anema, M.G. & McCoy, J. (2010). *Competency-based nursing education: Guide to achieving outstanding learner outcomes*. New York: Springer Publishing Company.

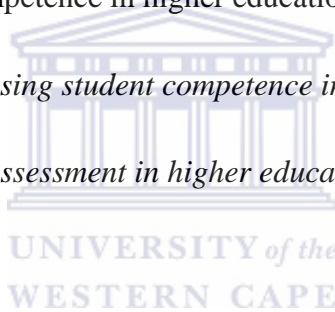
Australian Nursing and Midwifery Council (2002). *National competency standards for the enrolled nurse*. Accessed 4 August 2014, www.anmc.org.au

Axley, L. (2008). Competency: A concept analysis. *Nursing Forum*, 43, 214-222.

Bader, G.E. & Ross, C.A. (2002). *Focus groups: A step-by-step guide* (3rd ed.). New York: The Bader Group.

Bangdiwala, S.I., Fonn, S., Okoye, O. & Tollman, S. (2010). Workforce resources for health in developing countries. *Public Health Reviews*, 32, 296-318.

Banta, T.W. (2001). Assessing competence in higher education. In Catherine A. Palomba, C.A. & Banta, T.W. (eds.), *Assessing student competence in accredited disciplines: Pioneering approaches to assessment in higher education*. Virginia: Stylus Publishing: 1-14.



Barbazette, J. (2005). *The trainer's journey to competence: Tools, assessments, and models*. San Francisco: Pfeiffer.

Barry, M., Noonan, M., Bradshaw, C. & Murphy-Tighe, S. (2012). An exploration of student midwives' experiences of the objective structured clinical Examination assessment process. *Nurse Education Today*, 32, 690–694. Accessed 10 February 2014, doi:10.1016/j.nedt.2011.09.007

Benner, P. (1982). From novice to expert. *American Journal of Nursing*, 402-407.

Bloomfield, J.G., Cornish, J.C., Parry, A.M., Pegram, A. & Moore, J.S. (2013). Clinical skills education for graduate-entry nursing students: Enhancing learning using a multimodal

approach. *Nurse Education Today*, 33, 247–252. Accessed 12 March 2015,
doi:10.1016/j.nedt.2011.11.009

Bloor, M., Frankland, J., Thomas, M. & Robson, K. (2001). *Focus Groups in Social Research*.
London: Sage Publications.

Bondy, K.N. (1983). Criterion-referenced definitions for rating scales in clinical evaluation.
Journal of Nursing Education, 22, 370-382.

Bowen, G.A.(2009). Document analysis as a qualitative research method. *Qualitative Research
Journal*, 9, 27-40. Accessed 25 July 2014, doi: 10.3316/QRJ0902027

Bowling, A. (2005). Mode of questionnaire administration can have serious effects on data
quality. *Journal of Public Health*, 27, 281–291. Accessed 24 August 2014,
doi:10.1093/pubmed/fdi031

Brannagan, K.B., Dellinger, A., Thomas, J., Mitchell, D., Lewis-Trabeaux, S. & Dupre, S.
(2013). Impact of peer teaching on nursing students: Perceptions of learning
environment, self-efficacy, and knowledge. *Nurse Education Today*, 33, 1440–1447.

Brannen, J. & Halcomb, E.J. (2009). Data collection in mixed methods research. In Andrew, S.
& Halcomb, E.J (eds.), *Mixed Methods Research for Nursing and the Health Sciences*.
Malaysia, Blackwell Publishing: 67-83.

Brink, H., van der Walt, C. & van Rensburg, G. (2012). *Fundamentals of research methodology
for health care professionals* (2nd ed.). Cape Town: Juta

- Brown, A. Cometto, G., Cumbi, A., de Pinho, H., Kamwendo, F., Lehmann, U., McCourt, W., McPake, B., Pariyo, G., & Sanders, D. (2011). Mid-level health providers: A promising resource. *Medical Express Salud Publica*, 28, 308-15.
- Bulman, C., Lathlean, J. & Gobbi, M. (2012). The concept of reflection in nursing: Qualitative findings on student and teacher perspectives. *Nurse Education Today*, 32, e8–e13. Accessed 13 March 2015, doi:10.1016/j.nedt.2011.10.007
- Byrne, J. (2007). An introduction to mixed methods research. Accessed 10 November, 2015 from www.msvu.ca/site/media/msvu/MixedMethodologyHandout.pdf
- Cameron, R. (2009). A sequential mixed model research design: Design, analytical and display issues. *International Journal of Multiple Research Approaches* 3 (2): 140–152.
- Campbell, O.M.R. & Graham, W.J. (2006). Strategies for reducing maternal mortality: getting on with what works. *The Lancet*, 368, 1284–99. Accessed 7 August 2014, doi: 10.1016/S0140-6736(06)69381-1
- Cant, R., McKenna, L. & Cooper, S. (2013). Assessing preregistration nursing students' clinical competence: A systematic review of objective measures. *International Journal of Nursing Practice*; 19, 163–176.
- Cant, R.P. & Cooper, S.J. (2010). Simulation-based learning in nurse education: systematic review. *Journal of Advanced Nursing*, 66, 3–15. Accessed 6 August 2014, doi: 10.1111/j.1365-2648.2009.05240.x
- Carlson, E., Wann-Hansson, C. & Pilhammar, E. (2009). Teaching during clinical practice:

Strategies and techniques used by preceptors in nursing education. *Nurse Education Today*, 29, 522–526.

Carraccio, C.L. (2011). Assessment of the ACGME core competencies: The “good doctor”- the hole is greater than the sum of the parts. In Schwartz, A. (ed.), *Assessment in graduate medical education: Primer for pediatric program directors*. Chapel Hill: American Board of Pediatrics: 55-60.

Carraccio, C.L., Benson, B.J., Nixon, L.J., & Derstine, P.L. (2008). From the educational bench to the clinical bedside: Translating the Dreyfus developmental model to the learning of clinical skills. *Academic Medicine*, 83, 761-767.

Carraccio, C., Wolfsthal, S., Englander, R., Ferentz, K. & Martin, C. (2002). Shifting paradigms: from flexner to competencies. *Academic Medicine*, 77, 361-367.

Cates, L.A. & Wilson, D. (2011). Acquisition and Maintenance of Competencies Through Simulation for Neonatal Nurse Practitioners. *Advances in Neonatal Care*, 11, 31-327.

Chan, S.W. & Wai-tong, C. (2000). Implementing contract learning in a clinical context: report on a study. *Journal of Advanced Nursing*, 31, 298-305.

Chant, S., Jenkinson, T., Randle, J. & Russell, G. (2002). Communication skills: Some problems in nursing education and practice. *Journal of Clinical Nursing*; 11, 12-21. Accessed 9 September 2014, doi: 10.1046/j.1365-2702.2002.00553.x

Chiena, W., Chan, S.W. & Morrissey, J. (2002). The use of learning contracts in mental health

- nursing clinical placement: an action research. *International Journal of Nursing Studies*, 39, 685–694.
- Chimwaza, W., Chipeta, E., Ngwira, A., Kamwendo, F., Taulo, F., Bradley, S. & McAuliffe, E. (2014). What makes staff consider leaving the health service in Malawi? 12-17. Accessed 10 October 2014, <http://www.human-resources-health.com/content/12/1/17>
- Christiansen, A. & Bell, A. (2010). Peer learning partnerships: exploring the experience of pre-registration nursing students. *Journal of Clinical Nursing*, 19, 803–810. Accessed 13 September 2014, doi: 10.1111/j.1365-2702.2009.02981.x
- Clarke, D. & Davies, J. (2004). Clinical skills acquisition in children's nursing: An international perspective. *Paediatric Nursing*, 16, 23-26.
- Coyne, I.T. (1997). Sampling in qualitative research. Purposeful and theoretical sampling: merging or clear boundaries? *Journal of Advanced Nursing*, 26, 623–630.
- Connoley, R. (2004). Criterion-Referenced Assessment. Accessed 17 June 2013, <http://www.tedi.uq.edu.au/Teaching/assessment/criteria.html>
- Creswell, J.W. & Clark, V.L.P. (2011). *Designing and conducting mixed methods research* (2nd ed.). Singapore: Sage Publications.
- Creswell, J. W. (2009). *Research Design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Singapore: Sage Publications.
- Darmstadt, G.L., Bhutta, Z.A., Cousens, S., Adam, T., Walker, N. & de Bernis, L. (2005).

Evidence-based, cost-effective interventions: how many newborn babies can we save?

The Lancet, 365, 977-988. Accessed 7 August 2014,

doi: 10.1016/S0140-6736(05)71088-6

Davis, C.S., Gallardo, H.L. & Lachlan, K.A. (2012). *Straight talk about communication research methods* (2nd ed.). Dubuque: Lachlan Kendall Hunt Publishing Company.

Department of Training and Workforce Development (2012). *Designing assessment tools for*

quality outcomes in VET (3rd ed.). Government of Western Australia. Accessed 17 April

2013, [http://vetinfontet.dtwd.wa.gov.au/Resourcesandlinks/Documents/Publications2013 / 4%20Designing%20assessment%20tools%204th%20Ed%20\(2013\).pdf](http://vetinfontet.dtwd.wa.gov.au/Resourcesandlinks/Documents/Publications2013/4%20Designing%20assessment%20tools%204th%20Ed%20(2013).pdf)

Diem, E. & Moyer, A. (2010). Development and testing of tools to evaluate public health nursing clinical education at the Baccalaureate level. *Public Health Nursing*, 27, 285–293.

Accessed 19 June 2013, doi: 10.1111/j.1525-1446.2010.00855.x

Doyle, L., Brady, A. & Byrne, G. (2009). An overview of mixed methods research. *Journal of Research in Nursing*, 14, 175-185.

Dreyfuss, S. E. & Dreyfuss, H. L. (1980). *A five-stage model of the mental activities involved in directed skills acquisition*. University of California: Operational Research Center. Accessed 20 February 2013, <file:///C:/Downloads/ADA084551.pdf>

Dubois, D. & Rothwell, W. (2004). Competency-Based or a Traditional Approach to Training? A New Look at ISD Models and an Answer to the Question, What's the Best Approach? *ProQuest Education Journals*, 58, 46-57.

Eggins, R.A., O'Brien, A.T., Reynolds, K.J., Haslamw, S. A. & Crocker, A.S. (2008).

Refocusing the focus group: Airing as a basis for effective workplace planning. *British Journal of Management*, 19, 277–293. Accessed 22 August 2014, doi: 10.1111/j.1467-8551.2007.00541.x

Einion, A. (2013). OSCE assessment for emergency scenarios in midwifery education: A reflection and evaluation. *British Journal of Midwifery*, 21, 893-897.

Ellard, D., Simkiss, D., Quenby, S., Davies, David., Kandala, N., et al. (2012). The impact of training non-physician clinicians in Malawi on maternal and perinatal mortality: a cluster randomised controlled evaluation of the enhancing training and appropriate technologies for mothers and babies in Africa (ETATMBA) project. *BMC Pregnancy and Childbirth*. Accessed 18 March 2013, <http://www.biomedcentral.com/1471-2393/12/116>

Ellis, T.J. & Levy, Y. (2010). Guide for novice researchers: design and development research methods. Proceedings of Informing Science & IT Education Conference (InSITE) 2010.

El-Nemer, A. & Kandeel, N. (2009). Using OSCE as an assessment tool for clinical skills nursing students' feedback. *Australian Journal of Basic Applied Sciences*, 3, 1265-1272.

Emanuel, D.C., Robinson, C.G. & Korczaka, P. (2013). Development of a formative and summative assessment system for AuD education. *American Journal of Audiology*, 22, 14-25. Accessed 5 February 2014, doi: 10.1044/1059-0889(2012/12-0037).

Erickson, K.L. (2011). Why use a rubric when a checklist will do? Accessed 17 March 2015,

<http://www.artsassessment.org/wp-content/uploads/2011/05/Why-use-a-rubric-when-a-checklist-will-do.pdf>

Fahy, A., Tuohy, D., MaNamara, M.C., Butler, M.P., Cassidy, J. & Bradshaw, C. (2011).

Evaluationg clinical competence assessment. *Nursing Standard*, 25, 42-48.

Fastre, G.M.J., van der Klink, M. R. & van Marrienboer, J. J. G. (2010). The effects of performance-based assessment criteria on student performance and self-assessment skills. *Advance in Health Science Education*, 15, 517-532.

Feinberg, F.M., Kinnear, T.C. & Taylor, J.R. (2013). *Modern marketing research: Concepts, methods, and cases* (2nd ed.). New York: South-Western, Cengage Learning.

Fitzgerald, M., Gibson, F. & Gunn, K. (2010). Contemporary issues relating to assessment of pre-registration nursing students in practice. *Nurse Education in Practice*, 10, 158–163.

Fitzpatrick, J.J. & Wallace, M. (2006). *Encyclopaedia of nursing research* (2nd ed.). New York: Springer Publications.

Fordham, A.J. (2005). Using competency based approach in nurse education. *Nursing Standard*, 19, 41-48.

Friberg, I.K., Kinney, M.V., Lawn, J.E., Kerber, K.J. M., Odubanjo, O., Bergh, A., Walker, N.,

Weissman, E., Chopra, M. & Black, R.E. (2010). Sub-Saharan Africa's Mothers,

Newborns, and Children: How Many Lives Could Be Saved with Targeted Health

Interventions? *PLoS Medicine*, 7, e1000295. Accessed 5 August 2014,

doi:10.1371/journal.pmed.1000295

- Friese, S. (2013). *ATLAS.ti 7 user guide and reference*. Berlin: ATLAS.ti Scientific Software Development GmbH.
- Fullerton, J.J., Johnson, P.G., Thompson, J.B. & Vivio, D. (2011). Quality considerations in midwifery pre-service education: Exemplars from Africa. *Midwifery*, 27, 308-315.
- Fulton, B.D., Scheffler, R.M., Sparkes, S.P., Auh, E.Y., Vujicic, M. & Soucat, A. (2011). Health workforce skill mix and task shifting in low income countries: a review of recent evidence. *Human Resources for Health*, 9, 1-11.
- Gaberson, K.B. & Oermann, M.H. (2010). *Clinical teaching strategies in nursing* (3rd ed.). New York: Springer Publishing Company.
- Garrett, B.M., MacPhee, M. & Jackson, C. (2013). Evaluation of an eportfolio for the assessment of clinical competence in a baccalaureate nursing program. *Nurse Education Today* 33, 1207–1213. Accessed 31 May 2013, doi:10.1016/j.nedt.2012.06.015
- Garside, J.R. & Nhemachena, J.Z.Z. (2013). A concept analysis of competence and transition in nursing. *Nurse Education Today*, 33, 541-545.
- Gillespie, B.M., Polit, D.F., Hamlin, L. & Chaboyer, W. (2012). Developing a model of competence in the operating theatre: Psychometric validation of the perceived perioperative competence scale-revised. *International Journal of Nursing Studies*, 49:90–101. Accessed 10 February 2014, doi:10.1016/j.ijnurstu.2011.08.001
- Gonczi, A. (1999). Competency-based learning: a dubious past – an assured future? In Boud, D. & Garrick, J. (eds.), *Understanding learning at work*. London: Routledge: 180-196.

- Greene, J.C. (2006). Toward a methodology of mixed methods social inquiry. *Research in Schools*, 13, 93-98.
- Greiner, A.C. & Knebel, E. (eds.), (2003). *Health professions education: A bridge to quality*. Washington: National Academy of Sciences.
- Gruppen, L.D., Mangrulkar, R.S. & Kolars, J.C. (2012). The promise of competency-based education in the health professionals for improving global health. *Human Services for Health*, 10, 43-49. Accessed 29 January 2014, doi:10.1186/1478-449/10-43
- Guest, G., Namey, E.E. & Mitchell, M.L. (2013). *Collecting qualitative data: A field manual for applied research*. New York: Sage Publications, Inc.
- Gulikers, J.T.M., Kester, L., Kirschner, P.A. & Bastiaens, T.J. (2008). The effect of practical experience on perceptions of assessment authenticity, study approach, and learning outcomes. *Learning and Instruction*, 18, 176-186. Accessed 9 May 2013, doi:10.1016/j.learninstruc.2007.02.012
- Hardon, A., Hodgkin, C. & Fresle, D. (2004). How to investigate the use of medicines by consumers. World Health Organization and University of Amsterdam, Switzerland. Accessed 24 August 2014, http://www.who.int/drugresistance/Manual1_HowtoInvestigate.pdf
- Hartel, R.W. & Foegeding E.A. (2004). Learning: Objectives, Competencies, or Outcomes? *Journal of Food Science Education*, 3, 69-70.

- Harwell, R. (2011). Research design in qualitative/quantitative/mixed methods. In Conrad, C.F. & Serlin, R.C. (eds.), *The sage handbook for research in education: Pursuing ideas as the key exemplary inquiry*. New York: Sage Publications: 147-182.
- Hasan, H. (2004). Information systems development as a research method. *Australasian Journal of Information Systems*, Special Issue, 4-13.
- Have, P. (2004). *Understanding qualitative research and ethnomethodology*. London: Sage Publications.
- Health Foundation (2008). Improving maternal and newborn care in Malawi. Accessed 5 August 2014, www.health.org.uk/malawi
- Heaslip, V. & Scammell, J.M.E. (2012). Failing underperforming students: The role of grading in practice assessment. *Nurse Education in Practice*, 12, 95-100. Accessed 7 April 2014, doi:10.1016/j.nepr.2011.08.003
- Helminen, K., Tossavainen, K. & Turunen, H. (2014). Assessing clinical practice of student nurses: Views of teachers, mentors and students. *Nurse Education Today*, 34, 1161–1166.
- Hemingway, S., Stephenson, J., Roberts, B. & McCann, T. (2013). Mental health and learning disability nursing students' perceptions of the usefulness of the objective structured clinical examination to assess their competence in medicine administration. Accessed 17 September 2014, <http://eprints.hud.ac.uk/19074/>
- Hennink, M.M. (2007). *International Focus Group Research: A handbook for the health and*

social research. Cambridge: Cambridge University Press.

Hicks, P. (2011). Assessment methods. In Schwartz, A. (ed.), *Assessment in graduate medical education: Primer for pediatric program directors*. Chapel Hill: American

Board of Pediatrics: 15-20.

Holaday, S.D. & Buckley, K.M. (2008). A Standardized clinical evaluation tool-kit: Improving nursing education and practice. In Oermann, M.H. (eds.), *Annual review of nursing education volume 6: Clinical nursing education*. New York: Springer: 123-140.

Houghton, C.E., Casey, D., Shaw, D. & Murphy, K. (2012). Staff and students' perceptions and experiences of teaching and assessment in Clinical Skills Laboratories: Interview findings from a multiple case study. *Nurse Education Today*, 32, e29–e34. Accessed 6 August 2014, doi:10.1016/j.nedt.2011.10.005

Hsieh, H. & Shannon, S.E. (2005). Three Approaches to Qualitative Content Analysis.

Qualitative Health Research, 15(9):1277-1288 DOI: 10.1177/1049732305276687

Hsu, L. & Hsien, S. (2013). Development and psychometric evaluation of the competency inventory for nursing students: A learning outcome perspective. *Nursing Education Today*, 33, 492-497.

Hulse, A.L. (2013). Clinical competency assessment in intravenous therapy and vascular access: part 1. *British Journal of Nursing*, 22, 933-937.

Hutchings, H.A., Rapport, F.L., Wright, S., Doel, M.A., Clement, C. & Lewis, K.E. (2014).

Group technique consultation of a pulmonary rehabilitation programme.

Research, 3, 42-55. Accessed 26 August 2014, doi: 10.12688/f1000research.3-42.v1

Huybrecht, S., Loeckx, W., Quaeysaegens, Y., Tobel, D.D. & Mistiaen, W. (2011). Mentoring in nursing education: Perceived characteristics of mentors and the consequences of mentorship. *Nurse Education Today*, 31, 274–278.

International Confederation of Midwives (2011). Essential Competencies for Basic Midwifery Practice 2010. Accessed 17 June 2013, www.internationalmidwives.org

Isaacson, J. J. & Stacy, A.S. (2009). Rubrics for clinical evaluation: Objectifying the subjective experience. *Nurse Education in Practice*, 9, 134–140.

Institute for Adult Learning (IAL), (2013). *Interpretation of WSQ competency standards for training and assessment*. Singapore Workforce Development Agency (WDA): Sigma solutions HRD consultants Pte ltd.

Jahan, F., Shaikh, N., Norrish, M., Siddqi, N. & Qasim, R. (2013). Comparison of student's self-assessment to examiners assessment in a formative observed structured clinical examination: A pilot study. *Journal of Postgraduate Medical Institute*, 27, 94-99.

Johnson, K. (2011). *Best practices and considerations when conducting survey research*.

Accessed 23 August 2014, <http://www.research.psu.edu/training/research-protections-workshops/orp-video-archive/documents/irb-101-best-practices-in-survey-research.pdf>

Jones, M. D, Rosenberg, A.A., Gilhooly, J.T.& Carraccio, C.L. (2010). Perspective: competencies, outcomes, and controversy—linking professional activities to

competencies to Improve resident education and practice. *Academic Medicine*, 86, 161-165. Accessed 25 July 2014, doi: 10.1097/ACM.0b013e31820442e9

Joughin, G. (2009). *Assessment, learning and judgement in higher education: A Critical Review*. Australia: Springer.

JPIEGO (2012). The health impacts of pre-service education: An integrative review and evidence-based conceptual model. Accessed 9 May 2013, www.k4health.org/toolkits/pse/health-impacts-pre-service-education-integrative-review-and-evidence-based-conceptual

Kadango, A. (2007). A critical analysis of the competencies of upgrading nurses from Malawi College of Health Sciences in Malawi. *Masters' Thesis*, University of South Africa. Accessed 6 August 2014, <http://uir.unisa.ac.za/bitstream/handle/10500/1810/dissertation.pdf?sequence=1>

Kajander-Unkuri, S., Meretoja, R., Katajisto, J., Saarikoski, M., Salminen, L., Suhonen, R. & Leino-Kilpi, H. (2014). Self-assessed level of competence of graduating nursing students and factors related to it. *Nurse Education Today*, 34, 795–801. Accessed 14 October 2014, <http://dx.doi.org/10.1016/j.nedt.2013.08.009>

Kalipeni, E., Semu, L. & Mbilizi, M.A. (2012). The brain drain of health care professionals from sub-Saharan Africa: a geographical perspectives. *Progress in Development Studies*, 12, 153-171.

Kember, D. (2000). Misconceptions about the learning approaches, motivation and study

- practices of Asian. *Higher Education*, 40, 99-121. Accessed 23 September 2014,
<http://www.jstor.org/stable/3447953>
- Kim, J. (2012). *Assessment of learners and evaluation of programs*. Accessed 30 January 2014,
<http://www.lcme.org/standard.htm>
- Klein, C.J. (2006). Linking competency-based assessment to successful clinical practice.
Educational Innovation, 45, 379-383.
- Klenowski, V. Askew, S. & Carnell, E. (2006). Portfolios for learning, assessment and
professional development in higher education. *Assessment & Evaluation in Higher
Education*, 31, 267-286. Accessed 19 June 2013,
<http://dx.doi.org/10.1080/02602930500352816>
- Kolb, D. A. (1984). *Experiential Learning: Experience as the source of learning and
development*. Englewood Cliffs, N. J.: Prentice-Hall.
- Krueger, R.A. & Casey, M.A. (2009). *Focus groups: A practical guide for applied research*
(4th ed.). London: Sage Publications.
- Kurtz, C.P., Lemley, C.S. & Alverson, E.M. (2010). The master student presenter: Peer
teaching in the simulation laboratory. *Nursing Education Perspectives*, 31, 38-40.
- Langley, M.E. & Brown, S.T. (2010). Perceptions of the use of reflective learning journals in
online graduate nursing education. *Nursing Education Perspectives*, 31, 12-17.
- Lasater, K. (2011). Clinical judgment: The last frontier for evaluation. *Nurse Education in
Practice*, 11, 86-92. Accessed 15 August 2013, doi:10.1016/j.nepr.2010.11.013

- Lauver, L.S., West, M.M., Campbell, T.B., Herrold, J. & Wood, G.C. (2009). Toward evidence-based teaching: evaluating the effectiveness of two teaching strategies in an associate degree nursing program. *Teaching and Learning in Nursing*, 4, 133-138. Accessed 28 July 2014, doi:0.1016/j.teln.2009.03.001
- Lenburg, C.B. (2000). Promoting competence through critical self-reflection and portfolio development: The inside evaluator and the outside context. *Tennessee Nurse*, 63, 11-20.
- Lenburg, C. (1999). The framework, concepts and methods of competency outcome and performance assessment (COPA) model. *Online Journal of Issues in Nursing*, 4. Accessed 4 February 2013, manuscript.[www.nursingworld.org/mainmenucategories/ANAMarketplace/ANAPeriodicals/OJIN/tableofcontents/volume41999rld.org /no2sept1999/CPAmodel.aspx](http://www.nursingworld.org/mainmenucategories/ANAMarketplace/ANAPeriodicals/OJIN/tableofcontents/volume41999rld.org/no2sept1999/CPAmodel.aspx)
- Lenburg, C. B., Abdur-Rahaman, V.Z., Spencer, T.M., Boyer, S. A. and Klein, C. J. (2011). Implementing the COPA model in nursing education and practice settings: Promoting competence, quality care and patient safety. *Nursing Education Perspectives*, 32, 290-296.
- Lenburg, C.B., Klein, C., Abdur-Rahman, V., Spencer, T. & Boyer, S. (2009). The COPA model A comprehensive framework designed to promote quality care and competence for patient safety. *Nursing Education Perspectives*, 30, 312-317.
- Lester, S. (2005). Novice to Expert: the Dreyfus model of skill acquisition. Accessed 20 March 2013, <http://devmts.org.uk/dreyfus.pdf>
- Levett-Jones, T.L. (2009). Facilitating reflective practice and self-assessment of competence

- through the use of narratives. *Nurse Education in Practice*, 7, 112–119. Accessed 23 September 2014, doi:10.1016/j.nepr.2006.10.002
- Lincoln, Y.S. & Guba, G.E. (1985). *Naturalistic Inquiry*. California: Beverly Hill. Sage Publications. Accessed 9 August 2014, www.books.google.com
- Liou, S., Chang, C., Tsai, H. & Cheng, C. (2013). The effects of deliberate practice program on nursing students' perception of clinical competence. *Nurse Education Today*, 33, 358-363.
- Lisko, S.A. & O'dell, Y. (2010). Integration of theory and practice: Experiential learning theory and nursing education. *Nursing Education Perspectives*, 31, 106-108.
- Liu, M., Yin L., Ma E., Lo S. & Zeng, L. (2009). Competency Inventory for Registered Nurses in Macao: instrument validation. *Journal of Advanced Nursing*, 65, 893–900. Accessed 17 June 2013, doi: 10.1111/j.1365-2648.2008.04936.x
- Löfmark, A., Thorkildsen, K., Råholm, M. & Natvig, G.K. (2012). Nursing students' satisfaction with supervision from preceptors and teachers during clinical practice. *Nurse Education in Practice*, 12, 164e169. Accessed 13 March 2015, doi:10.1016/j.nepr.2011.12.005
- Lunan, B., Clements, Z., Mahony, S. & Hope-Jones, D. (2011). Maternal Health in Malawi: Challenges and Successes. Accessed 5 August 2014, http://www.unfpa.org/R192_Lunan_etal_ScotlandMalawiPartnership_MaternalHealthPaper2_3_2112_DRAFT.pdf
- Mack, N., Woodsong, C., Macqueen, K.M., Guest, G. & Namey, E. (2005). *Qualitative research*

- methods: A data collector's field guide*. North Carolina: Family Health International.
- Malhotra, N.K. & Birks, D.F. (2006). *Marketing research: An applied approach* (2nd ed.). England: Prentice Hall.
- Marshall, M.N (1996). Sampling for qualitative research. *Family Practice*, 13, 522-525.
- Marshburn, D.M., Engelke, M.K & Swanson, M.S. (2009). Relationships of new nurses' perceptions and measured performance-based clinical competence. *The Journal of Continuing Education in Nursing*, 40, 426-432.
- Mbombo, N. and Bimerew, M. (2012). Integrating prevention of mother to child HIV transmission into nursing curriculum: Methodological lessons from a university-based undergraduate programme. *Curatoris*, 35, Art.#12,10pages. Accessed 10 February 2014, <http://dx.doi.org/10.4102/curationisv35i1.12>
- McCready, T.C. (2007). Portfolios and the assessment of competence in nursing: A literature review. *International Journal of Nursing Studies*, 44, 143-151.
- McMillan, J.H. & Hearn, J. (2008). Student Self-Assessment: The Key to Stronger Student Motivation and Higher Achievement. *Educational Horizons*, 40-49.
- McMullan, M., Endacott, R., Gray, M., Jasper, M., Miller, C.M.L., Scholes, J. & Webb, C. (2003). Portfolios and assessment of competence: a review of the literature. *Journal of Advanced Nursing*, 41, 283-294.
- McWilliam, P. L., & Botwinski, C. A. (2012). Identifying strengths and weaknesses in utilization of objective structured clinical examination (OSCE) in nursing program. Accessed 10 February 2014, *Nursing Education Research*, 33, 35-39.
- Meretoja, R., Isoaho, H. & Leino-Kilpi, H. (2004). Nurse competence scale: development and psychometric testing. *Journal of Advanced Nursing*, 47, 124–133.

Miller, C. (2013). Improving and enhancing performance in the affective domain of nursing students: Insights from the literature for clinical educators. *Contemporary Nurse*, 35, 2–17.

Millward, L. (2012). Focus groups. Accessed March 8, 2015

http://www.sagepub.com/sites/default/files/upm-binaries/46878_Breakwell_Ch17.pdf

Ministry of Health (2011). Nurse/Midwife Training Operational Plan Field Assessments, Analysis and Scale-up Plans for Nurse Training Institutions. Government of Malawi.

Mitchell, M.L., Henderson, A., Groves, M., Dalton, M. & Nulty, D. (2009). The objective structured clinical examination (OSCE): Optimising its value in the undergraduate nursing curriculum. *Nurse Education Today*, 29, 398–404. Accessed 10 February 2014, doi:10.1016/j.nedt.2008.10.007

Montgomery, K. (2000). Classroom rubrics: Systematizing what teachers do naturally. *The Clearing House*, 73, 324–328. Accessed 24 September 2014, <http://www.jstor.org/stable/30189610>

Morris, M.C., Gallagher, T.K. & Ridgway, P.F. (2012). Tools used to assess medical students competence in procedural skills at the end of a primary medical degree: a systematic review. *Medical Education Online*, 17, 1–9.

Morse, J.M., Barrett, M., Mayan, M., Olson, K. & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of*

Qualitative Methods, 1, 1-19.

Msiska, G. (2012). Exploring the clinical learning experience: Voices of Malawian undergraduate student nurses. *PhD Thesis*. The University of Edinburgh. Accessed 7 August 2014, <https://www.era.lib.ed.ac.uk/bitstream/1842/7772/2/Msiska2012.pdf>

Mulder, M., Gulikers, J., Biemans, H. & Wesselink, R. (2009). The new competence concept in higher education: Error or enrichment? *Journal of European Industrial Training*, 33, 755-770. Accessed 9 May 2013, doi: 10.1108/03090590910993616

Muldoon, K., Biesty, L. & Smith, V. (2014). 'I found the OSCE very stressful': student midwives' attitudes towards an objective structured clinical examination (OSCE). *Nurse Education Today*, 34, 468-73. Accessed 10 February 2014, doi: 10.1016/j.nedt.2013.04.022.

Murad, M.H., Coto-Yglesias, F., Varkey, P., Prokop, L.J. & Murad, A.L. (2010). The effectiveness of self-directed learning in health professions education: a systematic review. *Medical Education*, 44, 1057–1068. Accessed 12 September 2014, doi:10.1111/j.1365-2923.2010.03750.x

Murphy, M.K., Sanderson, C.F.B., Black, N.A., Askham, J. Lamping, D.L., Marteau, T., McKee, C.M. (2009). Consensus development methods and their use in clinical guideline development. Accessed 26 August 2014, www.hta.ac.uk/htacd.htm

National Association of Neonatal Nurses (2010). Age-Appropriate Care of the Premature and

Critically Ill Hospitalized Infant Guideline for Practice. Accessed 26 August 2014,

www.nann.org

National Statistical Office (2011). *Demographic and Health Survey: 2010 Report*. Zomba, Malawi.

Nicholson, P., Griffin, P., Gillis, S., Wu, M. & Dunninget, T. (2013). Measuring nursing competencies in the operating theatre: Instrument development and psychometric analysis using Item Response Theory. *Nurse Education Today*, 33, 1088–1093.

Accessed 18 July 2014, doi:10.1016/j.nedt.2012.04.008

Nothnagle, M., Goldman, R., Quirk, M. & Reis, S. (2010). Promoting self-directed learning skills in residency: A case study in program development. *Academic Medicine*, 85, 1874-1879.

Northern Ireland Practice and Education Council for Nursing and Midwifery (NIPEC) (2010).

Supporting professional development: A competence Assessment tool for ward sisters/charge nurses. Accessed 27 August 2014, www.nipec.hscni.net/pw_wardsister

Norton, L. (2007). Using assessment to promote quality learning in higher education.

In Campbell, A. & Norton, L. (eds.), *Learning, teaching and assessing in higher education: Developing reflective practice*. Great Britain: Cromwell Press: 92-101.

Nurses and Midwives Council of Malawi (2012). *National standards for nursing and midwifery education in Malawi* (revised ed.). Lilongwe.

Nurses and Midwives Council of Malawi (2010). *Standards for midwifery practice*. Lilongwe.

Nurses and Midwives Council of Malawi (2002). *Code of nursing ethics for Malawi with interpretative/explanatory statements* (2nd ed.). Lilongwe.

Nursing and Midwifery Council (NMC) (2010). *Assessment of practice: nursing diploma, diploma with advanced studies and degree programmes NMC proficiencies*. University of Southampton. Accessed 10 August 2014,

[http://www.uhs.nhs.uk/Media/suhtideal/NursesAndMidwives/PreQualifyingNursing/NursingAssessmentofPractice\(AOP\)-NMCPproficiencies.pdf](http://www.uhs.nhs.uk/Media/suhtideal/NursesAndMidwives/PreQualifyingNursing/NursingAssessmentofPractice(AOP)-NMCPproficiencies.pdf)

Nursing and Midwifery council (2009). Standards for pre-registration midwifery education.

Accessed 10 August 2014, www.nmc-uk.org

O'Connor, T., Fealy, G.M., Kelly, M., McGuinness, A.K., & Timmins, F. (2009). An evaluation Of collaborative approach to assessment of competence among nursing students of three universities in Ireland. *Nurse Education Today*, 29, 493-499.

Oermann, M.H. & Gaberson, K.B. (2014). *Evaluation and Testing in Nursing Education: Fourth Edition*. Springer Publishing Company, LLC; New York.

Oermann, M.H. & Gaberson, K.B. (2009). *Evaluation and testing in nursing education* (3rd ed.). New York: Springer.

Oermann, M.H., Saewert, K.J., Ika, M.E.C. & Yarbrough, S.S. (2009a). Assessment and grading practices in Schools of Nursing: National Survey Findings Part I. *Nursing Education Perspectives*, 30, 274-278.

- Oermann, M.H., Yarbrough, S., Saewert, K.J., Ard, N., Charasika, M., (2009b). Clinical evaluation and grading practices in schools of nursing: national survey findings part II. *Nursing Education Perspectives*, 30, 352–357.
- Onyango, R. A. (2002). Data Collection Instruments in Information Sciences. In Aina, L.O. (ed.), *Research Information Science: An African Perspective*. Ibadan: Stiling-Horden Publishers: 60-92.
- Onwuegbuzie, A. J. & Leech, N.L. (2007). Sampling designs in qualitative research: Making the sampling process more public. *The Qualitative Report*, 12, 238-254. Accessed 19 August 2014, <http://www.nova.edu/ssss/QR/QR12-2/onwuegbuzie1.pdf>
- Onwuegbuzie, A.J. & Johnson, R.B. (2006). The validity issue in Mixed Research. *Research in the Schools*, 13, 48-63.
- Oppong, S.H. (2013). The problem of sampling in qualitative research. *Asian Journal of Management Sciences and Education*, 2, 202-210.
- Oranye, N.O., Ahmad, C., Ahmad, N. & Bakar, R.A. (2012). Assessing nursing clinical skills competence through objective structured clinical examination (OSCE) for open distance learning students learning in open University Malaysia. *Contemporary Nurse*, 41, 233-241.
- Palomba C.A. (2001). Implementing effective assessment. In Palomba, C.A. & Banta, T.W. (eds.), *Assessing student competence in accredited disciplines: Pioneering approaches*

- to assessment in higher education*. Virginia: Stylus Publishing: 13-28.
- Passarelli, A.M. & Kolb, D. A. (2012). Using Experiential Learning Theory to Promote Student Learning and Development Programs of Education Abroad. In Berg, M.V. Page, M. & Lou, K. (Eds.). *Student Learning Abroad*. Stylus Publishing.
- Peffer, A., Tuunanen, T., Rothenberger, M.A. & Chatterjee, S. (2007). A design science research methodology for information systems research. *Journal of Management Information Systems*, 24, 45-78.
- Polit, D. E. & Beck, C. T. (2008). *Nursing research: Generating and assessing evidence for nursing practice* (8th ed.). Philadelphia: Lippincott Williams & Wilkins.
- Pena, A. (2010). The Dreyfus model of clinical problem-solving skills acquisition: a critical perspective. *Medical Education Online*, 15, 4846-4852. Accessed 25 September 2014, doi: 10.3402/meo.v15i0.4846
- Popil, I. (2011). Promotion of critical thinking by using case studies as teaching method. *Nurse Education Today*, 31, 204–207.
- Raupach, T., Brown, J., Anders, S., Hasenfuss, G. & Harendza, S. (2013). Summative assessments are more powerful drivers of student learning than resource intensive teaching formats. *BMC Medicine*, 11:61. Accessed 5 February 2014, <http://www.biomedcentral.com/1741-7015/11/61>
- Rapport, F. (2010). Summative analysis: A qualitative method for social science and health research. *International Journal of Qualitative Methods*, 9, 270-290.

Redman, R.W., Lenburg, C.B. & Walker, P.H. (1999). Competency assessment: Methods for development and implementation in nursing education. *Online Journal of Issues in Nursing*, 4. Accessed 5 February 2013,

<http://www.nursingworld.org/nursingcompetencies/>

Reeves, T.C. (2006). Design Research from technology perspective. In van de Akker, J. Gravemiejer, K., McKenny, S. & Nieveen, N. (eds.), *Educational design research*. New York: Taylor & Francis: 52-66.

Richter, L.R.A., Boscardin, C.K., May, W. & Fung, C.C. (2012). A comparison of two standard setting approaches in high-stakes clinical performance assessment using generalizability theory. *Academic Medicine*, 87, 1077–1082.

Robyn, P., Cant, R.P. & Cooper, S.J. (2011). The benefits of debriefing as formative feedback in nurse education. *Australian Journal of Advanced Nursing*, 29(1), 37-54.

Rolfe, G. (2004). Validity, trustworthiness and rigour: quality and the idea of qualitative research. *Journal of Advanced Nursing*, 53, 304–310.

Rouse, J. (2010). An evaluation of observed structured clinical examinations. *Paediatric Nursing*, 22, 26-30.

Rye, K.J. (2008). Perceived Benefits of the Use of Learning Contracts to Guide Clinical Education in Respiratory Care Students. *Respiratory Care*, 53, 1475-1481.

Sabir, M., Breckman, R., Meador, R., Wethington, E., Reid, M.C. & Pillemer, K. (2006). The

- CITRA research practice consensus workshop model: Exploring a new method of research translation in aging. *The Gerontologist*, 46, 833–839.
- Sahrir, M.S., Alias, N.A., Ismail, Z. & Osman, N. (2012). Employing design and development research (ddr) approaches in the design and development of online Arabic vocabulary learning games prototype. *Journal of Educational Technology*, 11, 108-119.
- Sargeant, J., Eva, K.W., Armson, H., Chesluk, B., Dornan, T., Holmboe, E., Lockyer, J.M. Loney, E., Mann, K.V., & van der Vleuten, C.P.M. (2011). Features of assessment learners use to make informed self-assessments of clinical performance. *Medical Education*, 45, 636–647. Accessed 24 September 2014, doi:10.1111/j.1365-2923.2010.03888.x
- Schaffer, M.A., Nelson, P. & Litt, E. (2005). Using portfolios to evaluate achievement of population-based public health nursing competencies in baccalaureate nursing students. *Nursing Education Perspectives*, 26, 204-112.
- Sharma, M.K., Chandra, P.S. & Chaturvedi, S.K. (2013). Objective structured clinical examination and its impact on clinical and interpersonal skills: Follow-up study. *Indian Journal of Psychological Medicine*, 35, 299-301. Accessed 13 September, 2014, doi:10.4103/0253-7176.119478
- Shenton, A.K. (2004). Strategies for ensuring trustworthiness in qualitative Research projects. *Education for Information*, 22, 63-75.
- Singh, K. (2007). *Quantitative social research methods*. Los Angeles: Sage Publications.

- Somerville, D. & Keeling, J. (2004). A practical approach to promote reflective practice within nursing. *Nursing Times*, 12, 42–45. Accessed 20 October 2014, www.nursingtimes.net
- Snape, D. & Spencer, L. (2003). The foundations of qualitative research. In Ritchie, J. & Lewis, J. (eds.), *Qualitative research practice: A guide for social science students and researchers*. London: Sage Publications: 1-23.
- Spencer, L., Ritchie, J. & O'Connor, W. (2003). Analysis: practices, principles and processes. In Ritchie, J. & Lewis, J. (eds.), *Qualitative research practice: A guide for social science students and researchers*. London: Sage Publications: 199-218.
- Stanfield, R.B. (2002). *The workshop book: from individual creativity to group action*. Canada: New Society Publishers.
- Stenfors-Hayes, T., Kale, S.N., Hult, K.H., Dahlgren, L.O., Hindbeck, H. & Ponzer, S. (2010). Being a mentor for undergraduate medical students enhances personal and professional development. *Medical Teacher*, 32, 148–153. Accessed 3 September 2014, doi: 10.3109/01421590903196995
- Suter, E., Arndt, J., Arthur, N., Parboosingh, J., Taylor, E. & Deutschlander, S. (2009). Role understanding and effective communication as core competencies for collaborative practice. *Journal of Interprofessional Care*, 23, 41–51.
- Takase, M. & Teraoka, S. (2011). Development of the Holistic Nursing Competence Scale *Nursing and Health Sciences*, 13, 396–403. Accessed 18 July 2014,

doi: 10.1111/j.1442-2018.2011.00631.x

Tartwijk, J. & Driessen, E.W. (2009). Portfolios for assessment and learning: AMEE Guide no.

Medical Teacher, 45, 790–801.

Taylor, C.L., Grey, N. & Satterthwaite, J.D. (2013). Assessing the Clinical Skills of Dental Students: A Review of the Literature. *Journal of Education and Learning*; 2, 20-31.

Accessed 20 October 2014, doi:10.5539/jel.v2n1p20

Tilley, D.D. S. (2008). Competency in nursing: A concept analysis. *The Journal of Continuing Education in Nursing*, 39, 58-64.

Tolhurst, G. & Bonner, A. (2000). Development of clinical assessment criteria for postgraduate nursing students. *Collegian*, 7, 20-25.

Turner, P. (2005). Critical thinking in nursing education and practice as defined in the literature. *Nursing Education Perspectives*, 26, 272-279.

Turrill, S. (2014). The education of UK specialised neonatal nurses: Reviewing the rationale for creating a standard competency framework. *Nurse Education in Practice*, 14, 504-511.

Accessed 20 October 2014, doi:10.1016/j.nepr.2014.07.001

Tveit, B., Wasili, M., Kollstrom, L. and Mwenye-Phiri, G. T. (2009). Curriculum implementation in CHAM/NMT colleges in Malawi. Final Report Submitted to CHAM and Norwegian Church AID (NCA). Accessed 5 February 2013,

http://idtjeneste.nb.no/URN:NBN:no-ibsys_brage_9536<http://hdl.handle.net/11250/98675>

Twycross, A. & Shields, L. (2004). Validity and reliability – What’s it all about? Part 1 Validity in quantitative studies. *Paediatric Nursing*, 16, 28.

Ulfvarson, J. & Oxelmark, L. (2012). Developing an assessment tool for intended learning outcomes in clinical practice for nursing students. *Nurse Education Today*, 32, 703–708.
Accessed 17 June 2013, doi:10.1016/j.nedt.2011.09.010

UNICEF, WHO, World Bank & United Nations (2014). *Levels and trends in child mortality report*. Accessed 20 October 2014,

http://www.childmortality.org/files_v17/child%20mortality%20ReportFinal.pdf

UNICEF, WHO, World Bank & United Nations (2013). *Levels and trends in child mortality report*. Accessed 4 February 2014,

http://www.childinfo.org/files/Child_Mortality_Report_2013.pdf

United Nations (2015). The Millennium Development Goals Report. New York. Accessed 4 November, 2015.

[www.un.org/millenniumgoals/2015 MDG Report/.../MDG%202015%](http://www.un.org/millenniumgoals/2015_MDG_Report/.../MDG%202015%20Report.pdf)

USAID (2006). *Human resources for health workforce a ‘promising practices’ study:*

Promising retention practices of the Christian Health Association of Malawi. Lilongwe

van den Akker, J., Gravemeijer, K., McKenney, S. & Nieveen, N. (2006). Introducing educational design research. In van den Akker, J., Gravemeijer, K., McKenney, S. & Ieven, N (ed.), *Educational design research*. London: Routledge: 3-7.

Vanderstoep, S.W. & Johnston, D.D. (2009). *Research methods for everyday life: Blending*

qualitative and quantitative approaches. San Francisco: John Wiley & Sons.

Willis, J. (2007). *Foundations of qualitative research*. California: Sage Publications.

Winters, C.A. & Echeverri, R. (2012). Teaching strategies to support evidence-based practice.

Critical Care Nurse, 32, 49-54. Accessed 25 July 2014,

doi: <http://dx.doi.org/10.4037/ccn2012159>

Wheeldon, J. (2010). Mapping mixed methods research: Methods, measures, and meaning.

Journal of Mixed Methods Research, 4, 87-102. Accessed 7 August 2014,

doi: 10.1177/1558689809358755

World Health Organization (2014). Using auxiliary nurse midwives to improve access to key

maternal and newborn health interventions. Accessed 26 September 2014,

www.who.int/about/licensing/copyright_form/en/index.html

World Health Organisation (2013). Transforming and scaling up health professionals' education

and training: WHO guidelines. Accessed 26 September, 2014,

www.who.int/about/licensing/copyright_form/en/index.html

World Health Organization (2012). WHO recommendations: Optimizing health worker roles to

improve access to key maternal and newborn health interventions through task shifting.

www.who.int/about/licensing/copyright_form/en/index.html

World Health Organisation (2012). Basic newborn resuscitation. Accessed 24 July 2014,

<http://www.who.int/about/licensing/en/index.html>).

World Health Organization (2010). Midlevel health providers a promising resource to achieve the health Millennium Development Goals. Accessed 26 July 2014,

<http://www.who.int/workforcealliance/knowledge/resources/mlpreport2010/en/>

World Health Organisation (2008). Mid-level health workers: The state of the evidence on programmes, activities, costs and impact on health outcomes-a literature review.

Geneva: Department of Human Resources for Health. Accessed 26 July 2014,

http://www.who.int/hrh/MLHW_review_2008.pdf

WHO, UNICEF, World Bank & United Nations (2012). Levels and trends in child mortality report. Accessed 4 February 2013,

http://www.childinfo.org/files/Child_Mortality_Report_2012.pdf

Yanhua, C. & Watson, R. (2011). A review of clinical competence assessment in nursing.

Nurse Education Today, 31, 832–836. Accessed 4 March 2013,

doi:10.1016/j.nedt.2011.05.003

Yin, R.K. (2011). *Qualitative research from start to finish*. New York: The Guilford Press

Zavertnik, J. E., Huff, T.A. & Munro, C.L. (2010). Innovative Approach to Teaching

Communication Skills to Nursing Students. *Journal of Nursing Education*, 49, 65-71.

Accessed 10 September 2014, doi: 10.3928/01484834-20090918-06

Zhi, H.L. (2014). A comparison of convenience sampling and purposive sampling. *Journal of*

Nursing, 61(3):105-11. doi: 10.6224/JN.61.3.105.

Appendices

Appendix 1: Focus group discussion guide

1. Introduction
 - a) The moderator introduced the purpose of the discussion, and
 - b) Then members introduced themselves
2. Discussion guiding questions
 - a) What are the competencies taught to NMTs in neonatal nursing?
 - b) What areas of neonatal nursing do these competencies cover?
 - c) How do clinical teachers assist the student to acquire these competencies?
 - d) Probe for c: could you explain clearly your experiences in using that approach to assist the NMT to acquire the competencies (this probing question was discussed with clinical teachers only).
 - e) How do clinical teachers validate the NMTs achievement of the competencies in neonatal nursing?
 - f) Probe for e: could you explain clearly your experiences in validating NMTs' achievement of the required competencies in neonatal nursing. (This probing question was discussed with clinical teachers only).
 - g) What behaviours do clinical teachers observe in the NMT that reflect achievement of the competencies in neonatal nursing? (This question was discussed with clinical teachers only).
3. Considering all the issues discussed, which ones do you feel are effective in:
 - a) Assisting the NMT to acquire the required competencies in neonatal nursing
 - b) Validating the NMT's achievement of competencies?**

Appendix 2: Document analysis checklist

Type of document	Competencies			Teaching approach	Assessment approach	Grading criteria
	Knowledge	Skills	Attitude			
Syllabus outline						
Course outline						
Assessment tools:						
• NMCM tool						
• Green book						
• Competency checklist						



Appendix 3: Clinical teachers' questionnaire

Section A: Demographic information

Participant code	:
Age	:
Gender	:
College of Nursing	:
Position	:
Qualification	:
Teaching Experience in Neonatal Nursing	:

Section B: Competencies, teaching and assessment approaches

Instructions:

Tick in the appropriate box whether you strongly agree, agree, disagree or strongly disagree with the statements provided. The scale is presented in an ascending order as follows: 1= Strongly disagree; 2= Disagree; 3= Uncertain; 4=Agree; 5= Strongly agree

	1 SD	2 D	3 U	4 A	5 SA
B1: Competencies taught to NMTs in Neonatal Nursing					
The student was taught how to care for the new born baby immediately after delivery					
The student was taught resuscitation of the new born baby					
The student was taught how to assess the new born baby one hour after delivery					
The student was taught how to conduct subsequent assessment of the new born baby					
The student was taught how to manage new born babies with different conditions					
The student was taught on communication skills					
The student was taught how to administer medications to neonates					
The student was taught on infection prevention measures when managing neonates					
The student was taught to apply critical thinking skills when managing neonates					
The student was taught to apply ethical decision making when managing neonates					
The student was taught how to assist mothers with kangaroo mother care					

The student was taught to collaborate with other health care team members to improve the care of neonates					
The student was taught how to document neonatal care in the case files					
B2: Approaches used to assist NMTs to acquire clinical competence					
I demonstrated the skills to the student					
I gave the student a chance to do a return demonstration					
I encouraged discussions among the students following performance of a skill					
I gave the student assignments in the clinical setting					
I assigned students to care for neonates as case studies					
I encouraged students to make presentations on the case studies					
I oriented the student on the clinical objectives					
I encouraged the student to prepare daily objectives from the main objectives to guide achievement of the skill					
I provided support to the student during performance of a skill					
I coached the student when she/he was not sure what to do during performance of a skill					
I provided guidance to the student during performance of a skill					
I encouraged the student to submit a portfolio following the neonatal nursing clinical practice					
B4: Assessment approaches to validate the achievement of clinical competence					
The student was assessed through skills check off in the skills laboratory prior to clinical placement					
The student was assessed through a summative Nurses and Midwives Council of Malawi (NMCM) assessment in neonatal nursing practice					
I was able to evaluate the students technical skills performance using the NMCM assessment					
I was able to evaluate the students' professional behaviour using the NMCM assessment					
I was able to evaluate the students' critical thinking skills using the NMCM assessment					
I was able to evaluate the students' attitude using the NMCM assessment					

The student was assessed through Objective Structured Clinical Examination (OSCE) to validate competence					
I was able to assess the students' technical skills performance using the OSCE					
I was able to assess the students' critical thinking and reasoning using the OSCE					
I was able to assess the students' professional behaviour using the OSCE					
I was able to assess the students' attitude using OSCE					
I directly observed the student perform the skill during clinical practice					
Direct observation of the student enabled me to assess professional behaviour					
Direct observation of the student enabled me to assess critical thinking and reasoning					
Direct observation of the student enabled me to assess the students' attitude					
Direct observation of the student enabled me to assess technical skills					
I asked the student some questions during the performance of a skill to assess if she/he understood what was being done					
I used the students' clinical assignments to assess if the student understood neonatal nursing care					
I used the students' self-evaluation report to assess what competencies she/he had acquired in neonatal nursing					
I used the students' peer assessment reports to assess the students' performance in neonatal nursing					

B4: Tools used for assessment of the NMTs' clinical competence					
I use a competency check list to assess the students' competence in neonatal nursing					
The check list clearly explained what should be evaluated on: Attitude Technical skills Professional behaviour Critical thinking and reasoning					
The check list provides a criteria for assessing the students' level of competence					
I use a green book to evaluate the students' performance and progress					
The green book provides a clear explanation of what competencies the student must achieve on: Attitude Professional behaviour Technical skills Critical thinking and reasoning					
I use the NMCM assessment tool to evaluate the students' competency in neonatal nursing					
The NMCM assessment tool provides a clear explanation of what competencies the student must achieve on: Attitude Professional behaviour Technical skills Critical thinking and reasoning					
The NMCM assessment tool provides a clear criteria for assessing the students' level of competence					
Other comments:					

Appendix 4: Students' questionnaire

Section A: Demographic information

Participant code	:	
Age	:	
Gender	:	
College of nursing	:	
Level of study	:	
Duration of clinical experience in neonatal nursing	:	

Section B: Competencies, teaching and assessment approaches

Instructions:

Tick in the appropriate box whether you strongly agree, agree, disagree or strongly disagree with the statements provided. The scale is presented in an ascending order as follows:

1= Strongly disagree; 2= Disagree; 3= Uncertain; 4=Agree; 5= Strongly agree

	1 SD	2 D	3 U	4 A	5 SA
B1: Competencies taught to NMTs in neonatal nursing					
I was taught how to care for the baby immediately after delivery					
I was taught how to resuscitate the new born baby					
I was taught how to assess the new born baby one hour after delivery					
I was taught how to conduct subsequent assessment of the new born baby					
I was taught how to manage neonates with different conditions					
I was taught on communication skills					
I was taught how to administer medications to neonates					
I was taught to follow infection prevention measures when managing neonates					

I was taught how to apply critical thinking skills when managing neonates					
I was taught how to apply ethical decision making when managing neonates					
I was taught how to assist mothers with kangaroo mother care					
I was taught how to collaborate with other health care team members to improve care of the neonates					
I was taught how to document neonatal care in the case files					
B2: Approaches used to assist NMTs to acquire clinical competence					
The clinical teacher demonstrated the skills to me					
The clinical teacher gave me a chance to do a return demonstration					
The clinical teacher encouraged us to discuss issues regarding our performance and clinical experience					
The clinical teacher gave me assignments in the clinical setting					
The clinical teacher assigned me a case study for my clinical experience					
The clinical teacher encouraged me to make a presentation on the case study					
I was oriented on the clinical objectives					
The clinical teacher encouraged me to prepare daily objectives from the main objectives to guide achievement of the skill					
The clinical teacher supported me during the performance of a skill					
The clinical teacher guided me during the performance of the skill					
The clinical teacher coached me during the performance of a skill					
The clinical teacher encouraged me to submit a portfolio following the neonatal nursing clinical practice					
B3: Assessment approaches to validate the achievement of clinical competence					
The clinical teacher used skills check offs in the skills laboratory to assess my competence prior to clinical placement					

The clinical teacher used a summative Nurses and Midwives Council of Malawi (NMCM) assessment to assess my competence in neonatal nursing					
The NMCM assessment focused on my ability to provide care to neonates					
The clinical teacher used an Objective Structured Clinical Examination (OSCE) to evaluate my competence in neonatal nursing					
The clinical teacher directly observed me when I was performing the skill during clinical practice					
The clinical teacher asked me some questions when I was performing a skill in the clinical area					
The clinical teacher used clinical assignments to assess if I had understood neonatal nursing care					
The clinical teacher encouraged me to do a self-evaluation					
The clinical teacher encouraged me to evaluate my colleagues on their performance in neonatal nursing					
B4: Tools used for assessment of competency achievement					
The clinical teacher used a competency check list to assess my competence in neonatal nursing					
The clinical teacher used a green book to evaluate my performance and progress in neonatal nursing					
The clinical teacher used the NMCM assessment tool to evaluate my competency in neonatal nursing					
Other comments:					

Appendix 5: Likert Scale

Score	Response item	Rate
1	Strongly disagree	1.0-1.4
2	Disagree	1.5-2.4
3	Undecided	2.5-3.4
4	Agree	3.5-4.4
5	Strongly agree	4.5-5.0



Appendix 6: Ethics clearance letter from University of Western Cape



OFFICE OF THE DEAN
DEPARTMENT OF RESEARCH DEVELOPMENT

07 August 2013

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by Ms EE Phuma (School of Nursing)

Research Project: Development of clinical competency-based assessment tool for neonatal nursing care for nurse-midwife technicians in CHAM Nursing Colleges, Malawi

Registration no: 13/6/17

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

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

*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*

Private Bag X17, Bellville 7535, South Africa
T: +27 21 959 2988/2948 . F: +27 21 959 3170
E: pjosias@uwc.ac.za
www.uwc.ac.za

A place of quality,
a place to grow, from hope
to action through knowledge

Appendix 7: Ethics clearance letter from NHSRC in Malawi

Telephone: + 265 789 400
Facsimile: + 265 789 431
e-mail doccentre@malawi.net
All Communications should be addressed to:
The Secretary for Health



In reply please quote No. MED/4/36c

MINISTRY OF HEALTH
P.O. BOX 30377
LILONGWE 3
MALAWI

6th November 2013

Ellemes Phuma
University of Western Cape

Dear Sir/Madam,

Re: Protocol #1208: Development of clinical competency-based assessment tool for neonatal nursing care for nurse-midwife technicians in CHAM Nursing Colleges Malawi

Thank you for the above titled proposal that you submitted to the National Health Sciences Research Committee (NHSRC) for review. Please be advised that the NHSRC has **reviewed** and **approved** your application to conduct the above titled study.

- **APPROVAL NUMBER** : NHSRC # 1208
The above details should be used on all correspondence, consent forms and documents as appropriate.
- **APPROVAL DATE** : 06/11/2013
- **EXPIRATION DATE** : This approval expires on 05/11/2014
After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the NHSRC secretariat should be submitted one month before the expiration date for continuing review.
- **SERIOUS ADVERSE EVENT REPORTING** : All serious problems having to do with subject safety must be reported to the National Health Sciences Research Committee within 10 working days using standard forms obtainable from the NHSRC Secretariat.
- **MODIFICATIONS**: Prior NHSRC approval using standard forms obtainable from the NHSRC Secretariat is required before implementing any changes in the Protocol (including changes in the consent documents). You may not use any other consent documents besides those approved by the NHSRC.
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the NHSRC using standard forms obtainable from the NHSRC Secretariat.
- **QUESTIONS**: Please contact the NHSRC on Telephone No. (01) 724418, 0888344443 or by e-mail on mohdoccentre@gmail.com
- **Other**:
Please be reminded to send in copies of your final research results for our records as well as for the Health Research Database.

Kind regards from the NHSRC Secretariat.


.....
FOR CHAIRMAN, NATIONAL HEALTH SCIENCES RESEARCH COMMITTEE

PROMOTING THE ETHICAL CONDUCT OF RESEARCH
Executive Committee: *Dr. C. Mwansambo (Chairman), Prof. E. Molyneux (Vice Chairperson)*
Registered with the USA Office for Human Research Protections (OHRP) as an International IRB
(IRB Number IRB00003905 FWA00005976)

Appendix 8: Information sheet for clinical teachers



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 7 8855 1197/+265 9 9934 4231, Fax: +27 21959 2679
E-mail: ephuma@yahoo.co.uk

INFORMATION SHEET

Project Title: Development of neonatal nursing care clinical competency-based assessment tool for Nurse-Midwife Technicians in CHAM nursing colleges, Malawi.

Instructions: Thank you for accepting to participate in this research. This information sheet has all the basic information you may need to understand the contents of the study and expectations, please read carefully.

What is this study about?

This is a research project being conducted by Ellemes Phuma at the University of the Western Cape. I intend to develop clinical competency-based assessment tool for neonatal nursing care. I am inviting you to participate in this research project because you are best suited to contribute knowledge on clinical teaching and assessment in neonatal nursing for Nurse-Midwife Technicians, because of your involvement in teaching the course. The assessment tool will help to improve Nurse-Midwife Technicians' clinical competence in neonatal care.

What will I be asked to do if I agree to participate?

You will be asked to participate in a focus group discussion and contribute your knowledge and perception on neonatal nursing clinical competencies, and how the NMT is assisted to acquire the competencies, and how assessment to validate the NMTs' achievement of clinical competence is done. You will also be expected to respond to a questionnaire which will explore

the approaches used to validate achievement of clinical competence among NMTs. The questionnaire will take about 20 minutes to be completed.

Would my participation in this study be kept confidential?

I will do my best to keep your personal information confidential. To help protect your confidentiality, your name will not be used in the study, you will be assigned a code that will be used on the questionnaire and nicknames (pseudonyms) will be used during the focus group discussion. The information you will provide will not be shared without your consent and it will be kept in a locked file document requiring a password on the computer system. Written documents, recorded information and survey forms, will be kept in locked filing cabinets and will be destroyed five years following the report and dissemination. If the research findings will be published, your identity will be protected to the maximum extent possible.

What are the risks of this research?

There are no known risks associated with participating in this research project.

What are the benefits of this research?

Though there may be no direct and imminent benefits to you for participating in this study, the intended competency-based assessment tool may help you improve your clinical teaching and assessment. This is because you may develop an understanding of the criteria for assessing students' to validate clinical competence in neonatal nursing care. This will lead to the training of competent Nurse-Midwife Technicians and improved quality of neonatal care in Malawi.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you

decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

Is any assistance available if I am negatively affected by participating in this study?

In case participation in this study lead to emotional effects due to embarrassment on previous experience with clinical teaching and/or students' assessment. You will be given time to reflect on the experience and then discuss with the researcher or colleagues on possible solutions.

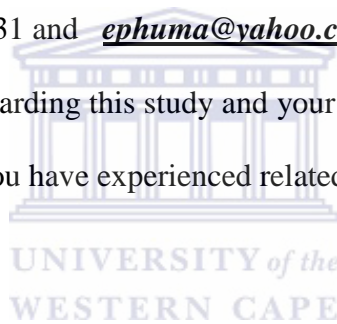
What if I have questions?

This research is being conducted by Ellemes Phuma at the University of the Western Cape. If you have any questions about the research study itself, please contact Ellemes Phuma on: 0027781553717 or 00265999344231 and ephuma@yahoo.co.uk

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

The Director of Nursing:

Prof. K. Jooste
University of the Western Cape
Private Bag X17
Bellville
7535
021 959 2271
kjooste@uwc.ac.za



Dean of the Faculty of Community and Health Sciences:

Prof. J. Frantz (Acting)
University of the Western Cape
Private Bag X17
Bellville 7535
021-959 2631
jfrantz@uwc.ac.za

(This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee).

Appendix 9: Information sheet for students



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 7 8855 1197/+265 9 9934 4231, Fax: +27 21959 2679
E-mail: ephuma@yahoo.co.uk

INFORMATION SHEET

Project Title: Development of neonatal nursing care clinical competency-based assessment tool for Nurse-midwife Technicians in CHAM nursing colleges, Malawi.

Instructions: Thank you for accepting to participate in this research. This information sheet has all the basic information you may need to understand the contents of the study and expectations, please read carefully.

What is this study about?

This is a research project being conducted by Ellemes Phuma at the University of the Western Cape. I intend to develop a clinical competency-based assessment tool for neonatal nursing care. I am inviting you to participate in this research project because you are best suited to contribute your knowledge and experience on clinical learning and assessment in neonatal nursing by virtue of undergoing through the neonatal nursing course. This assessment tool will help to improve Nurse-Midwife Technicians' clinical competence in neonatal care.

What will I be asked to do if I agree to participate?

You will be asked to explain your perception on learning neonatal nursing skills to assist you to acquire the required clinical competencies and the assessments approaches used to validate your achievement of clinical competence in neonatal nursing care. You will be expected to participate in a focus group discussion and then later to respond to a questionnaire which will have the

elements on assessment approaches used to validate student clinical competence in neonatal nursing. The questionnaire will take about 20 minutes to be completed.

Would my participation in this study be kept confidential?

I will do my best to keep your personal information confidential. To help protect your confidentiality, your name will not be used in the study, you will be assigned a code that will be used on the questionnaire and nicknames (pseudonyms) will be used during the focus group discussion. The information you will provide will not be shared without your consent and it will be kept in a locked file document requiring a password on the computer system. Written documents, recorded information and survey forms will be kept in locked filing cabinets and will be destroyed five years following the report and dissemination. If the research findings will be published, your identity will be protected to the maximum extent possible.

What are the risks of this research?

There are no known risks associated with participating in this research project.

What are the benefits of this research?

Though there may be no direct and imminent benefits to you for participating in this study, the information you will provide will help in the development of clinical competency-based assessment tools that may help to improve acquisition of clinical competence in neonatal care among Nurse-Midwife Technicians. This will lead to the training of competent Nurse-Midwife Technicians and improved quality of neonatal care in Malawi.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you

decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

Is any assistance available if I am negatively affected by participating in this study?

In case participation in this study lead to emotional effects due to embarrassment on previous experience with clinical assessment and feedback; you will be given time to reflect on the experience and then discuss with the researcher or colleagues on possible solutions.

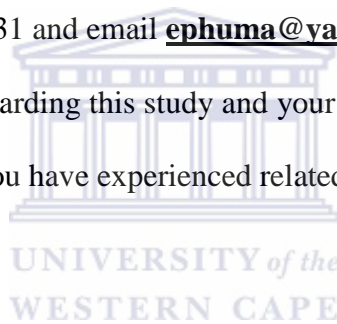
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This research is being conducted by Ellemes Phuma at the University of the Western Cape. If you have any questions about the research study itself, please contact Ellemes Phuma on: 0027781553717 or 00265999344231 and email ephuma@yahoo.co.uk

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University of the Western Cape
Private Bag X17
Bellville 7535
021-959 2631
jfrantz@uwc.ac.za

(This research has been approved by the University of the Western Cape's Senate Research Committee and

Ethics

Committee).

Appendix 10: Consent form



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa
Tel: +27 7 8855 1197/+265 9 9934 4231, Fax: +27 21959 2679
E-mail: ephuma@yahoo.co.uk

CONSENT FORM

Title of Research Project: Development of neonatal nursing care clinical competency-based assessment tool for Nurse-Midwife Technicians in CHAM nursing colleges, Malawi.

The study has been described to me in a language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

Participant's name:.....

Participant's signature:.....

Date:.....

I Ellmes Phuma confirm that the above participants has been duly informed of the study and understood fully.

Researcher's signature:.....

Date :.....

Appendix 11: Individual review and consensus agreement form

Instruction: This review form accompanies the neonatal nursing care clinical competency-based assessment tool, for the NMTs. Please indicate in the appropriate box whether you agree with the statement/activity, or you suggest some modifications, or the statement should be removed from the assessment tool completely. The scale is presented in an ascending order as follows: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Skills to be demonstrated				
Skill 1				
Skill 2				
Skill 3				
Skill 4				
Skill 5				
Skill 6				
Skill 7				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Roles of the student				
Statement 1				
Statement 2				
Statement 3				
Statement 4				
Statement 5				
Statement 6				
Statement 7				
Statement 8				
Statement 9				
Statement 10				
Statement 11				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Roles of the clinical teacher/mentor				
Statement 1				
Statement 2				
Statement 3				
Statement 4				
Statement 5				

Statement 6				
Statement 7				
Statement 8				
Statement 9				
Statement 10				
Statement 11				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Table 6.1: Criterion-referenced scale				
NOVICE				
Level of Knowledge				
Standard of work				
Autonomy				
Attitude and perception of context				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Table 6.1: Criterion-referenced scale				
BEGINNER				
Level of Knowledge				
Standard of work				
Autonomy				
Attitude and perception of context				

COMPETENT	1	2	3	
Level of knowledge				
Standard of work				
Autonomy				
Attitude and Perception of context				
PROFICIENT				
Level of knowledge				
Standard of work				
Autonomy				
Attitude and perception of context				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Competency area 1: Assessment and management of a neonate				
Competency standard 1				
Activity 1				
Activity 2				
Activity 3				
Activity 4				
Activity 5				
Activity 6				
Activity 7				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Competency area 1: Assessment and management of a neonate				
Competency standard 2				
Activity 1				
Activity 2				
Activity 3				
Activity 4				
Activity 5				
Activity 6				
Activity 7				
Activity 8				
Activity 9				
Activity 10				
Activity 11				
Activity 12				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Reflective questions				
Student comment question 1				
Student comment question 2				
Clinical teacher question 1				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestion
Competency area 2: Communication				
Competency standard 3				
Activity 1				
Activity 2				
Activity 3				
Activity 4				
Activity 5				
Activity 6				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Competency area 3: Critical thinking				
Competency standard 4				
Activity 1				
Activity 2				
Activity 3				
Activity 4				
Activity 5				
Activity 6				
Activity 7				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Competency area 4: Teaching				
Competency standard 5				
Activity 1				
Activity 2				
Activity 3				
Activity 4				
Activity 5				
Activity 6				
Activity 7				
Activity 8				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Competency area 5: Ethical and Professional practice				
Competency standard 6				
Activity 1				
Activity 2				
Activity 3				
Activity 4				
Activity 5				
Activity 6				
Activity 7				

Activity 8				
Activity 9				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Competency area 6: Management				
Competency standard 7				
Activity 1				
Activity 2				
Activity 3				
Activity 4				

Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Competency area 7: Personal and professional development				
Competency standard 8				
Activity 1				
Activity 2				
Activity 3				
Activity 4				


Key: 1= remove the statement, 2=modify as per my suggestion, 3= agree with the statement

Statement	1	2	3	Suggestions
Formative and summative assessment report				
Question 1				
Question 2				
Question 3				



Appendix 12: The Neonatal nursing care clinical competency-based assessment tool for Nurse-Midwife Technicians

Student's Information	
Student name
Name of clinical placement area
Type of clinical placement area (postnatal/neonatal ward)
Name of training institution
Responsible clinical teacher
Clinical placement mentor
Duration of clinical placement
Date started
Date completed



The logo of the University of the Western Cape is centered in the background of the form. It features a classical building with a pediment and columns, with the text "UNIVERSITY of the WESTERN CAPE" below it.

KEY:

The student's performance will be rated on a scale of 1-4 as follows: 1=novice, 2=beginner, 3=competent and 4=proficient.

Competency area 1: Assessment and management of a neonate

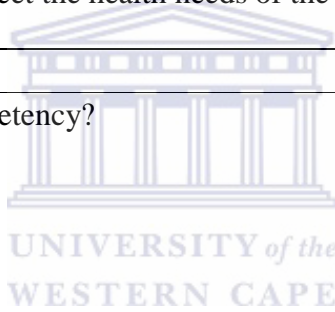
Competency standard 1: Carries out a comprehensive and accurate assessment of a newborn baby and the family that will lead to quality neonatal health and development

Activity	Performance score			
	1	2	3	4
Conducts a rapid assessment of the danger signs				
Collects thorough history from different sources				
Conducts a thorough head-to-toe examination for the initial examination of the newborn baby one hour after delivery				
Conducts a thorough head-to-toe examination for the subsequent examination of the newborn baby				
Assists during a gestational age assessment for premature newborn baby				
Identifies relevant health needs and problems of the newborn baby and the family based on the collected data				
Plans relevant nursing actions to meet the health needs of the newborn baby and the family				

Student's comment

What have I learnt about this competency?

What should I improve on?



Clinical teacher/mentor's comment

What attributes did the student display to qualify for the assigned score?

Average score for the competency area

1	2	3	4

Student's signature :..... Date :.....

Clinical teacher/mentor's name :.....

Clinical teacher/mentor's signature :..... Date :.....

Competency standard 2: Demonstrates knowledge and skills when assisting with nursing interventions contributing to quality neonatal health and development

Activity	Performance score			
	1	2	3	4
Uses appropriate techniques to stimulate the baby immediately following delivery				
Positions the baby appropriately for resuscitation				
Performs resuscitation of the newborn baby using the correct techniques				
Monitors the newborn baby's vital signs every quarter hour				
Maintains a thermoneutral environment for the newborn baby				
Monitors a neonate under phototherapy every 30 minutes				
Assists in positioning the neonate for collection of specimen				
Assists with bathing of the newborn baby				
Calculates correct medication dosages required for the neonate				
Assists with the administration of correct medications to the neonate using the right route				
Ensures safety of the newborn baby throughout the provision of care				
Maintains infection prevention measures throughout the provision of care				

Student's comment

What have I learnt about this competency?

What should I improve on?

Clinical teacher/mentor's comment

What attributes did the student display to qualify for the assigned score?

Average score for the competency area

1	2	3	4

Student's signature :..... Date :.....

Clinical teacher/mentor's name :.....

Clinical teacher/mentor's signature :..... Date :.....

Competency area 2: Communication

Competency standard 3: Ensures effective communication throughout the provision of neonatal nursing care

Activity	Performance score			
	1	2	3	4
Establishes and maintains a trusting relationship with family of the neonate				
Uses both non-verbal and verbal skills to communicate with the neonate and the family				
Communicates information about neonate's progress to family clearly and timely				
Reports patient's information to colleagues and healthcare team members clearly and timely				
Documents patients' care and progress accurately				
Participates in writing patient's progress reports for change of shift				
Participates in the provision of change of shift patients report				
Student's comment				

What have I learnt about this competency?

What should I improve on?

Clinical teacher/mentor's comment

What attributes did the student display to qualify for the assigned score?

Average score for the competency area

1	2	3	4

Student's signature :..... Date :.....

Clinical teacher/mentor's name :.....

Clinical teacher/mentor's signature :..... Date :.....

Competency area 3: Critical thinking

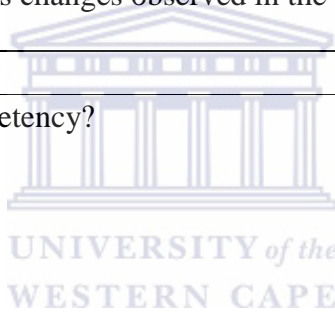
Competency standard 4: Demonstrates critical thinking when carrying out the basic neonatal care and delegated activities

Activity	Performance score			
	1	2	3	4
Utilises the nursing process when providing neonatal nursing care				
Interprets neonatal cues and assessment findings to aid in provision of care				
Liaises with the registered nurses to develop an appropriate nursing care plan				
Liaises with the qualified midwives to select appropriate neonatal nursing interventions based on the assessment findings				
Refers neonates requiring comprehensive nursing care				
Liaises with other members of the healthcare team for provision of comprehensive neonatal care				
Recognises and immediately reports changes observed in the neonate to the registered nurse				

Student's comment

What have I learnt about this competency?

What should I improve on?



Clinical teacher/mentor's comment

What attributes did the student display to qualify for the assigned score?

Average score for the competency area

1	2	3	4

Student's signature :..... Date :.....

Clinical teacher/mentor's name :.....

Clinical teacher/mentor's signature :..... Date :.....

Competency area 4: Teaching

Competency standard 5: Provides accurate and relevant health education to the individual or a group to maintain and promote neonatal health and development

Activity	Performance score			
	1	2	3	4
Provides accurate information to mothers of neonates requiring kangaroo mother care				
Provides accurate information on cord care to mothers, and clears myths associated with cord care				
Provides accurate information on importance of exclusive breast feeding				
Teaches mothers about bonding, positioning and breast attachment				
Provides relevant information to mothers regarding neonatal safety and infection prevention				
Provides PMTCT information to mothers of HIV exposed neonates				
Teaches mothers danger signs requiring immediate medical attention				
Teaches mothers about importance of immunisations				
Determines understanding by seeking feedback from mothers on the information given.				

What have I learnt about this competency?

What should I improve on?

What attributes did the student display to qualify for the assigned score?

Average score for the competency area

1	2	3	4

Student's signature :..... Date :.....

Clinical teacher/mentor's name :.....

Clinical teacher/mentor's signature :..... Date :.....

Competency area 5: Ethical and professional practice

Competency standard 6: Demonstrates understanding of the professional, legal and ethical standards of nursing and midwifery practice

Activity	Performance score			
	1	2	3	4
Identifies and reports risks or harmful practices affecting neonatal health and development				
Reinforces cultural practices contributing to positive neonatal health and development				
Identifies cultural practices associated with neonatal care				
Seeks consent from family members to provide care for the neonate				
Recognises and understands his/her scope of practice within the NMCM regulations				
Maintains privacy and confidentiality throughout the provision of neonatal care				
Demonstrates responsibility and accountability towards his/her actions including delegated activities				
Demonstrates positive working relationships with other members				
Dresses according to the prescribed code				

What have I learnt about this competency?

What should I improve on?

Clinical teacher/mentor's comment

What attributes did the student display to qualify for the assigned score?

Average score for the competency area

1	2	3	4

Student's signature :..... Date :.....

Clinical teacher/mentor's name :.....

Clinical teacher/mentor's signature :..... Date :.....

Competency area 6: Management

Competency standard 7: Participates in management activities to promote quality neonatal healthcare services within the primary healthcare setting

Activity	Performance score			
	1	2	3	4
Collaborates with other healthcare team members to promote quality neonatal health care				
Manages available resources appropriately for the delivery of quality neonatal health care services				
Identifies his/her own limitations and seeks assistance				
Prioritises patient care for the wellbeing of the neonate and the family				

Student's comment

What have I learnt about this competency?



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What should I improve on?

Clinical teacher/mentor's comment

What attributes did the student display to qualify for the assigned score?

Average score for the competency area

1	2	3	4

Student's signature :..... Date :.....

Clinical teacher/mentor's name :.....

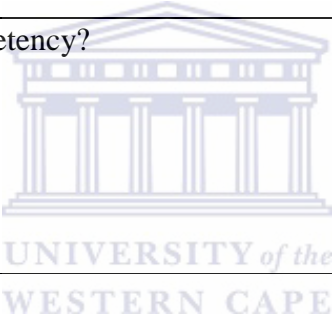
Clinical teacher/mentor's signature :..... Date :.....

Competency area 7: Personal and professional development

Competency standard 8: Participates in activities contributing to personal and professional development to improve own knowledge and skills in neonatal nursing

Activity	Performance score			
	1	2	3	4
Identifies own learning needs and seeks assistance where needed				
Utilises knowledge learnt in other disciplines to provide care to the neonate and the family				
Demonstrates responsibility and accountability for the improvement of neonatal nursing knowledge and skills				
Participates in ward rounds and clinical meetings to keep up to date with the activities occurring in the neonatal care clinical setting				

Student's comment

<p>What have I learnt about this competency?</p> <p>What should I improve on?</p>	
--	--

Clinical teacher/mentor's comment

<p>What attributes did the student display to qualify for the assigned score?</p>

Average score for the competency area

1	2	3	4

Student's signature :..... Date :.....

Clinical teacher/mentor's name :.....

Clinical teacher/mentor's signature :..... Date :.....

Assessor's formative assessment report form

1. What were the student's strengths?

2. What were the student's challenges during the performance?



3. What strategies would help to improve the student's performance?

Student's signature Date

Clinical teacher/mentor's name Date

Clinical teacher/mentor's signature Date

Assessor's summative assessment report form

1. What were the student's strengths?

2. What were the student's challenges during the performance?



3. What strategies would help to improve the student's performance?

Student's signature Date

Clinical teacher/mentor's name Date

Clinical teacher/mentor's signature Date