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Abstract

Introduction and aim: In Zimbabwe, a one-year midwifery-training programme, based on a competency-based curriculum, aims to develop essential competencies for midwifery clinical practice and sound professional judgement, as required by the International Confederation of Midwives (ICM) Global Standards for Midwifery Education. This study aimed to explore midwives’ preparation for practice to the level defined by ICM core competencies in Zimbabwe.

Methods: A critical realist mixed-method study included an exploratory correlational approach for the quantitative phase and classical grounded theory for the qualitative phase. In the quantitative phase, complete sampling was used to recruit a cohort of 85 midwives from three midwifery schools (School A, School C and School B; recruitment rate 53.8%) before they received the results of their state final examinations. Confidence and competence data were collected from participants, their ward supervisors/senior midwives, peers and clinical instructors using a 360° assessment tool developed for the study, based on one currently used for assessment at the participating schools. This consisted of a checklist of 20 ICM competencies each scored as a rating scale from 0-10 in six areas of midwifery care. Data were collected at initial recruitment, after the participants had received their examination results and after three months of clinical practice, with 58 from School A and School C providing data at the final time point (68.2% retention rate). The qualitative study used in-depth interviews to explore the knowledge views and practices of midwives regarding ICM core competencies, using theoretical sampling to recruit 36 participants (21 newly qualified midwives, 4 tutors, 5 ward supervisors, 3 clinical instructors, and 3 acting clinical instructors) from School A and School C until data saturation was reached.

Data analysis: IBM SPSS Statistics 22 was used to analyse quantitative data. Cronbach’s alpha was used to estimate the internal consistency of subscales and the overall scale of the 360° assessment tool. Most analyses were descriptive, and Pearson’s chi-square, Fisher’s exact and the Mann-Whitney U test was used to compare data by school. Kendall’s correlation and multiple linear regressions were used to explore which variables were associated with total confidence and competence scores. Constant comparative analysis was used on the qualitative data to develop categories to build a grounded theory of social processes facilitating or hindering competence and confidence development in midwives.

Results: The 360° assessment tool was reliable although some assessors appeared not to have observed the participant performing an episiotomy or resuscitating a new born. Participants’ confidence scores were generally higher than their assessors’ competence scores. Confidence and competence scores at School C generally increased over time, but confidence scores at School A fell after the midwives had spent three months in clinical practice. The number completing the quantitative phase limited the generalisability and precision of the multiple regressions but the main predictor of confidence and competence was school. The qualitative phase explained the difference between schools in terms of school policies, the way facilitators planned and organised clinical settings to facilitate student learning, and facilitator characteristics. Students at School A were allowed to pass assessments without reaching the required standard while those at School C were marked more harshly, but were subsequently appreciative of this approach, recognising its necessity for competence development. Following transduction, a Competence and Confidence Development Model was proposed to explain how the dualistic nature of an individual and their confidence and competence were related via a student learning typology combining individualism-collectivism and rate of learning with six phases of skill acquisition.

Conclusions: Midwifery schools in Zimbabwe must consider policies, the training environment, student learning styles and the teaching processes required for students to acquire the clinical skills and theoretical knowledge necessary to become competent qualified practitioners.
Declaration

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**Presentations and Conferences attended**

Poster Presentation at Doctoral Academy PhD Conference held on 16 May 2017: A classical grounded theory study to explore midwives’ preparation for practice to the level defined by ICM core competences in Zimbabwe.


A PhD Seminar presentation was held on 16-04-2015 at 1400hours in room 2. 236.Jean McFarlane Building School of Nursing, Midwifery and Social work: A mixed method study to explore competence based practice of midwives in Zimbabwe.

Poster Presentation at LAMRIN Conference on 08- 03-2015 in Dar e Salam Tanzania: A Literature review of midwifery competence development.

Oral Presentation at Midwifery Group Meeting held on 15 November 2017: A classical grounded theory study to explore midwives’ preparation for practice to the level defined by ICM core competences in Zimbabwe.
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I would also want to thank the participants for offering the needed information, without which there was no thesis to present.

I am grateful to the support offered by my family (children: Leo, Owen, Angelline and grand daughter Chelsea and Husband: Zacharia) during the three and half years I have been studying at the University of Manchester and failing to give the much needed mother love. Thank you for your constant support and check of my progress.
Dedication

This work is dedicated to the Lugina Africa Midwives Network, and Jan and Robin Mills
**List of Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ICM</td>
<td>International Confederation of Midwives</td>
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<tr>
<td>MoHCC</td>
<td>Ministry of Health and Child Care Zimbabwe</td>
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<tr>
<td>WHO</td>
<td>World Health Organisation</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNFPA</td>
<td>United Nations Population Fund</td>
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<tr>
<td>LMIC</td>
<td>Low and Middle Income Countries</td>
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<tr>
<td>TBA</td>
<td>Traditional Birth Attendances</td>
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<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
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<tr>
<td>SDGs</td>
<td>Sustainable Development Goals</td>
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<tr>
<td>EPMM</td>
<td>Ending Preventable Maternal Mortality</td>
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<tr>
<td>ZDHS</td>
<td>Zimbabwe Demographic Health Survey</td>
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<tr>
<td>NHZS</td>
<td>National Health Zimbabwe Survey</td>
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<tr>
<td>CSOZ</td>
<td>Central Statistics Office Zimbabwe</td>
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<tr>
<td>MICS</td>
<td>Multiple Indicator Cluster Survey</td>
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<td>WB</td>
<td>World Bank</td>
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<tr>
<td>MMR</td>
<td>The Maternal Mortality Ratio</td>
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<td>ZIMSTATS</td>
<td>Zimbabwe Central Statistics</td>
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<tr>
<td>ZNSA</td>
<td>Zimbabwe National Statistics Agency</td>
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<tr>
<td>MPMS</td>
<td>Maternal and Perinatal Mortality Study</td>
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<tr>
<td>HIV</td>
<td>Human Immune Virus</td>
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<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
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<tr>
<td>STI</td>
<td>Sexual Transmitted Infections</td>
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<tr>
<td>MNHS</td>
<td>Maternal Neonatal Health Assessment</td>
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<tr>
<td>GEFA</td>
<td>Currently, under the Global Evaluation Services Framework Agreement</td>
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<tr>
<td>HPI</td>
<td>Health Partners International</td>
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<tr>
<td>OPM</td>
<td>United States Office of Personnel Management</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>DFID</td>
<td>Department for International Development</td>
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<tr>
<td>MNCH</td>
<td>Maternal New born and Child Health</td>
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<tr>
<td>ARV</td>
<td>Antiretroviral</td>
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<tr>
<td>EGPAF</td>
<td>Elizabeth Glazier Paediatric AIDS Foundation</td>
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<tr>
<td>HTF</td>
<td>Health Transition Fund</td>
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<tr>
<td>HDF</td>
<td>Health Development Fund</td>
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<tr>
<td>DFID</td>
<td>Department for International Development</td>
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<tr>
<td>PHC</td>
<td>Primary Health Care</td>
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<td>VHWs</td>
<td>Village Health Workers</td>
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<tr>
<td>CBDs</td>
<td>Community-Based Distributors</td>
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<tr>
<td>RHC</td>
<td>Rural Health Centre</td>
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<tr>
<td>EmONC</td>
<td>Emergency Obstetric and New born Care</td>
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<tr>
<td>MNH</td>
<td>Maternal and Neonatal Health</td>
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<tr>
<td>BEmONC</td>
<td>Basic Emergency Obstetric and New born Care</td>
</tr>
<tr>
<td>CEmONC</td>
<td>Comprehensive emergency obstetric and New born care</td>
</tr>
<tr>
<td>NHSP</td>
<td>National Health Strategy Plan</td>
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<tr>
<td>CARMMA</td>
<td>the African Union’s Campaign on Accelerated Reduction of Maternal Mortality</td>
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<tr>
<td>CRC</td>
<td>The UN Convention on the Rights of the Child</td>
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<tr>
<td>CEDAW</td>
<td>The UN Convention for the Elimination of all forms of Discrimination against Women</td>
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<tr>
<td>SADC</td>
<td>The Southern African Development Community</td>
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<tr>
<td>ZICOM</td>
<td>Zimbabwe Confederation of Midwives</td>
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<tr>
<td>HRH</td>
<td>Human Resources for Health</td>
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<tr>
<td>NCZ</td>
<td>Nursing Council of Zimbabwe</td>
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<tr>
<td>RGN</td>
<td>Registered General Nurse</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>State Final Examination</td>
<td>Nurses Council of Zimbabwe Examination</td>
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<tr>
<td>VAS</td>
<td>Visual Analogue Scale</td>
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<tr>
<td>TBL</td>
<td>Traditional/Lecturer Based Learning</td>
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<tr>
<td>PBL</td>
<td>Problem Based Learning</td>
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<tr>
<td>OSCE</td>
<td>Objective Structured Clinical Examination</td>
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<tr>
<td>JREC</td>
<td>Joint Research Ethics Committee for the University of Zimbabwe College of Health Sciences and Parirenyatwa Group of Hospitals</td>
</tr>
<tr>
<td>MRCZ</td>
<td>Medical Research Council of Zimbabwe</td>
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<tr>
<td>UREC</td>
<td>The University of Manchester Research Ethics Council</td>
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<tr>
<td>IERB</td>
<td>Ethics Review Board</td>
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<tr>
<td>DNO</td>
<td>District Nursing Officer</td>
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<tr>
<td>EPMMM</td>
<td>Ending Preventable Maternal Mortality and Morbidity</td>
</tr>
<tr>
<td>EPPCMM</td>
<td>Ending Preventable Premature Child Mortality and Morbidity</td>
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Outline of thesis

The thesis is comprised of the following nine chapters:-

1) Chapter one describes the background to the problem and study setting expounding on the global picture of maternal and child mortality and the possibility of EPMMM and EPPCMM with the provision of skilled birth attendants. Including The benefits of having an evidence-based led training programme supplying the much cherished resource in the context of ICM, (2010, 2013) Standards of midwifery education and Essential basic competencies.

2) Chapter two situates the study problem by providing available global evidence on factors impacting on midwifery training and revealing the gaps which possible the present study tried to contribute towards.

3) Chapter three provides an overview of the critical realist's mixed-methods philosophy underpinning the study. The chapter gives the study aims, objectives and the principles of critical realists’ mixed-methods principles.

4) Chapter four covers the qualitative study objectives, the classical grounded theory study design which guided study: the sampling methods, data collection, analysis and presentation of findings.

5) Chapter Five involves the longitudinal exploratory correlation quantitative study design principles which were applied in quantitative data collection, analysis and presentation within the context of critical realists’ perspective.

6) Chapter six gives a full description of the qualitative study results which includes the core category being interactive and the three main categories ‘Being socialised into the midwifery profession’, ‘Student typology’ and ‘Finding a place in the midwifery profession.’

7) Chapter seven provides the quantitative study results showing patterns and strength of the relationship between the self-assessed confidence and the 360° assessed competence scores.

8) Chapter 8 describes the integrated results interpreted using the triangulation protocol to identify converging, complimentary and diverging results.

9) Chapter 9 provides the discussion of the unique findings of the present study, conclusions and recommendations of the present study (practice, policy, education and future research).
The Author

I am a nurse midwife and have a passion for midwifery education. Currently, I am a midwifery educator stationed at Chitungwiza School of Nursing and Midwifery. I have had an opportunity of training and working in an environment with all the needed resources (human and material) and have taught in a training friendly environment, where students could train and receive support from several experienced ward supervisors and clinical instructors. I have also worked in all maternity departments, but worked longest in the neonatal unit and labour ward. I developed expertise in intrapartum and neonatal care and can mentor anyone at any level, in these areas. I have a vast experience in teaching both midwifery theory and practice and have interacted with different types of students, mentors and subordinates.

My interest in competence development stems from my own experiences as a student midwife, a newly qualified midwife, a senior midwife and an educator. It has also been informed by my interactions with other qualified and unqualified midwives. Working in different environments I have observed similar individual characteristics, despite various levels of resources. Also, despite various teaching methods and support offered throughout student programmes, I have witnessed different levels of confidence and competence at graduation. Throughout my career I have tried to understand what is contributing towards levels of competence and confidence in midwives. This thesis provides an opportunity to formally investigate some of the issues I have observed and to gain meaningful understanding of factors influencing midwives’ competence and confidence.
Chapter 1 Introduction and Background to the Study

1.1 Introduction
This chapter provides an introduction to this study of competence and confidence development in midwifery students in Zimbabwe. Section 1.2 gives the background to the study, stressing the need for competent midwives to reduce maternal and child mortality, particularly in low- and medium-income countries (LMIC), while Section 1.3 describes the International Confederation of Midwives and their input into midwifery education and competencies. Section 1.4 describes the geography, demography and health systems of Zimbabwe. Section 1.5 covers midwifery in Zimbabwe, describing current midwifery practice and current midwifery education in Zimbabwe. Section 1.6 outlines the research problem as seen at the start of the study, and Section 1.7 gives a summary of the chapter.

1.2 Background to the study

1.2.1 Maternal mortality
An estimated 303,000 women died in 2015 globally (UNFPA, 2016), with 99% of these deaths occurring in developing and underdeveloped countries; sub-Saharan Africa account for 62% of these (WHO, 2015b, Bongaarts, 2016). About 15% of births globally end up with complications associated with pregnancy, birth and the postpartum period (Otolorin et al., 2015). Almost 2.6 million newborns die yearly (Lawn et al., 2014) and half of these deaths occur within four weeks of birth from preventable pregnancy-related complications. The most common cause of neonatal death are complications of prematurity, birth asphyxia, neonatal sepsis and congenital abnormalities both during the early (0-6 days) and late (7-27 days) neonatal period respectively (Lawn et al., 2014). Maternal and neonatal deaths rates are highest where there are serious health workforce imbalances regarding critical skills, shortages and inequitable distribution between urban and rural areas, a lack of policies which support and promote midwifery care, weaknesses in education, regulation and professional association (Koblinsky et al., 2008, Koblinsky et al., 2006, Ronsmans et al., 2010, Van Lerberghe et al., 2015). The Midwifery profession’s education, regulation and association are all the function of the International Confederation of Midwives (ICM) to ensure that mothers and their babies receive quality care. Filby et al. (2016), emphasised that for mothers and their babies to receive quality care and prevent them from dying unnecessarily, especially in LMICs, the health care system needs be operated by well-trained, licensed and regulated midwives. Globally, an estimated 70% of maternal deaths are related to preventable complications of pregnancy and birth, such as bleeding, abortion, hypertensive disorders of pregnancy and sepsis (Tunçalp et al., 2015).
The deaths of mothers and their babies that occur during or shortly after childbirth are due to a failure to deal efficiently with complications associated with pregnancy, labour, childbirth and the puerperium (Van Lerberghe et al., 2015, Ronsmans et al., 2010, Koblinsky et al., 2006, Koblinsky et al., 2008, Fullerton et al., 2013b, Fullerton et al., 2011a, Bongaarts, 2016). Failure to deal with complications was associated with the inadequate training of midwives, which contributed to poor decision making and responsibilities related to dealing with emergencies (Filby et al., 2016). Since many maternal and newborn deaths and disabilities can be prevented if the woman gets skilled attendance and appropriate care (Tunçalp et al., 2015, UNFPA, 2011b, UNFPA, 2014b), midwifery training programmes should be able to develop a suitably skilled workforce. A midwife who is able to implement all the policies and initiatives to do with reduction of maternal and child mortality is the most ideal since a lack of adequate skills in health professionals running maternal and child programmes is the crisis faced by most LMICs (UNFPA, 2011b).

1.2.2 Safe Motherhood Initiatives

Several initiatives and campaigns to improve maternal and child health have been held, including Safe Motherhood strategies (Freedman et al., 2007, Berer, 1999), but there has been little improvement in maternal child health in some countries (UNFPA, 2014a, UNFPA, 2011a). Several authors (Rosser, 2000, Rosenfield and Maine, 1985, Jeffery et al., 2007, Berer, 1999) complained of the lack of focus on improving maternal and child health. This was reflected in the State of World Midwifery (UNFPA, 2011a) report, 26 years after the Rosenfield and Maine (1985) study findings reflected the need for a change of focus. Mothers and babies were still dying from known and preventable causes (UNFPA, 2014a, UNFPA, 2011a). The Safe Motherhood strategies in the 1980s and 1990s were concerned with antenatal care focusing on risk screening and training of Traditional Birth Attendants (TBA), while later strategies focused on skilled birth attendants and emergency obstetric care (Campbell and Graham, 2006).

In 2000, leaders from across the globe, including those from Zimbabwe, became signatories to measureable objectives for improving the health and well-being of the world’s poorest citizens through eight Millennium Development Goals (MDGs). These development goals were acknowledged as a plan for civil society, governments and other development partners to achieve the requirements of the world’s most underprivileged citizens (UN, 2000, http://www.who.int/topics/millennium_development_goals/en/). Two main MDGs of significance to midwifery were MDG 4: to reduce by two-thirds the
mortality rate for children under 5, and MDG 5: to reduce by three-quarters the maternal mortality rate, both by 2015. Well trained and supported midwives in an enabling environment were found to be the best solution to provision of quality care and able to curtail the spiralling maternal and child mortalities across the globe, with special emphasis on an access to skilled birth attendants (El Arifeen et al., 2014).

Also, 2015 marked the initiation of the UN Sustainable Development Goals (SDGs) (UN, 2015, http://www.who.int/gho/publications/mdgs-sdgs/en/) (Fikree et al., 2017). SDG 3.1 aimed to reduce the global maternal mortality rate to less than 70 deaths per 100,000 live births by 2030, with the hope that no country will be exceeding a maternal mortality rate of 140 per 100,000 live births by then. SDG 3.2 aimed to reduce neonatal mortality to at most 12 per 1,000 live births and under-5 mortality to at most 25 per 1,000 in each country (Alkema et al., 2015, Alkema et al., 2016). These replaced the UN MDGs 4 and 5 at the start of 2016 and continued to push the agenda of sustaining the quality of maternal and child health through skilled midwifery care (Tunçalp et al., 2015, Taylor et al., 2015, Smith, 2015). The implementation of the Ending Preventable Maternal Mortality (EPMM) framework included pushing for a global effort to strengthen midwifery services, providing a forum for LMICs to share challenges faced by their midwives in maternal-child health care. It also provided combined statements from the main partners backing up the world wide strengthening of midwifery (WHO, 2015a). Hence midwives remain a critical health resource for scaling down preventable maternal and child deaths during pregnancy, birth and the postnatal period through provision of quality care if trained to proficiency (Jeffery et al., 2007, Islam, 2007, Harvey et al., 2004, Freedman et al., 2007, Berer, 1999).

One of the main fears of failing to attain SDG 3.1 and SDG 3.2 appears to be a shortage of health workers with quality midwifery skills (Tunçalp et al., 2015). There is evidence that the global poor suffer disproportionately, and that their access to health care is severely limited when an acute shortage of healthcare workers with the required skills exists (Lori et al., 2012). This can particularly affect new mothers and their children (Jeffery et al., 2007, Islam, 2007, Harvey et al., 2004, Campbell and Graham, 2006, Berer, 1999).

With increased attention on the skill set desirable for achieving preventable maternal and child deaths, midwives took the lead as an indispensable unit of healthcare workers to achieve the goal (Tunçalp et al., 2015). The International Confederation of Midwives (ICM) has taken a leading role in strengthening midwifery globally to reinforce women’s rights to access quality midwifery care, as will be described in Section 1.3.
In 2011, the first State of the World’s Midwifery report was issued, centred on the 58 countries with the highest global burden of maternal, fetal and new born mortality (UNFPA, 2011b). The report provided the essential data needed to involve midwifery in national policy dialogues and to support the need for a strong midwifery workforce within global health strategies. The report stressed the necessity of increasing women’s access to a skilled midwifery workforce and scrutinised midwifery in each of the countries within the framework of regulation, education and professional associations viewed as the three pillars of a quality workforce. The second State of the World’s Midwifery report (UNFPA, 2014b) revealed changes in the midwifery workforce since 2011, giving an evidence base to support the policy dialogue, speed up progress on the MDGs and SDGs, and enlighten deliberations of the post-2015 development agenda. The report extended the 2011 focus from 58 to 73 of the 75 countries contributing more than 95% of the global burden of maternal, child, and new born deaths. The report revealed that 45% of these 73 countries had tried to improve their workforce mainly concentrating on aspects of pre-service midwifery education, identifying bottlenecks that inhibited the numbers of midwives with the skills needed to provide quality care services to women, their babies and families (Tunçalp et al., 2015).

1.2.3 Benefits of a competent midwife
Midwives are health professionals who work with women to provide the required care and support during pregnancy, labour and the postpartum period to the women, their babies and their families. Preventable maternal and neonatal deaths can be reduced by addressing some of the known causes of these deaths (Campbell and Graham, 2006). Evidence in the literature reveals that midwives, as sole providers of normal childbirth care in several countries, and other health workers with midwifery competencies are crucial for saving the lives of women and new-borns (Sandall et al., 2009) and hence they are critical in Ending Preventable Maternal Mortality (Tunçalp et al., 2015). They can reduce maternal and newborn mortality by between 27% and 82% in developing countries and by even more in developed countries where there are more skilled and adequate numbers of midwives (Gerein et al., 2006) if trained to international standards (UNFPA, 2014b). Such benefits of having proficiently trained midwives and good collaboration between the skilled midwife and the physician were found to make it possible to lower maternal and new born mortality and keep them at low levels (Campbell and Graham, 2006). This was demonstrated when, in the 16th and 17th centuries, Sweden and Holland showed a faster reduction in maternal and child mortality trends even before the use of technology.
(Högberg, 2004). Maternal mortality in the developed countries was reduced from 1000 per 100000 live births to 10 per 100000 live births; it is not possible to eradicate all maternal deaths but these could be kept at a minimum (Campbell and Graham, 2006). For example, what was behind Sweden and Holland’s success stories was the availability of skilled birth attendants in high proportions in relation to the number of women being looked after and accessibility to high quality maternity services by the mothers and their babies (Högberg, 2004). Similarly, more recent examples reflect how Sri Lanka and Malaysia, both LMICs, were able to reduce maternal and child mortality after paying due attention to competence development among midwives and providing a supporting environment (Pathmanathan, 2003).

The importance of designing and implementing a midwifery education programme which can develop appropriate competencies among midwives for skilled practice is evident (Sandall et al., 2014). There is no need for emergency management when women and their newborn babies are attended by a well-trained midwife (Sandall et al., 2014). However, for an individual to acquire the most critical knowledge, to exhibit an ability to critical think, to be competent in the performance of clinical skills or to reach the level of a skilled birth attendant (Fullerton et al., 2013b, Fullerton and Thompson, 2013, Fullerton et al., 2000, Fullerton et al., 2011b, Fullerton and Ingle, 2003), they have to be admitted to a recognised programme with stipulated competences, regulations and practice (ICM, 2010, 2013).

1.3 International Confederation of Midwives (ICM)

The ICM is a non-governmental organisation that represents midwives and the midwifery profession to organisations across the world such as the WHO, the UN and national agencies to achieve common goals in the care of mothers and new borns (http://internationalmidwives.org/who-we-are/).

1.3.1 Midwifery education, regulation and association

According to the ICM (2014), the three pillars of a strong midwifery profession are (1) education to provide a highly competent, qualified workforce; (2) regulation of the activities of the professionals; and (3) organisation of the members in a strong association. Pairman (2010) posited that regulation is a mechanism by which the social contract between the midwifery profession and society is expressed. Society expects the midwifery profession to act responsibly, ensure high standards of midwifery care and maintain the trust of the public (Marshall and Raynor, 2014). Hence, the ICM (2014)
recognises that each woman has the right to receive care in childbirth from an educated and competent midwife authorised to practise midwifery.

1.3.2 Definition of a midwife
The midwifery curriculum in Zimbabwe is underpinned by the definition and scope of a midwife (http://internationalmidwives.org/what we do/education core documents/global standards, 2017). The ICM set the pace for midwifery education by defining whom a midwife is by incorporating the training and recognition aspect into the definition:

"An individual who has successfully finished a midwifery training programme that is guided by the (ICM, 2010, 2013) Essential Competencies for Basic Midwifery Practice in collaboration with the framework of the http://internationalmidwives.org/what we do/education core documents/global standards (2017) Global Standards for Midwifery Education. The training should be accepted in the country where the training took place. The individual obtained the necessary credentials to be recorded and/ officially accredited to work using the name ‘midwife’; and who demonstrates competency in the practice of midwifery" (ICM, 2005, 2011, 2017).

1.3.3 Midwifery competencies
Competency can be defined as a mixture of skills, abilities and knowledge needed to perform a specific task (Cowan et al., 2005, Cowan et al., 2007). Competence is a concept which may be difficult to define in practice, producing problems amongst professionals such as nurses (Fullerton et al., 2011a). This can make it difficult to define the individual skills and competencies, let alone design instruments to measure competencies (Khomeiran et al., 2006). However, the ICM (2010, 2013) addressed this problem by defining competence in the context of midwifery. They proposed seven broad competencies for midwifery clinical practice referring to the essential knowledge, skills and behaviours required of midwives for safe practice as competencies. The core competencies are evidence-based and were field tested for robustness in four European countries (Fullerton and Thompson, 2005). Following the wording of the ICM Essential Competencies for Basic Midwifery Practice ICM (2010, 2013), these are:

Midwives have the requisite knowledge and skill, on neonatology, obstetrics, the social sciences, public health, and the ethics form the basis of high quality, culturally relevant, appropriate care for women, new-borns and childbearing families.
• Midwives to be able to provide high quality, culturally sensitive health education and services to all in the community to promote healthy family life, planned pregnancies and positive parenting.

• Midwives provide high-quality antenatal care to maximise health during pregnancy, and that includes early detection and treatment or referral of selected complications.

• Midwives to be able to provide high quality culturally sensitive care during labour, conduct a clean birth and handle selected emergency situations to maximise the health of the mothers and their newborns.

• Midwives provide comprehensive high quality culturally sensitive postpartum care for women.

• Midwives provide comprehensive, high-quality, comprehensive care necessary for the healthy infant up to two months of age.

• Midwives should be able to provide a range of individualised, culturally sensitive abortion-related care services necessary for women requiring or experiencing pregnancy termination or loss that are congruent with applicable laws and regulations and in accord with national protocols.

The ICM (2010, 2013) produced midwifery education standards in tandem with the ICM core competencies which were intended to facilitate and harmonise the development of competent midwives globally. Though there is demonstrable evidence that the midwifery competencies can be developed through the use of midwifery education guidelines (Fullerton et al., 2005), the development of competences may itself be difficult. Indeed it is possible for some qualified health professionals to lack the required competencies and confidence to practice by the time they have graduated (Houghton et al., 2013, Valdez, 2008b). There is also evidence in the literature that a gap exists between evidence-based practice and care provider competence in several countries when measured against WHO integrated management of pregnancy and childbirth guidelines (Harvey et al., 2004).

1.4 Zimbabwe: geography, demography and health systems

1.4.1 Geography

Zimbabwe is a landlocked country found in the southern region of Africa measuring 390,759 square kilometres (Figure 1.1). It is divided into ten administrative provinces including Bulawayo and Harare with the eight remaining rural provinces divided into 60 districts. The country is surrounded by four other countries, South Africa in the South, Botswana in the west, Mozambique in the east and Zambia in the north.
The coloured dots on the map represent the three study sites. The orange dot is the School A of Nursing and Midwifery, the red dot is the School B of Nursing and Midwifery, and the blue dot is the School C of Midwifery. The arrows indicate the movement and the distance the students travelled from their workplace to the training school. The researcher travelled between the three schools from Harare or went to the participant’s workplace for interviews.

1.4.2 Population structure

From the Zimbabwe population clock (http://countrymeters.info/en/Zimbabwe, 13 December 2017, (Zimbabwe Population Clock, 2017)), the total population of Zimbabwe was 16,434,349 (50.7% female and 49.3% male); 41.9% are children under 15 years of age while 3.8% are adults aged over 65. Zimbabwe’s population structure shows a broad-based and a narrow top pyramid, reflecting a youthful population composed mainly of children. One of the causes of this is a high fertility rate. From the CIA World Fact book, an estimated 3.98 children were born per woman in 2017, where a rate of 2.0 indicates a stable population compared to an estimated world figure of 2.42 in 2016.
A high adult mortality rate is also a contributory factor. There are conflicting figures on life expectancy. From the Zimbabwe Population Clock, life expectancy at birth in Zimbabwe in 2017 is only 49.6 years compared with a global figure of about 71 years; females have a life expectancy at birth of 49.3 years similar to that of males, which is 49.9 years. The CIA World Factbook estimates life expectancy at birth to be 60.4 years for the total population, with 58.3 years for males and 62.5 years for females. From the Zimbabwe Population Clock, there were estimated to be 1,591 live births on average per day in 2017, with an average of 488 deaths and 131 emigrants per day, giving a net increase of 973 persons per day. The number of live births per hour was estimated as 66.3, meaning a new baby arrives every minute. Such a population structure shows how much work there is for midwives in offering maternal health services including family planning in Zimbabwe.

1.4.3 Maternal-child health in Zimbabwe

Zimbabwe has a substantial disease burden from most common avoidable and treatable conditions and diseases constituting nutritional deficiencies, communicable diseases and pregnancy and childbirth complications (MoHCC, 2007). Maternal, newborn and child mortality is a clinical problem with a socio-political and education management element (WHO and UNICEF, 2012). The maternal and infant mortality figures in Zimbabwe varied between 2000 and 2016. Of note, household surveys such as the Zimbabwe Demographic and Health Survey (DHS) and the Zimbabwe Multiple Indicator Cluster Survey (MICS), which collects data on health and related data on women and children, provided only a retrospective review of maternal mortality estimation (covering a period approximately 5 or 7 years before the current survey). Hence, a figure for 5 or 7 year period fails to show a specific year (WHO, 2011b). The DHS 1999 refers to ‘five years preceding survey’ and the DHS 2005/6, DHS 2010/11 and MICS 2014 refer to ‘seven years preceding survey.’

The maternal mortality rate (MMR) slightly declined from 578 deaths per 100,000 live births in 1999 to 555 in 2005 (Central Statistics, 2000, Central Statistics, 2007, ZIMSTAT and ICFI, 2016, Zimbabwe National Statics Agency, 2010, ZIMSTATS and ICFI, 2016). The MMR for the seven-year period preceding the 1999 survey (DHS 2005/6 ZDHS, the 2009-2013, and MCIS 2014) found 614 deaths per 100,000 live births but slightly reduced to 581 deaths per every 100 000 live births for the five-year period preceding the survey. The peak for MMR was 960 per 100,000 live births in 2011-2012 with a minimum of an estimated 443 deaths per 100,000 live births reached in 2015 (WHO. UNFPA, 2016). The
leading causes of maternal death were haemorrhage, sepsis and hypertensive disorders (Mlambo et al., 2013). Malaria, HIV/AIDS and obstructed labour were also causes, identified in a Maternal and Perinatal Mortality Study 2007 by Munjanja (2009).

The MCIS (2014) showed infant mortality rates across successive five-year periods as 50 deaths per 1,000 live births between 2000 and 2004, 58 deaths per 1,000 live births between 2005 and 2009, and 55 deaths per 1,000 live births between 2010 and 2014. There was an under-five mortality rate of 75 infant deaths per 1000 live births amid the year 2000 and 2004, 84 deaths per 1,000 live births between 2005 and 2009, and 75 deaths per 1000 live births between 2010 and 2014. The leading causes of the under-five mortality in Zimbabwe were acute respiratory infections, nutritional deficiencies, other viral infections, pulmonary tuberculosis, intestinal infections, HIV/AIDS-related illnesses and malaria NHSZ, 2009-2013 (ZIMSTAT, 2014).

There was an increase in women attending at least one antenatal care visit from 81% in 1999 to 94% in 2006. Skilled attendance at birth declined from 73% in 1999 to 69% in 2006, while institutional deliveries declined from 72% to 68% over the same period (DHS 1999, 2005/6, MISC 2014 (ZIMSTAT, 2014).

Zimbabwe produced its own ‘Reproductive Health Policy’ in 2003. This ‘Policy and Strategic Framework’ was updated in 2005 to address some of the weaknesses identified in a 1999 policy regarding inadequate child-related issues. This policy was publicised in April 2006. The key principle addressed in the policy was the delivery of quality health services. At its implementation, the government reviewed guidelines on user fees at public health facilities. As a result, children under five years of age were exempted from paying consultation fees if they had a referral and an up to date ‘Road to Health Card’. Pregnant women were also exempted if they followed the referral system protocol but were subjected to paying a penalty fee (150% of consultation fees) for bypassing the referral system. Currently, this policy provides the framework for the provision of integrated maternal health, family planning, HIV and AIDS, and STI services in Zimbabwe.

The Ministry of Health and Child Welfare carried out a comprehensive Maternal Neonatal Health Assessment in 2004 (MoHCC, 2006), the findings of which formed the basis for the Maternal and Neonatal Health Road Map (MoHCC, 2007). The MoHCC and partners continue to procure and distribute maternal and neonatal health equipment, drugs and supplies guided by the gaps identified in the assessment. The United Nations and the donor community assembled a health transition fund among other programmes in 2015 aimed at
improving maternal, newborn and child health and nutrition through increasing the availability of medical products, vaccines and technologies; increasing human resources for health; and improving health policy, planning and financing.

USAID/Zimbabwe found that historically Zimbabwe was among those with the highest maternal mortality rates in the region, reaching as high as 960 per 100,000 live births between 2010 and 2012 (ZIMSTAT, 2014) with six women dying each day of pregnancy-related complications. Three-quarters of these deaths were preventable, with the most common causes being postpartum haemorrhage, infection, pregnancy-related hypertension and malaria. Zimbabwe’s MoHCC estimated that 45% of women who died of pregnancy-related complications had infections (MoHCC, 2014). The maternal mortality rate for 2015 was estimated to be 443 per 100,000 live births, and the infant mortality rate for 2016 was estimated to be 25.9 deaths per 1,000 live births (28.1 for males, 23.6 for females) (CIA World Factbook, 2017). The under-five mortality rate for 2015 was 56.4 deaths per 1,000 live births (data from World Bank, 2017). About one in 11 children die before their fifth birthday, and 60% of these deaths occur within the first year of life (UN, 2017). Pneumonia, diarrhoea and HIV are attributed to under-five mortality (ZIMSTAT, 2014), and there is evidence that these could be prevented through Skilled Birth Attendants (UNFPA, 2011b).

The deterioration in the Zimbabwe health system became so bad that the government could not meet the Abuja Declaration target of giving 10% of the national budget toward the health expenditure (Ministry of Finance 2013 budget). Fortunately, the UN directly and indirectly support maternal and child health in Zimbabwe through reforms of policies and direct programmes to curb the situation (UN, 2013). In 2009, USAID/Zimbabwe extended its health portfolio to reduce maternal, new born and child illness and mortality.

This improved the quality of care provided to mothers and their babies, especially in facilities which are supported by USAID. In Manicaland, for example, the new born mortality rate declined from 63 per 1000 births in 2011 to 21 per 1000 births by the end of 2013. Additionally, USAID support helped to improve management of preterm new borns through the establishment of eight Kangaroo Mother Care units. Currently, under the Global Evaluation Services Framework Agreement, Health Partners International is subcontracted by the United States Office of Personnel Management to provide focused expertise to support the overall evaluation of the Department for International
Development (DFID)-funded Maternal new born and Child Health programme in Zimbabwe (2012-2017). The programme aimed to reduce maternal, new born and child mortality from 2012 to 2017. By the end of 2015, four primary components were contributing to the reduction of maternal and child mortality. These included the Health Transition Fund (UNICEF); antiretroviral (ARV) drugs procurement through USAID) for paediatric ARV treatment from the Elizabeth Glaser Paediatric AIDS Foundation; and citizen engagement through support and demand from by Save the Children. The Health Transition Fund changed to be the Health Development Fund (HDF), and all DFID funds were channelled through this mechanism from the start of 2016.

1.4.4 Zimbabwe’s health care services

1.4.4.1 Maternal health services

Zimbabwe’s health care services are provided by the public sector, church organisations, both non-profit making and profit making groups and the company- affiliated clinics and hospitals (Munjanja, 2009). There is also a traditional medicine sector which provides care towards some illnesses (John Osika, 2010). The provision of care in Zimbabwe is guided and confined within a four-tier framework dividing the system into primary, secondary, tertiary and quaternary facilities of health care. Each system is defined according to the health care services founded within that facility under the Primary Health Care framework (MoHCC, 2014). The main strategies are health education, nutrition education and food production, communicable diseases control, maternal and child health services; water and sanitation; expanded programme on immunisation essential drugs programme; and the providing of critical but straightforward preventive and curative services.

Primary care consists of Village Health Workers (VHWs), Community Based Distributors (CBDs) and small clinics, which are normally the entry point to the service and are found both in rural and urban areas. There is no primary care provided by general practitioners in Zimbabwe. Care at this level is basic and mostly run by midwives or non-midwives offering preventive and curative services, CBDs and VHWs. CBDs work to promote reproductive health family planning and can distribute some family planning methods as they take maternal health services to the people. VHWs work mainly in peri-urban and rural areas supported by the nearest clinic and can give first aid treatment with limitations, and most of their work is centred on preventive care (MoHCC, 2016-2020). If complications develop or needs are beyond those that can be provided, the client is referred to the level of secondary care.
Secondary care institutions receive patients via referral clinics and should have adequate services to handle emergencies (Makuto and James, 2007), though they may also provide primary care health services due to their proximity to communities. The secondary care service is composed of mission or district hospitals that are supposed to serve a catchment area of almost 140,000 people and are the lowest level where patients can be treated by a medical doctor. Private and company clinics can also offer these services offered at secondary care level. Those requiring speciality services and more complex cases are referred to the tertiary level (MoHCC, 2016-2020).

The tertiary level of care is provided by provincial hospitals found in all provinces though tertiary care can also be given at private hospitals, which are expensive and most Zimbabweans cannot afford them. These hospitals give specialised care, and difficult cases are referred to them from district hospitals, although the most difficult and complicated are sent to a quaternary centre (MoHCC, 2016-2020).

Quaternary or central care is provided by the country’s five central hospitals in Bulawayo, Harare and School A, which have the most experienced staff, and advanced equipment and pharmaceuticals to deal with critical cases (National Health Strategy 2009-2013(ZIMSTAT, 2014). The private sector in Zimbabwe plays a central part in both financings and giving health care services. However, most private clinics regulate their prices, and most people cannot afford emergency obstetric and neonatal care.

Nearly 15% of anticipated births globally will result in serious problems in pregnancy, birth, or the postpartum period (Otolorin et al., 2015). Hence there is a need for health care providers who are skilled in emergency obstetric and new born care (EmONC), especially in countries with high rates of maternal and new born mortality. The concept of EmONC was introduced as a framework to offer evidence-based care as a critical component in reducing maternal and child mortality and morbidity both at community and institutional level by UNICEF, WHO and UNFPA (Otolorin et al., 2015, WHO, 2009). The training package included an emergency and obstetric care handbook:

‘A set of seven key obstetric services, or “signal functions,” has been identified as critical to basic emergency obstetric and newborn care (BEmONC): administration of parenteral antibiotics; administration of parenteral anticonvulsants; administration of parenteral uterotonics; removal of retained products (manual vacuum aspiration); assisted vaginal delivery; manual removal of the placenta; and resuscitation of the newborn .
Comprehensive emergency obstetric and newborn care (CEmONC) includes all BEmONC services and adds surgical capacity and blood transfusion…..’ p 8 (WHO, 2009)

The programme trained all providers of maternal and neonatal health services to deliver high-impact maternal and newborn health interventions. Associated with preventive and curative treatment and management of pre-eclampsia/eclampsia, postpartum haemorrhage and birth asphyxia with emphasis on quality care, which resulted in value-added availability and quality of care (Ameh and van den Broek, 2015). Zimbabwe adopted the programme into their services.

Maternal and child health is offered at all levels of the healthcare system in Zimbabwe: antenatal care, intrapartum and post-partum care, family planning services, immunisations, the integrated management of childhood illnesses and emergency obstetric and neonatal care. In 2014, 70% of pregnant mothers attended antenatal care, 80% of babies were delivered by skilled birth attendants and were institutionalised, and 83.5% attended postnatal care (MoHCC, 2015). Despite the fact that Zimbabwe has unacceptable high maternal and child mortality rates, 2013 records revealed that less than 50% of institutions offering maternal and child health services were prepared for EmONC (NHSZ, 2016-2020). This is disappointing as this is an evidenced-based framework which has proved highly effective in preventing avoidable maternal and neonatal deaths (MoHCC, 2016-2020).

1.4.4.2 **Ministry of Health and Child Care (MoHCC)**

In Zimbabwe, the Ministry of Health and Child Care (MoHCC) provides, administers, coordinates and advocates the provision of equitable, appropriate, accessible, affordable and quality health services and care for the nation. While maximising the use of available resources, it is centred on empowering communities to participate in their own healthcare. The MoHCC promotes the implementation of the guiding healthcare framework of ‘equity’, ‘appropriateness’, ‘accessibility’ and ‘affordability’ as the backbone of the provision of quality healthcare in line with the Primary Health Care Approach supported by the Ouagadougou Declaration (2008). The following is the MoHCC’s mission statement: ‘To attain the maximum possible level of health and quality of life for all its people. To be achieved by the combining individuals, communities, organisations and government efforts will allow them to participate fully in the socio-economic development of the country…..’ pp 12NHSZ, 2009-2013 (MoHCC, 2015).
The MoHCC has the mandate to safeguard the health of the nation in rural and urban areas using both the public and private sectors. Maternal and newborn health is an essential aspect of Zimbabwe’s health strategy (NHSZ, 2009-2013). ‘Equity for Health and Quality in Health - people’s Right based approach to health care’ was developed in association with the Primary Health Care Approach of increasing resources in improving the quality of health of the nation (MoHCC, 2015). Post-independence, the Zimbabwe government invested heavily on in the maternal child health services offered within the framework of Primary Health Care and was doing well from 1980-2000 (John Osika, 2010). The country was also disturbed by economic challenges, the HIV/AIDS pandemic and a loss of skills, and the government could not maintain the delivery of quality care to its citizens, with women and children most affected (Munjanja, 2009). As Zimbabwe’s economy, basic services and health system continued to decline, the humanitarian situation remained critical (UN, 2013). In the face of escalating economic challenges, the funding of social and healthcare services due to the scarcity of resources, both material and human, is an issue; provision of best quality healthcare services is not a reality.

Though healthcare was once decentralised, economic hardships have reverted to centralisation for administrative and decision making, fund allocation, hiring staff and coordinating national health issues. The health system is now relying more on donor funding, as described previously (John Osika, 2010). Around 2008, the health system almost collapsed due to the country’s economic hardships, which saw many facilities closing or offering limited services due to lack of health supplies. During this time, most of the healthcare services were given by the mission hospitals and private facilities, but they were failing to cope with the load.

Midwifery in Zimbabwe is considered a speciality of nursing rather than an autonomous profession, and it has not been spared by the challenges of the deteriorating services both in education and the service area (National Health Strategy Plan, 2012-2017). The National Health Strategy Plan also spells out the Government of Zimbabwe will address staff shortages and increase retention, which are among the key priorities to be addressed to meet the country’s vision of providing quality of care services to the nation.

1.4.4.3 Maternal and child health strategies and policies

The Government of Zimbabwe is a signatory to essential international and legal instruments that request governments to create an enabling environment for the delivery of maternal and neonatal health services. The MoHCC has adopted several strategies
revolving around the provision of quality maternal and child health care by signing up to regional, continental and international declarations and protocols. These included Safe Motherhood initiatives (1987); the International Conference on Population and Development Program of Action (1994); the UN Millennium Development Goals (2000) and UN Sustainable Development Goals (2015); the Abuja Declaration (2000); the Maputo Plan of Action (2006); the Ouagadougou Declaration on Primary Health Care Approach in Africa by Member States of the WHO Africa Region to facilitate the delivery of high-impact, low-cost interventions with high population coverage rates to reduce under-five mortality by two-thirds of the 1990 levels by 2015 (April 2008); the African Union’s Campaign on Accelerated Reduction of Maternal Mortality (CARMMA) Africa Cares: ‘No Woman Should Die While Giving Life’ (May 2009); the UN Global Strategy for Women’s and Children’s Health (September 2010). The UN Convention on the Rights of the Child which took place in 1989 formally established the rights to which all children are entitled, including the right to life and good health. The government of Zimbabwe ratified and signed the statutes of this convention as well as those of the UN Convention for the Elimination of all forms of Discrimination against Women (CEDAW, 1979).

Last but not the least, it is worth noting that Zimbabwe also belongs to a regional and economic community in southern Africa made up of 15 member states working in alliance to eradicate poverty in their region. Several binding instrumental guidelines have been put in place, and currently, there are 26 protocols. One is the Southern African Development Community (SADC) Protocol on Health, which was signed in August 1999 and which commenced in 2004. Article 16 of the Protocol on Health focuses on reproductive health to improve the health of mothers and babies in the southern part of Africa (SADC, 2017). All the declarations and protocols are aimed at accelerating the provision of quality care to mothers and their babies as well as ending their unnecessary deaths, while the country's’ maternal and child mortalities remain unacceptably high (UN, 2013).
1.5 Midwifery in Zimbabwe

Zimbabwe is an affiliate member of the ICM through the Zimbabwe Confederation of Midwives (ZICOM). Hence midwifery in Zimbabwe is guided according to the laws and regulations mandated by the ICM. However, the Zimbabwe government is the overseer of the health of its nation and has several programmes in place through the MoHCC to fulfil its vision of providing quality health care to the nation. Zimbabwe as a signatory has joined the rest of the world in adopting strategies to develop Human Resources for Health (HRH) in line with the USAID (2011) expectation of improving the health of nations through improving the skills of those individuals responsible for providing quality health care to their populations. The midwifery education programme is crucial to the improvement of HRH. Midwives are acknowledged as critical to ensuring the provision of quality health care to the nation of a country (Fauveau et al., 2008a, Dal Poz et al., 2009). The MoHCC has, therefore, put midwifery training at the top of its agenda to ensure quality nurturing for childbearing women and their families in Zimbabwe.

1.5.1 Midwifery practice in Zimbabwe

A midwife in Zimbabwe is someone registered and licensed to practice by the Nursing Council of Zimbabwe and is an important member of the primary healthcare team. The midwife may practice in any approved health facility in Zimbabwe and is responsible and accountable for her practice (MoHCC, 2014).

A midwife in Zimbabwe works autonomously in partnership with the woman and her family providing skilled midwifery care during normal pregnancy, labour, birth and postpartum up to 6 weeks after birth (MoHCC, 2014, MoHCC, 1997). The midwife also explores all the environmental, socioeconomic factors and cultural influences that may impact on the maternity experience for a woman and her family.

This care includes preventive measures, support and advice to the woman on self-care and care of the new-born and infant. She identifies complications in the mother and child, accessing medical care or referring to the higher level of care within the health system and carrying out emergency measures (MoHCC, 2014).

A midwife in Zimbabwe has an important task in the education, counselling and promotion of health for the woman, her family and the community. She provides education in the areas of pre-conception, antenatal, postnatal, nutrition, breastfeeding, family planning and other relevant areas of women’s reproductive health.
1.5.2 Midwifery education in Zimbabwe

1.5.2.1 Midwifery training programme

The midwifery post-basic training programme in Zimbabwe started at the two Central Hospitals, Harare and Mpilo, in 1963 and 1964 respectively and has since spread to the district, provincial and general hospitals. Currently, Zimbabwe has 21 midwifery training schools at four Central Hospitals, eight Provincial Hospitals, one General Hospital, and eight Mission Hospitals. About 340-360 midwives have graduated annually since 2012 (MoHCC, 2014) and more than 50% of the General Nurses in Zimbabwe are midwives. Despite this relatively high output of midwives from the country’s training midwifery schools, the country still faces midwifery staff shortages related to the expansion of the health system following independence (WHO, 2006-2013). The situation is worsened by limited resources to offer jobs to all qualified midwives, and the high attrition rate as midwives go to neighbouring countries and overseas in search of better working conditions and salaries. Hence, there is a shortage of midwives in the country, and according to the National Health Strategy Zimbabwe (2009 to 2012), 80% of midwifery posts in government and municipality run hospitals and clinics are vacant. It is a widely recognised that the role of skilled birth attendants, in particular midwives and others with midwifery skills, is crucial to addressing maternal and new born mortality and morbidity and promoting women's health (Utz et al., 2013).

1.5.2.2 Background of the curriculum

The midwifery curriculum is driven by the ICM Global Standards for Midwifery Education (ICM, 2010, 2013) in tandem with the ICM Essential Competencies for Basic Midwifery Practice (ICM, 2010, 2013). The curriculum is one of the key components of developing human resources used by the MoHCC to meet one of its targets of ensuring that the citizens of Zimbabwe receive quality care. Midwifery education is a post-basic programme which is hospital-based and hospital training-based. Midwifery is treated as a speciality and a separate profession, run under the flagship of the Nursing Directorate in the MoHCC. The curriculum has undergone periodic reviews since its inception in 1963 for it to remain relevant in addressing the changing maternal and neonatal conditions as well as matching the global trends. One such review was last carried out from 2012 to 2013 to align the programme with the ICM Global Standards and Essential Competencies to make the curriculum meet evidence-based teaching strategies. Meeting the ICM Essential Competencies and Global Standards should contribute towards reducing
preventable maternal and neonatal deaths locally in Zimbabwe. As well as allowing the country to achieve the midwifery-related UN Sustainable Development Goals 3.1 (reducing global maternal mortality rate to less than 70 per 100000 live births) and 3.2 (reducing preventable deaths of newborn babies to 12 per 1000 live births and that of under-five to 25 per 1000 live births), both by 2030. If Zimbabwean midwives are prepared for competency-based practice using international standards, this should reduce the high maternal and child mortality rates in the country (Renfrew et al., 2014).

Competency-based teaching and learning is an essential component of this curriculum with learners applying theory to practice when exploring relevant and real practical clinical situations and scenarios. In clinical practice, facilitating learning is not only dynamic but also interactive as the learner, the woman and facilitator are engaged in a triad within midwifery model care (MoHCC, 2014).

1.5.2.3 Teaching methods
Teaching methods are variable, and include formal lectures, case presentations, ICT, visual aids, individual and group assignments, seminar presentations, laboratory practical, group learning, problem-based learning, demonstrations, artificial models and simulations, role play, role modelling, standardised patients' clinical experience, case studies/projects, e-learning, readings, discussions, reflective diaries, critical incident reports and feedback on learning and performance.

1.5.2.4 Theory learning
The Zimbabwe Midwifery Curriculum follows a block system and has three blocks: a junior block, a senior block and a revision block. The junior block covers normal theory for seven weeks over topics including trends in midwifery education and practice, normal pregnancy, labour, puerperium and neonate biology and social sciences. Research methods and women’s health issues are also initiated during this time. The senior block runs for six weeks to cover the upper-level course including complications during pregnancy, labour, the puerperium and of the neonate. This also includes women’s health, research methods, psychosocial aspects, administration and community health. The midwifery programme is 52 weeks long and offered at diploma level to those RGN who have a working experience of two years or more who wish to be registered as a State Certified Midwife by the MoHCC. The Curriculum is approved by the Nurses’ Council of Zimbabwe.

1.5.2.5 Clinical attachments
The clinical attachments are structured in three phases and are arranged for clinical practice according to the level of training learning objectives (see Table 1.1). The students
are scheduled for the antenatal clinic, labour ward, post-natal and neonatal unit after completion of the first block of normal theory covering normal midwifery. The second attachment follows a leave of one week offered at the end of the phase one attachment and covers abnormal midwifery where a theatre and either an urban or a rural clinical attachment are added. The final attachment is after writing their final examination which is set by the Nurses Council of Zimbabwe Examination and is called the State Final Examination.

Students on attachment should be provided with specific learning outcomes and clinical experience record workbooks that direct teaching and learning processes. Attachments may be at the Central Hospital, or district, urban and rural community health centres. Mentors will be available to provide clinical guidance in integrating theory with practice to facilitate the learner’s acquisition of essential competencies from the outset to the end of the training period. Monitoring and evaluation of the learner’s progress is central to the progression and integration of foundations of theory and midwifery practice.
### Table 1.1 Placement areas of required midwifery competencies

<table>
<thead>
<tr>
<th>Placement Area</th>
<th>No of Weeks</th>
<th>Minimum Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANC Clinic</td>
<td>7</td>
<td>70 Antenatal Bookings, physical and abdominal examinations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 health education sessions</td>
</tr>
<tr>
<td>ANC Ward</td>
<td>4</td>
<td>5 One-to-one individualised antenatal health education</td>
</tr>
<tr>
<td>Labour Ward</td>
<td>12</td>
<td>10 Witnessed deliveries before conducting deliveries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 Admissions to labour ward</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 Pelvic examinations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 Vaginal examinations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 Deliveries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 Episiotomy/Tear repairs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Supervised neonatal intubations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 new born examinations</td>
</tr>
<tr>
<td>Theatre</td>
<td>2</td>
<td>5 Witnessed operative deliveries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Theatre cases scrubbed for</td>
</tr>
<tr>
<td>Neonatal Unit</td>
<td>7</td>
<td>10 Sick infants nursed in neonatal unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Neonatal Intubations</td>
</tr>
<tr>
<td>Postnatal Clinic</td>
<td>2</td>
<td>10 six week postnatal examinations of the mother and baby</td>
</tr>
<tr>
<td>Postnatal Wards</td>
<td>4</td>
<td>30 Postnatal examinations (15 normal vaginal deliveries, 15 C/Section)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 BCG vaccinations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 Postnatal health education and promotion session on discharge</td>
</tr>
<tr>
<td>Urban/Rural clinic</td>
<td>2</td>
<td>15 Family planning cases</td>
</tr>
<tr>
<td>attachment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>37 weeks</td>
<td></td>
</tr>
<tr>
<td>Research project</td>
<td>In partial fulfilment of the midwifery programme</td>
<td></td>
</tr>
</tbody>
</table>

Adopted from the MoHCC, 2014 Midwifery Curriculum
1.5.2.6 Assessment and evaluation methods
The students are evaluated formatively and summatively on both practical and theory; the pass mark is 50% and above. Clinical competency assessment is continuous during clinical attachment, and the student is supposed to complete a specific number of procedures per specific clinical area. These procedures are supervised by the clinical instructors and the ward supervisor.

Hospital final examinations include three practical assessments and theory to be written approximately four weeks before the Nurses’ Council of Zimbabwe examination, which is the State Final Examination.

In each instance, the student is afforded only one chance of repeating if they fail and is discharged from training for failing to achieve a score of 50% or above on a second attempt.

1.5.3 The role of midwives in scaling up maternal child health services and achieving national targets
Nurses and midwives are key to achieving the goal of providing equitable, accessible, affordable and acceptable quality health care (WHO, 2015a, WHO, 2011c, WHO, 2002, UNFPA, 2011a, Renfrew et al., 2014) resonating with the vision of Zimbabwe in providing quality health for its nation (MoHCC, 2014). With adequate support, midwives can make a progressive and significant impact enhancing the achievement of health targets, such as reducing maternal mortality and raising standards in infant and child survival (Tasnim et al., 2006, Koblinsky et al., 2008, Bogren et al., 2012). Hence, it was imperative for the MoHCC to strengthen reproductive health and maternal child health services at all the levels of the health services’ delivery system and ensure availability of adequate numbers of well-trained health personnel with midwifery competencies (WHO, 2006a). As a result, the midwifery curriculum is designed to ensure that on completion of the programme, the graduate will have acquired the relevant competencies for him/her to be fit for practice.

1.6 Statement of the problem
In Zimbabwe, a one-year midwifery-training programme is directed by a competency-based curriculum implemented in 2012 (MoHCC, 2014). This curriculum aims to develop essential competencies for midwifery clinical practice and sound professional judgement in the student as required by the ICM Global Standards for Midwifery Education (ICM, 2010, 2013). This move was also driven by the need to reduce the unacceptably high maternal,
neonatal and under-5 mortality rates presented in Section 1.4.3 to the targets in the UN SDGs given in Section 1.2.2. As midwives form the largest work force in the provision of maternity care, their competence and confidence are vital to the provision of quality care. To date, 5640 midwives have graduated since the curriculum was revised in 2012 (Nurses Council of Zimbabwe) (NCZ, 2017). To the knowledge of the researcher, there has not been any follow up assessment of graduates from the programme after their deployment to determine the effectiveness of this curriculum in building their confidence and competence as being fit for practice. Hence, this study aimed to explore the effectiveness of the competence-based midwifery curriculum in producing confident and competent midwives in Zimbabwe, with the following initial study objectives:

- Identify the characteristics of student midwives in Zimbabwe.
- Assess the relationship between levels of confidence as assessed by the student and the competence as assessed by others at different time points.
- Explore the knowledge, practices and views of student midwives towards ICM core competence.
- Develop a theory grounded in the social processes affecting competence and confidence development in student midwives.

1.7 Summary

This chapter described the study setting and background of midwifery in Zimbabwe. High-quality personnel supported by an effective health system is the key to decreasing maternal and child mortality and morbidity in Zimbabwe. Midwives who have been trained and equipped with the right skills are a critical part of this workforce providing appropriate care for pregnant women and their newborns. Midwifery training should be able to produce candidates who can improve the quality of life of women, their newborns and their families and as a result, reduce maternal, child and infant mortality and morbidity.

Therefore, this study was developed in order to assess the effectiveness of the competence-based midwifery curriculum in producing confident and competent midwives in Zimbabwe. To provide a broader context for this study and to understand what knowledge existed regarding factors facilitating competence and confidence development in midwifery training, a literature review was conducted at the global level. The following chapter describes this literature review.
Chapter 2 Literature Review

2.1 Introduction
This chapter presents findings from a review of primary research articles and secondary reviews examining factors related to competence development among midwives. Section 2.2 covers the background and purpose of the review, while Section 2.3 states the review question used for the search. Section 2.4 describes literature debates surrounding grounded theory, which was expected to be used in the study. Section 2.5 outlines the different types of literature reviews and identifies the type (a narrative review) used for this research. Section 2.6 describes the methods used for the literature search, including the search strategy and inclusion and exclusion criteria. Section 2.7 presents the results of the search with quality assessments of the retrieved papers, while Section 2.8 presents a synthesis of the retrieved papers by theme. Section 2.9 summarises the findings and Section 2.10 describes the gaps identified in the literature. Finally, Section 2.11 presents the refined aims and objectives of the present study as informed by the literature search.

2.2 Background and purpose of the review
2.2.1 Background
The ICM Essential Competencies for Basic Midwifery Practice (ICM, 2010, 2013) provides the cornerstones on which midwifery education foundations are laid to produce midwives with the core skills required to aid in the reduction of maternal and child mortality (Day-Stirk and Fauveau, 2012), ensuring that people with the right skills are accredited (Ulfvarson and Oxelmark, 2012). At the heart of every research study should be a rigorous literature review that is critical in shaping the structure, direction and eventualities of the proposed study (Grant and Booth, 2009). The critical factor in a literature review is revealing the relevant information on what is already known and what are the gaps in knowledge related to the proposed study (Cronin et al., 2008). A literature review will also reveal what methods and problems other studies have encountered (Green et al., 2006).

The results of the literature review will then act as a gateway to justifying the relevance of the present study in adding to the existing body of knowledge (Green et al., 2006).

2.2.2 Purpose of the literature review
The purpose of the current literature review was to identify and build the available evidence addressing factors related to competence and confidence development in midwifery education from a global perspective. Another intention was to examine the
methods used to examine the topic of competence and confidence development in the
literature. In general, it is accepted that teaching and learning is an interactive process imbued with emotions, behaviours, and reactions (Brunstad and Hjälmhult, 2014). The review focused on published primary reports and secondary reviews on factors related to competence and skills development.

2.3 Review question
What is the accumulated evidence on factors relating to competence and confidence development among midwives?

2.4 Literature review debates in grounded theory
It is appropriate first to note the contrasting views about literature view from the proponents of grounded theory. Even though the different proponents of grounded theory agree that the purpose of the grounded theory approach is to generate a theory grounded in data (Glaser, 1978), the proponents differ in its timing. Glaser (1978) proposes that the literature review should not be carried out in the preliminary stages of the study. While Strauss and Corbin (1990) believe that literature should inform all the research phases and possibly expedite the process of theory development by creating awareness of the important aspects of it (Hickey, 1997). The present study followed the classical grounded theory approach.

2.5 Review type
A literature review is a scientific process involving the consolidation of results of several primary research articles in a comprehensive manner on a given topic and is guided by rigorous methods which makes the process transparent and trustworthy (Smiley, 2001). There are three main types of literature reviews: systematic, narrative (Green et al., 2006) and structured. The structured review is combination of the first two. The amount of evidence provided by each of the types of the literature reviews determines the level of rigour required. Formal systematic reviews are highly structured and focus on the specific best evidence to guide clinical practice on patient care with a narrowly focused question, and are often presented in meta-analysis or meta-synthesis form. Narrative reviews are unsystematic, diverse and presented in narrative form and have no hard and fast rules (Green et al., 2006). Since narrative reviews do not have specific protocols to follow, their quality may be reduced since they may be open to selection bias. However, to reduce bias it is argued that a non-systematic literature review can become systematic by borrowing some systematic aspects from the formal systematic reviews (Ferrari, 2015) and be comprised of a structured question, a structured search protocol, comprehensive retrieval,
and structured appraisal and synthesis of the results from retrieved studies Joanna Briggs Institute (JBI, 2011). This gives the narrative review the procedure of a systematic review, making it a systematic narrative or 'structured' review, with improved transparency, replicability and rigour (Dixon-Woods et al., 2001).

The present study adopted a structured literature review to combine flexibility with rigour. A systematic search approach ensures a thorough search and retrieval of primary studies related to the question carried out (Higgins and Green, 2005). Since there are specific guidelines to follow, reviewer-induced subjectivity is minimised. Therefore, guidelines from the Centre for Reviews and Dissemination (2009) were followed to search, select, appraise and extract primary research articles for the present literature review.

2.6 Methods

2.6.1 Search strategy

The credibility invested in the literature review lies in implementing a search plan to find all relevant good quality articles related to the search topic (Sandelowski et al., 1997). Indeed a sound search strategy is at the heart of all literature reviews (Shaw et al., 2004) as this allows for the use of search terms in determining whether all relevant articles related to the search topic are found (Sandelowski et al., 2007, Walsh et al., 2013). Hence, the searching tool should be chosen carefully since there are several to choose from, depending on the purpose of the literature review (Barnett-Page and Thomas, 2009, Dixon-Woods et al., 2006a, Dixon-Woods et al., 2006b) The purpose of the literature review could be either for interpretive synthesis (Thorne et al., 2004), thematic or realist synthesis (Cooke et al., 2012). Acknowledgment of the role of the researcher (Dixon-Woods et al., 2006b) is also important. Against this backdrop, and since this literature review included interpretive synthesis of both quantitative and qualitative data (Hawker et al., 2002) the available search strategies considered were PICO (Population, Intervention, Comparison, Outcome) and SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, Research type) (Cooke et al., 2012). The SPIDER search strategy was more suited to the review purpose and disparate data since it included a ‘phenomenon of interest’ (the ‘PI’ of SPIDER), which was more relevant for qualitative study designs. Such designs may not be adequately represented under the PICO search strategy because they lack an intervention (the ‘I’ of PICO) or outcome (the ‘O’ of PICO). Search terms following the SPIDER structure are shown in Table 2.1.
### Table 2.1 SPIDER search strategy (Cooke et al 2012)

<table>
<thead>
<tr>
<th>Sample</th>
<th>midwi* OR studen* OR graduate* OR nurs* OR medical doctor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenomenon of Interest</td>
<td>competen* OR prepare* OR confiden* OR self-efficacy OR self-esteem* OR fit* OR skill* OR master* OR experien* AND</td>
</tr>
<tr>
<td>Design</td>
<td>questionnaire* OR survey* OR interview* OR focus group* OR case stud* OR observ* AND</td>
</tr>
<tr>
<td>Evaluation</td>
<td>view* OR experience* OR opinion* OR attitude* OR perce* OR knowledg* OR international confederation formidwives OR social* OR process* OR curricul* AND</td>
</tr>
<tr>
<td>Research type</td>
<td>qualitative OR qualitative OR mixed method*</td>
</tr>
<tr>
<td>Qualitative, quantitative, and mixed methods search using [ S AND P of I ] AND [ D OR E OR R]</td>
<td></td>
</tr>
</tbody>
</table>

The gathering of evidence focused on articles published in English from 2000 to the present. The year 2000 is when the midwifery curriculum in Zimbabwe started concentrating on a competence-based curriculum after it was last revised in 1997 (MoHCC, 1997), allowing for time for the curriculum to be implemented. Searches were conducted from the following databases: OVID-MEDLINE, CINAHL, ProQuest, Web of Science, OVID-Maternal and New-Born Health, SCOPUS for both published and unpublished articles, and the ICM, WHO, UNICEF, and Zimbabwe Nurses Council websites. The keywords used in the searches, which were developed by dividing the review question, were ‘midwifery education’, ‘midwifery’, ‘midwife’, ‘student midwife’, ‘ICM’, ‘competencies’, ‘confidence’ and ‘social processes’.

For CINAHL, OVID, PROQUEST the following MESH terms were used: midwifery education, competence, confidence, international confederation of midwives, social process and curriculum.

The Boolean term OR was used to expand the search and Boolean term AND was used to limit the search(Booth et al., 2016).

#### 2.6.2 Inclusion and exclusion criteria

##### 2.6.2.1 Inclusion criteria
Studies were included if they involved midwives, nurses or medical doctors when they were students, newly qualified and after they had been working for three to four months in
the clinical area. Doctors, nurses and midwives as students use the same clinical environment and teaching and assessment methods in training and their skill development (Sawyer et al., 2015) and they work in collaboration (WHO, 2003). Also, the definition of skilled attendant by the WHO (2006b) reflects that the midwife, the nurse and the doctors should be equipped with midwifery skills both in antenatal, labour and birth and postpartum care, making them skilled birth attendants.

2.6.2.2 Exclusion criteria
Studies were excluded if they were including competence and confidence development of other health professionals besides nurses, midwives and doctors.
2.7 Results of the search process

Figure: 2.1 Summary of the results of the search process

EBSCO: CINAHL: 119
Ovid: Medline: 262
Ovid: Infant & maternity care: 119
ProQuest: 394
Web of Sciences: 1054
SCOPUS: 333
Potential papers 2281

Duplicate studies excluded (n=1287)

Studies not including medical doctors, nurse and midwives
n=546

Titles Reviewed n=994

Abstract reviewed (n=448)

Excluded irrelevant and abstract with no full text (n=348)

Full text reviewed and selection made based on inclusion criteria
(n=100)

100 articles’ references hand searched
Relevant articles (n=4)

Articles retrieved for assessment (n=104)

Articles not empirical research and opinion
Duplicate studies articles) excluded were (n=42)

Number of papers included in the review (n=62)
2.7.1 Excluded studies
The results of the search process are provided in Figure 2.1. The search yielded 2281 articles, and after removal of duplicates, 994 potential articles remained. However, after reading the titles, 448 potential articles remained. Therefore, after reviewing the potential articles’ abstracts, 100 articles remained. Four more articles were identified after hand searching of these articles adding the total up to 104. Since 42 of these retrieved articles did not involve medical doctors, nurses, or midwives as study participants, they were excluded.

2.7.2 Included studies
Ultimately, 62 articles were retrieved for quality assessment and data extraction. Table 2.2 shows a breakdown of the included studies by region and study approach.

Table 2.2 Summary of the included studies by region and by study design

<table>
<thead>
<tr>
<th>Region/country</th>
<th>Qualitative</th>
<th>Quantitative</th>
<th>Mixed method</th>
<th>Participants</th>
<th>Systematic review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>3</td>
<td>2</td>
<td>Nil</td>
<td>RGNS and Midwives</td>
<td>0</td>
</tr>
<tr>
<td>America</td>
<td>2</td>
<td>3</td>
<td>Nil</td>
<td>RGNs and Doctors</td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td>1</td>
<td>5</td>
<td>Nil</td>
<td>RGNs and Midwives</td>
<td>0</td>
</tr>
<tr>
<td>Australia</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>Doctors, RGNs and Midwives</td>
<td>1</td>
</tr>
<tr>
<td>Europe</td>
<td>20</td>
<td>10</td>
<td>4</td>
<td>The same as Australia that is all three. (Doctors, RGNs and Midwives)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>25</td>
<td>5</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>


2.7.3 Overview of the included studies

Synthesising the findings involved describing, and analysing the studies, exploring relationships, and teasing out the similarities and differences of the study findings (Mays et al., 2005). The approach enlightened the researcher into understanding the processes that facilitated and or hindered competence and confidence development. Midwifery and nursing students’ competence and competence development over the years seemed to be an extensively studied area as revealed by the large number of studies initially scoped (2281) with a substantial number remaining in the synthesis (62). The 62 studies included in this review informed the present study on the impact of social processes involved in competence and confidence development. The distribution of studies across the globe was as follows: Europe (n=35), Australia (n=11), Asia (n=6), America (n=5), Africa (n=5). More than half of the studies were based in Europe, with only five from Africa. The most common research approach was qualitative (30) with only five mixed method studies, none of which were from Africa. Three articles (Löfmark and Wikblad, 2001, Mole et al., 2007, Rawnson et al., 2009a) did not state their methodology, but their strength was in describing the data collection methods in detail which enabled them to be placed within their study paradigms successfully.

In the articles included, data were collected from health professionals such as medical doctors, nurses, and midwives. The doctors, nurses and midwives were considered together as these medical professionals use the same methods in acquiring and developing skills (Sawyer et al., 2015). Secondly, the definition of skilled attendant revealed that the midwife, nurse and doctor could be trained in midwifery skills (WHO, 2006b); hence, their skills could be viewed together. The data were collected from the participants as students, when newly qualified, on exit from their training and after working for up to four months in the clinical area. Of the 62 studies, 34 studies involved midwives and 22 involved nurses while six studies were from medical doctors. No study involved a combination or midwives, nurses or doctors.

The initial search took place between December 2014 and June 2015; whilst literature was continually updated, a final search was performed in October 2017. Nonetheless, studies published from June 2015 were not included in this review as they did not inform the current study. However, these articles are included in the discussion chapter. The data collection methods for the included studies were wide ranging and included in-depth interviews, observations, questionnaires, document analysis, stories, focus group discussions, checklists and score sheets.
2.7.3.1 Studies which used qualitative methods

The 30 qualitative studies in Appendix 1 were included in this review. Qualitative designs explore human perspectives which cannot be quantified through observation or structured interviews (Sandelowski, 2000). There are several qualitative methods designs each with a specific function with the study aim dictating a specific study design. All of the 30 studies had clear aims, which included exploring student’s experiences and perceptions of teaching methods, assessment methods, learning environments and social interactions with colleagues and facilitators during learning. The studies had different methods since the aim of a study determines a suitable approach to address the phenomena of concern (Denzin et al., 2006). For example, phenomenology addresses the lived experiences of individuals, ethnography addresses culture problems (Burns and Grove, 2010) and the grounded theory method produces a substantive theory to solve practical problems within a context (Charmaz, 2014). No ethnographic studies were identified for this review. Some of the studies did clearly justify why they chose particular designs.

Two studies carried out in Norway and Australia used the grounded theory design. Brunstad and Hjälmhult (2014) explored 10 Norwegian postgraduate midwifery students’ learning experiences in labour wards, covering their main concern of "how to gain access to learning experiences". Licquirsh and Seibold (2008) explored and described Australian bachelor of midwifery students’ experiences of achieving competencies looking at the role of the preceptor from the student’s perspective using a sample of eight students and one clinical teacher. These two studies were critical in informing the present study as they revealed preceptor behaviours and reactions, which affect the student’s learning in developing midwifery skills. This was information which the student could not give as it was unique to the preceptor. The present study benefited as this indicated to the researcher beforehand that the current study should include supervisors of students. Some phenomenological studies in this review also informed the present study by revealing the lived experiences of both the nursing and midwifery students associated with teaching and assessment methods in the clinical area. The students’ experiences assisted the researcher to reflect on the possible probing questions for the students and those for the mentors during the exploration of experiences and views. However, the first two studies did not build theories; they only used the grounded theory framework to guide their studies on data collection, analysis and interpretation of the study findings.

2.7.3.2 Studies which used quantitative methods
The 25 included studies (Appendix 1) consisted of correlational, quasi-experimental, evaluation, experimental and survey studies. There were four correlation studies, three for medical doctors (Clanton et al., 2014, Laven et al., 2014, Karabacak et al., 2013, Barnsley et al., 2004) and one for student nurses (Clanton et al., 2014, Laven et al., 2014, Karabacak et al., 2013, Barnsley et al., 2004). Although these studies did not include midwives, they were very important for the quantitative aspect of the study as they informed the methods and design of the data collection instruments, including assessment of validity and reliability. Laven et al. (2014) and Barnsley et al. (2004) included comparisons of assessments made by the student and the clinical assessor. These studies which were congruent with the present quantitative study’s aim, however, they differ in that the present study had more than one assessor.

2.7.3.3 Mixed-methods studies

The present study used the critical realist mixed method approach, which none of the retrieved five mixed-methods studies used. There were two mixed method surveys (McMullan, 2008, Noble and Pearce, 2014) and two which used sequential mixed-methods (Longworth, 2013, Brosnan et al., 2006). Longworth (2013) examined the attitude of student midwives towards skills training practice with a structured questionnaire in phase one and semi-structured interviews in phase 2 but did not mention the designs of both the quantitative and the qualitative phases. In an evaluation research, Brosnan et al. (2006) used both quantitative data from interviews in phase 1 and questionnaires in phase 2. They used self-administered questionnaires for the quantitative study and focus group discussion for the qualitative study.

2.7.3.4 Systematic reviews

There were two systematic quantitative reviews (Ilic and Maloney, 2014) which reviewed the teaching methods for medical trainees and literature on general nurses’ experience from novice to competent practitioner (Valdez, 2008).

2.7.4 The quality of the included studies

Critical appraisal is the process whereby available evidence is judged for its worthiness, value, and relevance to a real-world problem. Critical appraisal and the synthesis of available evidence relevant to a specific topic brought together in a single article facilitates a clear understanding of the topic of concern, giving the bigger picture of what is known about the topic, and making it possible to identify the possible gaps (Green et al., 2006). A
literature review is only as worthy as the studies in it, hence the need to thoroughly assess their quality (Green et al., 2006). This can be done using set criteria reflecting conditions to be fulfilled before being regarded as credible (Ricketts et al., 2012, Munoz et al., 2009, Lang et al., 2011, Allen and Rixson, 2008, Bee et al., 2014, Simkiss et al., 2013, Kernick and Magarey, 2010, Green et al., 2006). The use of predetermined quality assessment tools with checklists can make the task of critical appraisal manageable (Cullum, 2000). This includes the need to identify a quality assessment tool which can address quality in studies of a variable range of methodologies (Hawker et al., 2002). There is an assortment of tools to appraise evidence, including those suitable for systematic and narrative reviews separately. They provide basic guidelines for identifying the quality or methodological rigour of the research articles included in the review (Booth et al., 2012). For example, there are CASP tools specific for either a quantitative or qualitative review (Critical Appraisal Skills Programme CASP, 2017). Since this literature review included disparate studies, the critical appraisal tool developed by Hawker et al. (2002) was found to be ideal to evaluate the quality of the review articles.

2.7.4.1 The Hawker et al. (2002) critical appraisal tool

**Figure 2.2 Hawker et al. (2002) Critical Appraisal Tool**

<table>
<thead>
<tr>
<th>1. Abstract and title</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Very Poor</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Introduction and aims</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Method and data</td>
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<td></td>
</tr>
<tr>
<td>4. Sampling</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. Data analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Ethics and bias</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7. Findings/results</td>
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<td></td>
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<tr>
<td>8. Transferability/generalizability</td>
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<td></td>
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<tr>
<td>9. Implications and usefulness</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
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</tbody>
</table>

The Hawker et al. (2002) critical appraisal tool is comprised of a checklist of nine items on a scale of 1-4 (Appendix 2) that is used to evaluate the quality of disparate data from the retrieved articles. The checklist is used to assess each of the following nine areas of the research article (Figure 2.2): abstract and title, the introduction and aims, method and data,
sampling, data analysis, ethics and bias, findings or results, transferability or
generalizability, and the implications and usefulness of the results. The checklist has
explanatory notes giving each area a minimum score of 1 and a maximum score of 4,
where 1 represents very poor, 2 poor, 3 fair and 4 good qualities respectively. The
maximum score an article can score is 36 for fulfilling all the items on the checklist while a
minimum score of 9 can be scored for a very poor article. The total scores were interpreted
by considering appropriate cut-offs between the four grades. For example, a paper with 5
very poor ratings and 4 poor ratings with a total score of 13 was considered to be very poor
overall (this being the most common item rating), while one with 4 very poor and 5 poor
ratings with a score of 14 was considered to be poor overall. Other cut-offs were derived
in a similar manner as 22/23 for poor/fair and 31/32 for fair/good see (Appendix 3).

The original articles were grouped according to their quality, the strengths and the
weaknesses of the methodologies of the studies (Wright et al., 2007, Egan et al., 2007).
After this the outcomes from the individual articles were teased out and arranged according
to the emerging themes (Egan et al., 2007) (Appendix 1).

2.7.4.2 Summary of the methodological rigour of the studies
The studies were grouped according to their quality score, regardless of the methodology
used, item and total scores being shown in Appendix 3). Twenty-one articles were rated to
be of good quality (total scores 32-26), and 37 articles were rated to be fair (23-31) while 4
articles were rated as poor quality (14-22). Only one article scored the maximum of 36,
while the four poor quality articles had scores at the higher end of the poor range at 21 or
22. No retrieved articles were judged to be very poor.

The article by Ilic and Maloney (2014) was of good quality as it provided a
comprehensive description of each stage of their study to demonstrate rigour. The major
strengths of most of the other articles were that they clearly described the methods they
used in their studies, which are a major criterion used to assess their quality and be
included in the review. However, several studies had a range of limitations in reporting the
methods they used. For example, Lake and McInnes (2012) did not describe their data
collection methods while Simonelli and Paskausky (2012) did not identify the study design
used. Löfmark and Wikblad (2001) only described the methods but not the research design
while Mole et al. (2007) described how they carried out the study without clearly reporting
their methods. Steadman et al. (2006) used an RCT but did not describe the randomisation
process, while Rawnson et al. (2009a) failed to provide any details about the methods but
referred the reader to another study. Neither Brosnan et al. (2006) nor Muldoon et al. (2014) gave a comprehensive description of the study methods, while Hofsten et al. (2010) did not describe a data collection process. As in several studies, Skirton et al. (2012) reported detailed study design methods but not the sampling methods and implications of the study, which compromised its quality. Finally, Gilmour et al. (2013) had no rationale for the methods used, while Ali et al. (2007) did not describe their RCT methods in detail.

However, many studies had areas of good quality making them suitable for data extraction. Indeed among the selected reviewed articles, none was rated to be of very poor quality.

2.7.5 Data extraction
Data were extracted from relevant papers using the predefined evidence summary templates designed by Hawker et al. (2002) which allow the capturing of heterogeneous data involving different methodologies and disciplines. The templates were designed in such a way that the researcher was able to extract theoretical and methodological relevant data for the identified relevant articles (Bishop-Fitzpatrick and Kind, 2017). The summary templates are designed to extract data under the following headings: author and date of publication, title, study aims, methods, sample, main points and findings and quality assessment (see Appendix 1). Twenty-four of the articles reflected the experiences of participants either as students or as newly qualified health professionals after working for some time post-qualification within their placement area, in terms of teaching and evaluation methods. Fifteen studies dealt with the common teaching methods used for these health professionals, while four addressed their preparedness for clinical practice. Twenty-one articles addressed views, attitudes or perceptions of students; and two addressed newly qualified health professionals’ experiences with the transition from student to an autonomous professional. Seven of the 21 articles revealed both the negative and positive aspects of practising midwives over the development of competence and confidence in students on their practice attachments. Finally, all 62 articles revealed the social processes involved in the development of competence and confidence among individuals. Hence, these studies were key to the present study in identifying the objectives, variables, and methods of the study as well as highlighting practical challenges faced by other researchers and tried to avoid. Also, these studies assisted in identifying limitations associated with such types of studies.

2.8 Synthesis of the literature search findings
A qualitative content analysis framework by Field and Morse (1985) was used to identify factors identified and labelled as either facilitators or inhibitors of competence and confidence development among students. A factor could have either a positive or an adverse impact on student learning, depending on the students’ experience and perception of that factor. Such factors were: teaching methods, assessment methods, learning environment and social processes during competence development. The review findings were initially summarised according to facilitating and hindering factors but it became difficult to separate such factors. The same factors were labelled as enabling by some students and disabling by others. Hence, social processes involved in teaching and learning were discussed in the light of student perceptions and experiences in terms of mentoring, learning environment, teaching and assessment methods.

Ten studies (Armstrong, 2010, Bradshaw et al., 2012, Deegan and Terry, 2013, Edwards et al., 2004, Gilmour et al., 2013, Jordan and Farley, 2008a, Lake and McInnes, 2012, Licquish and Seibold, 2008, Longworth, 2013, Rawson et al., 2009b) revealed student midwives’ perceptions and experiences of teaching and assessment methods and learning environment. Another 11 studies (Houghton et al., 2013, Hughes et al., 2014, Annemarie and Johanna de, 2015, Kelton, 2014b, Löfmark and Wikblad, 2001, McMullan, 2008, O'Mara et al., 2014a, Thorkildsen and Råholm, 2010, Tsele and Muller, 2000a, Valdez, 2008b, Yuan et al., 2011) revealed student nurses’ perception and experiences of teaching and assessment methods and learning environment. There was one study for newly qualified midwives (van der Putten, 2008) and newly qualified nurses (Bradshaw et al., 2012) revealing their experiences of transitioning from being a student to an employee in a working environment. No study captured medical doctors’ experience or perceptions either as students or newly qualified professionals.

2.8.1 Mentors
Mentors were reported as having several benefits for both midwifery and nursing students, such as closing the theory-practice gap through giving guidance and support (Barry et al., 2014, Brunstad and Hjälmhult, 2014, Bradshaw et al., 2012, Gilmour et al., 2013, Lake and McInnes, 2012, Longworth, 2013, Deegan and Terry, 2013, Armstrong, 2010, Tully, 2010b, Weston, 2012, Rawson et al., 2009a, Muldoon et al., 2014, Edwards et al., 2004, Thorkildsen and Råholm, 2010, Yuan et al., 2011, Valdez, 2008a, Kelton, 2014a, Löfmark and Wikblad, 2001, McMullan, 2008, Linda O'Mara, 2013, Joubert and De Villiers, 2015, Houghton et al., 2013, van der Putten, 2008, Tsele and Muller, 2000b, Licquish et al., 2013, Hughes et al., 2014). This was also reported for newly qualified midwives (van der
Putten, 2008) and newly qualified nurses (Bradshaw et al., 2012). However, mentors’ characteristics determined the type of a professional they would produce, influencing students’ behaviour and attitude towards the profession, clients, and colleagues (Joubert and De Villiers, 2015). Mentors influenced students’ competence and confidence development in all aspects of clinical practice (Brunstad and Hjälmhult, 2014). Mentors also facilitated professional growth through reflective learning (Hughes and Fraser, 2011) and critical thinking, which are key components of cognitive learning and decision making in the clinical area (Lake and McInnes, 2012).

Even though mentors were viewed as a valuable asset in assisting the students to bridge the theory-practice gap, students’ experiences with mentors were not always pleasant or positive, and this determined whether the student could access learning or not (Löfmark and Wikblad, 2001). Two types of mentors were identified by both midwifery students (Licquirish and Seibold, 2008) and nursing students (Thorkildsen and Råholm, 2010). The different characteristics mentors exhibited to students determined whether students perceived them as right or wrong (Lake and McInnes, 2012, Thorkildsen and Råholm, 2010, Gilmour et al., 2013). Nevertheless, it was possible for two different students to view the same mentor differently.

In a study by Löfmark and Wikblad (2001) on factors that facilitated learning in the clinical area, nursing students identified the mentor’s qualities as important. These mentors were those who enjoyed teaching, were knowledgeable and tolerated students’ mistakes as part of learning, making them attractive as true role models who supported students through guidance and provision of positive feedback. Similarly, Licquirish and Seibold (2008) explored midwifery students’ experiences of achieving competencies and identified similar characteristics which hindered and facilitated learning in the clinical area. Midwifery students in their study also identified good mentors as those who gave students responsibilities, trusted them in decision-making about patients and were able to create good working relationships with students. Consequently, such mentors’ characteristics motivated the students to want to learn new things, promoting professional growth and autonomy (Brunstad and Hjälmhult, 2014).

Such distinct characteristics made these mentors charismatic as they transmitted skills to the students through a sense of humour, motivating students and respecting them for who they were (Hughes and Fraser, 2011). Also, these mentors were effective in their teaching as they took into consideration the differences in students’ learning abilities, adapted
accordingly to the students’ advantage, and encouraged students to reflect their thoughts in anything they learnt freely (Brunstad and Hjälmhult, 2014, Hughes and Fraser, 2011). Such effective mentors were hard to find, but sometimes they could only be accessed late when the damage had already been done, if at all (Joubert and De Villiers, 2015).

The bad mentors were mostly those who were not prepared to mentor students in the clinical area and lacked experience on how to treat students. They had characteristics which made it difficult for them to be appreciated by students with different learning styles (Löfmark and Wikblad, 2001). It was also difficult for the students to develop effective learning relationships with these mentors (Brunstad and Hjälmhult, 2014, van der Putten, 2008, Tsele and Muller, 2000b, Thorkildsen and Råholm, 2010, Yuan et al., 2011, Gilmour et al., 2013). The students found the process of relationship building with a bad mentor stressful as they found it challenging to adapt to the learning environment and access learning (Gilmour et al., 2013) and gain competence and confidence in different attachment areas (Hughes and Fraser, 2011). The bad mentors denied students practice or if they allowed them to practice, they would take over the task if the student made mistakes (Joubert and De Villiers, 2015). This denied students of learning opportunities, making them frustrated. Such behaviour resulted in students fearing the mentor to the extent that they would avoid seeking help from them (Hughes and Fraser, 2011). Additionally, such mentors who had difficulties in facilitating the development of good student-teacher relationships were observed to be authoritative and to demean students. They did not trust the students’ ability to make decisions or take responsibility for clients’ safety; behaviours in a mentor which do not support the student’s skill development (Tsele and Muller, 2000b, Gilmour et al., 2013, Brunstad and Hjälmhult, 2014).

There was also an issue of personality differences between students and mentors which resulted in the development of more negative teacher-student relationships, particularly as different students got different support from the same mentor (Hughes and Fraser, 2011).

2.8.2 Learning environment
Six studies revealed the clinical area to be very important in facilitating skill development of competencies in healthcare professionals. One study included student nurses (Löfmark and Wikblad, 2001), four included midwifery students (Rawson, 2011, Baird, 2007, Thorkildsen and Råholm, 2010, Jordan and Farley, 2008b) and one included medical students (Laven et al., 2014). What students went through in the clinical area determined whether they would perceive the environment as conducive or not for learning.
(Thorkildsen and Råholm, 2010, Tsele and Muller, 2000b) and whether newly qualified graduate midwives felt confident and fit for practice (van der Putten, 2008).

The issues of concern for the practice environment were alike for both students and newly qualified professionals. These were centred around preparedness for practice and confidence for midwifery students (Licquirish and Seibold, 2008, Baird, 2007). Nursing students (Morgan, 2006, Fiedler et al., 2012, Edwards et al., 2004, Tsele and Muller, 2000b) newly qualified midwives (van der Putten, 2008, Donovan, 2008), newly qualified nurses (Valdez, 2008a) and medical students (Laven et al., 2014) all had similar problems during training and post-qualification. However, for both student midwives (Licquirish and Seibold, 2008) and student nurses (Thorkildsen and Råholm, 2010, Linda O'Mara, 2013), there was an issue of missed learning opportunities. In addition, graduate nurses had financial problems too, compounding their problem of adapting to their new roles as professionals (Valdez, 2008a).

Even though students were looking forward to the clinical learning experience, they felt threatened by it when they discovered that it posed challenges, affecting their learning both negatively and positively (Thorkildsen and Råholm, 2010). According to Bradshaw et al. (2012), these challenges were associated with the students themselves, the supervisors, and organisational policies, which determined the nature of learning relationships developing between the mentor and the student. The two studies showed the problems associated with the challenges improved as the students gained more experience of how to mitigate them, (Bradshaw et al., 2012, Baird, 2007). Although students discovered that proper adjustment and access to learning was centred on positive relationship building, the process of building the relationships was found to be very stressful (Gilmour et al., 2013).

Two types of environments affecting student learning and relationship-building were identified: the internal environment and the external environment. The internal environment included student and facilitator characteristics while the external environment encompassed experiences associated with the physical learning environment and organisational policies (Tsele and Muller, 2000b).

The student-based internal environment was associated with a correlation of theory and practice, relationship building, inconsistencies found in practice and lack of continuous supervision due to busy wards. Factors associated with supervisors included inadequate guidance, student intimidation, intolerance related to work overload related to busy wards and practice linked conflicts (Baird, 2007, Tsele and Muller, 2000b, Brunstad and
Hjälmhult, 2014, Bradshaw et al., 2012). Also, there was a failure of trained staff to acknowledge the student as a trainee by using them as part of the workforce. This was not ideal for their learning and was demoralising for the student. Students expressed that a sense of belonging was crucial for them to feel part of the group, motivating them to develop the skills and identify with the group and be identified by their names and not just be called students (Tsele and Muller, 2000b). Finally, a failure of trained staff to recognise students as part of the professional group and a perceived lack of respect for the student-adult status were also revealed to frustrate the students (Brunstad and Hjälmhult, 2014).

However, students’ lack of knowledge and inability to cope with the demands of the job requirements exposed them to stress, which hindered learning (Tsele and Muller, 2000b). This problem was compounded by a medical hierarchy which placed midwives’ role and status inferior to those of doctors, stifling autonomy development among midwifery students (Baird, 2007).

2.8.3 Social processes involved in teaching and learning

Evidence from the 62 articles revealed that social interactions were inherent in the development of competencies and confidence since each process involved in teaching and learning encompassed repeated interactions between two or more people which influenced each other’s behaviour and attitudes (Chabeli, 2002). The interactions developed into relationships, which were either negative or positive regarding acquiring confidence and competence (O'Mara et al., 2014a). Repeated interactions which featured in the reviewed articles included mentor-mentee and mentor-client interactions (Hughes et al., 2014, Norris, 2008, Warland and Smith, 2012, Tully, 2010a, Mole et al., 2007). The nature of interactions and types of relationships developing between the student and the mentor were determined by the feelings and adaptation of students to the learning environment (Gilmour et al., 2013, Deegan and Terry, 2013, Tully, 2010a, O'Mara et al., 2014a).

In some studies, students identified issues embedded in everyday social interactions and in real life situations which were related to conflict development (Deegan and Terry, 2013, Tully, 2010a). These included unanticipated reactions like blame shifting and related emotions leading to avoidance behaviour if expectations were not met or things were going wrong (Hughes et al., 2014). When the student’s perception and the teacher’s perception were contradictory, conflict ensued, especially if the student appeared to show a lack of cooperation. Hence, there was a need for conflict resolution and accommodation to release the tension between the teacher and the student to allow progress in learning to take place.
Addressing the causes and resolving the problems through dialogue to clarify issues and giving feedback on the expectations in such situations was necessary to release emotions and resolve the conflict (Deegan and Terry, 2013).

2.8.3.1 Building working relationships
Student midwives need to develop a working relationship during their clinical attachment for a fruitful teaching and learning process to take place (Hughes and Fraser, 2011). Senior students and newly qualified midwives were a reservoir of information on how to survive in the clinical area as they forewarned new students about whom it was easy to build a good working relationship with and whom to avoid. They recommended good and bad mentors and provided suggestions on how best to manipulate the relationship building process to the student’s advantage (Thorkildsen and Råholm, 2010, Gilmour et al., 2013, Tsele and Muller, 2000b, Fiedler et al., 2012).

Three types of working relationships were found: the mentor-mentee and mentee-mentee relationships, which were critical for the student to access learning, and the client-mentor relationship, which the students called ‘a caring relationship’. The latter was considered critical for role modelling and transmitting communication skills to the student. The mentor-mentee relationship determined the form of the relationship developing between the student and the mentor, and this could be either positive or negative. A positive relationship facilitated access to learning and confidence building for both student midwives (Thorkildsen and Råholm, 2010, Gilmour et al., 2013, Tsele and Muller, 2000b, Fiedler et al., 2012) and student nurses. O’Mara et al. (2014a) described how nursing students had bad experiences with building relationships with their mentor. There were no studies in this literature review which revealed medical students’ experiences with the learning environment.

A positive relationship was a mentor-mentee interaction which facilitated student’s access to learning experiences and promoted positive role modelling. This facilitated the student to receive the necessary support and reassurance, through assessment and quality feedback boosting the students’ self-esteem, sense of security, belongingness and professional growth, and development. This was necessary for the students’ adaptation to the learning environment and motivated the students to become responsible for their learning facilitating for professional growth and development. Building confidence in the student was also associated with cultivating creativity, flexibility and clinical decision-making skills related to noting changes in patients’ conditions and needs for decision making in the
provision of care (Thorkildsen and Råholm, 2010, Gilmour et al., 2013, Tsele and Muller, 2000b, Fiedler et al., 2012). Developing such attributes in the student was critical to their skill mastery and professional growth.

A negative relationship resulted where there was a strain between the mentor and the mentee, making the student face difficulties in accessing learning through lack of support (Longworth, 2013). Lack of support led to demotivation, stress, boredom and idleness, as the student would not know what to do without guidance. This made the students stay away and not ask questions or seek advice from the mentor. Failing to fit into the environment (O'Mara et al., 2014b) led to feelings of loneliness and vulnerability (Gilmour et al., 2013). However, the feeling of vulnerability was positive in a way, as students were made aware of the vulnerability of unsupported patients (O'Mara et al., 2014b, Tsele and Muller, 2000a).

### 2.8.3.2 The process of relationship building

Both the student midwives and the student nurses found relationship building a challenge, provoking both negative and positive feelings (Brunstad and Hjälmhult, 2014, Gilmour et al., 2013, O'Mara et al., 2014b, Thorkildsen and Råholm, 2010, Tsele and Muller, 2000a). According to Brunstad and Hjälmhult, (2014) there are three phases of relationship building which students go through during their clinical placement.

*The first phase* was to do with a feeling of insecurity associated with a perceived vulnerability related to lack of knowledge and/or being assessed critically, instead of being supervised. This eroded the student’s confidence and stamina, preventing the student from taking initiatives towards initiating a positive learning interaction with the available mentors (Keltner et al., 2003).

*The second phase* was associated with developing a feeling of security, giving the student the strength to be motivated to take steps towards starting the relationship building process as the students put themselves into subservient positions toward the midwives.

*The third phase* of acceptance was facilitated by the students' respect for their mentors, indeed the students’ respect motivated mentors who in turn felt important to their students' learning. The feeling of being wanted cultivated a sense of trust and facilitated confidence in the student to initiate an open dialogue with mentors and access learning.
2.8.3.3 Challenges in building relationships
Creating the mentor-mentee relationship had its challenges, which were either student-specific, mentor-specific or institution-specific (Longworth, 2013). These challenges were determined by several factors (Hughes and Fraser, 2011) and were complicated by the complexity of the mentor’s or the student’s characteristics (Licquirish and Seibold, 2008, Hughes and Fraser, 2011, Joubert and De Villiers, 2015).

The student's traits play a critical role in taking responsibility for their learning and their readiness to improve the learned skills to progress (Löfmark and Wikblad, 2001). The student's shortcomings influenced the type of relationship that would develop between them and their mentor. The student characteristics which complicated learning were insufficient experience, academic or clinical failures, difficulties in taking initiative, not following regulations and not being self-reliant. Feelings of not being taken seriously and arrogance on the part of the student were associated with a negative relationship, incompatible with access to learning (Jordan and Farley, 2008b, Löfmark and Wikblad, 2001, Rawnson, 2011, Baird, 2007). Some students failed to seek help as they thought they were burdening the qualified staff; this ultimately undermined the students’ confidence (Brunstad and Hjälmhult, 2014; Gilmour et al., 2013; O'Mara et al., 2014b; Thorkildsen and Råholm, 2010; Tsele and Muller, 2000a).

Mentor-related challenges associated with difficulties in building working relationships were a busy environment, an uncaring attitude, disregarding students’ previous experiences, and treating students like children. Due to busy work schedules and competing demands on time, mentors' teaching was often at a pace too fast for students. This led to mentors appearing impatient and intolerant, creating tension and conflict between the student and their mentors (O'Mara et al., 2014b, Tsele and Muller, 2000a).

2.8.3.4 Power dynamics
Organisational issues related to power dynamics were key to their day-to-day interactions, decision making and responses to arising situations, making students realise the reigning power differences and coping mechanisms. Due to the power differences, student had no choice other than to conform to what mentors wanted for harmony to prevail and access learning (Armstrong, 2010, O'Mara et al., 2014b, Thorkildsen and Råholm, 2010).

2.8.4 Teaching methods
The most common teaching methods used in teaching medical and nursing students skill acquisition and aiding their development were simulation, Problem Based Learning (PBL),

2.8.4.1 Simulation
Different versions of simulation were identified: role-playing, simulated patients, models, case studies, computer packages, standardised patients, manikins, authentically based scenarios, colleagues acting, OSCE, skill demonstrations and skills coaching. Though simulation was revealed to be important in imparting skills to students, it was noted that it could not replace real life situations.

2.8.4.1.1 Skills developed through simulation
There was evidence that simulation can develop other skills such as reflective and critical thinking skills (Fieschi et al., 2015, Raymond et al., 2013a, Barker et al., 2013) problem solving, decision making, communication, management and practical skills (Simonelli and Paskauskas, 2012, Fieschi et al., 2015, Khadivzadeh and Erfanian, 2012, Kelton, 2014a, Raymond et al., 2013a, Yuan et al., 2011, Hughes et al., 2014, Norris, 2008, Warland and Smith, 2012, Tully, 2010a, Mole et al., 2007). However, simulation was found to be more efficacious in emergency management than in legal, ethical or professionalism issues (Smith et al., 2012).

2.8.4.1.2 Specific benefits of different types of simulation
Several types of simulation were found to have benefits in student teaching, learning, assessment, and skill-development. Each type of simulation was found to be best suited for the development of a specific, but a different kind of skill (Choi et al., 2014, Mole et al., 2007, Barker et al., 2013, Longworth, 2013, Hughes et al., 2014). For example, when simulated patients and gynaecological models were compared in developing patient-centered care, students who used simulated patients developed more awareness of patient-centered care than those who used models (Khadivzadeh and Erfanian, 2012). In a study by Smith et al. (2012), midwifery students were not able to reflect on ethical, legal and professional aspects of practice using simulation learning methods.

In a significant study by Raymond et al. (2013b), students were filmed while performing a day’s tasks and the video was later shown to colleagues. After watching the video, students had mixed feelings about the impact it had on their skill learning. On the positive side, the students appreciated the real life situations portrayed in the film. Watching others in the video improved their self-efficacy, as students felt that this teaching method brought
together skills needed for everyday functioning, such as documentation, tasking necessary for practice, critical thinking and decision-making. Also, the video filming teaching method was student-centred, as it took care of individual student characteristics, learning styles, and levels of training, despite inducing stress in the student and affecting their learning negatively. Anxiety was revealed associated with missing a learning opportunity as filming altered the student’s attention towards what was happening at the time and interfered with reflection. Reflection is associated with making mental images of what a student is observing, so that they can store and retrieve the information when needed (Raymond et al., 2013a).

Student midwives in Barker et al. (2013) and Lavender et al. (2013a) appreciated the e-learning teaching method as an innovation, reflecting modern technology. It was found to be an efficient method for teaching the partograph as it imparted the required knowledge and practical skills. However, students considered that e-learning was not an all-encompassing teaching method but had an added advantage in the availability of richer resources. They felt that e-learning could not replace the hands-on practice and face-to-face communication critical to the health professions (Barker et al., 2013).

Some studies (Steadman et al., 2006, Lavender et al., 2013b, Simonelli and Paskausky, 2012, Mole et al., 2007, Martin et al., 2014) evaluated the effects of simulation on learning, in which pre- and post-simulation scores were compared. Post-test scores were better than pretest scores in knowledge and practical skill development (Steadman et al., 2006, Lavender et al., 2013b, Simonelli and Paskausky, 2012, Mole et al., 2007, Martin et al., 2014) showing the relevance of simulation as a teaching method. The level of training was a significant factor in the studies of Martin et al. (2014) and Lavender et al. (2013), as senior students outperformed junior students.

Also, simulation induced negative feelings towards the associated learning process, such as a feeling that the process was not smooth, was time-consuming and increased their workload, which hindered learning (Longworth, 2013, Hughes et al., 2014, Norris, 2008, Deegan and Terry, 2013, Mole et al., 2007). Some students felt that simulation only promoted practical skills and knowledge development rather than critical thinking (Lake and McInnes, 2012). These same benefits and challenges for simulation were also cited for case seminars (Hofsten et al., 2010). Lastly, simulation motivated students to want to learn more challenging tasks, refining the competences and the confidence needed to practice (Kelton, 2014a, Raymond et al., 2013a). Ultimately this made students feel able to
fit into the profession (Yuan et al., 2011, Morgan, 2006, Lake and McInnes, 2012, Fieschi et al., 2015, Raymond et al., 2013a, Steadman et al., 2006, Lavender et al., 2013b, Simonelli and Paskausky, 2012, Mole et al., 2007, Martin et al., 2014) and reduced the reality shock (Houghton et al., 2013). However, according to students, benefits were only enjoyed if the facilitator was competent, knowledgeable, and had good interpersonal skills which enabled them to deliver the skills in a timely way, taking into account the student learning styles (Yuan et al., 2011).

2.8.4.2 Problem Based Learning
Some studies (Simonelli and Paskausky, 2012, Steadman et al., 2006, Uys et al., 2013, Ali et al., 2007, Smith et al., 2012, Uys and Treadwell, 2014) compared pre-test and post-test scores for Traditional/Lecture Based Learning (TBL) and PBL. There was a significant difference in both the pre and post-test scores of both methods showing no significant difference in the use of the two teaching methods. However, the difference in the pre-test and post-test scores was more significant in simulation teaching methods.

However, there was also a matter of choice and time: some students showed more interest in PBL and some wanted more time to practice in TBL (Amiri Farahani and Heidari, 2014, Ali et al., 2007). These studies concluded that no method was better than the other in developing competence and confidence among students, but that the time taken to develop the skills was shorter for PBL. PBL seems to be ideal for adult learners since it maximises learning within a short period of time. Furthermore, when specific skills were compared, PBL was positively associated with critical thinking, problem-solving and self-directed learning. Of note was the deterioration of problem-solving and self-directed learning skills over time in TBL (Choi et al., 2014).

In an Australian study (Laven et al., 2014), 124 graduate medical doctors were asked to self-assess their preparedness for hospital practice. Those who had a PBL curriculum were compared with those who had a TBL curriculum. There were no differences regarding preparation to practice in 13 clinical skills. However, PBL produced graduates better prepared for ethical and legal issues, while TBL produced doctors who were better prepared in the disease process, where all of the skills are equally important. Each teaching method has its strengths and weaknesses and educators can choose relevant teaching methods within a learning programme.
2.8.4.3 Other teaching methods
Noble and Pearce, (2014) found that creative art, as a teaching method was appreciated by student midwives, as they felt that it offers a non-threatening learning environment while promoting personal growth, the connection between theory and practice, problem-solving skills, knowledge development and communication skills at the same time.

Two studies, one by Weston (2012) with student midwives and the other by Gidman (2013) with student nurses, revealed the negative and positive aspects of storytelling among students. One positive aspect was that it helped in the sharing of experiences in the clinical area, which released tension and facilitated student adaptation in the clinical area for both midwives and nurses. Also, these stories developed the students’ reflective skills, problem-solving skills, knowledge development and evaluation of peers. In addition to facilitating learning, storytelling also increased students’ understanding of patients’ conditions and experiences. Ultimately story telling motivated the student to want to learn more through raising their self-awareness in patient conditions and decision making on patient care. However, O’Mara et al. (2014b) found that stories were used to warn other students about unsupportive mentors so that they could avoid them if possible or treat them with caution. Such warnings were associated with fear and anxiety, making students intimidated and miss learning opportunities (Weston, 2012).

Students in a study by Chabeli (2002) revealed that poster presentations were a good teaching method as students developed unintended skills. Such skills were creative thinking, critical thinking, teamwork, cooperation, problem-solving, human relations, responsibility and self-directed learning. However, poster presentations need a facilitator with the right skills for implementing it successfully.

Although these studies had small sample sizes, they offered valuable information on teaching methods as well as baselines on which to build further research on creative art, storytelling and poster presentations as teaching methods in midwifery.

2.8.5 Assessment methods
In a study by Chenery-Morris (2012), evaluation methods such as the Objective Structured Clinical Examination (OSCE), authentic assessment, self-assessment and use of predetermined criteria were used in midwifery education.

Where the OSCE process was used for continuous assessment (Brosnan et al., 2006), the progression of competence development was noted and appreciated. Older students tended to get higher scores but students and mentors mostly agreed on the grades awarded.
However, students felt that they needed much support from the same supervisor for continuity for the process to be successful. Changing supervisors hindered learning as the students would not be sure of the new supervisor’s expectations and practice (Bradshaw et al., 2012, Muldoon et al., 2014, Chenery, 2015, Chenery-Morris, 2012, Brosnan et al., 2006). The support needed included OCSEs preparation, completion of the assessments and adequate time to exhibit the skills especially in emergency management (Barry et al., 2012, Brosnan et al., 2006).

In a study by Raymond et al. (2013b) a video film was successfully used both as an authentic assessment and as teaching method. As a teaching method, it was appreciated for giving the students insights on attitudes, knowledge, and communication needed for a specific procedure. As an assessment method, it enabled the individual to see their weaknesses and strengths, although it induced stress in the students as some did not want to be captured in action. Similary the use of cinema by (Fieschi et al., 2015) in breaking bad news proved fruitful in changing students’ behaviour and attitude and self-reflection in learning skills.

Self-evaluation was another form of assessment, where students evaluated their own performance. This method proved to be unreliable and subjective. Several studies showed no correlation between self-assessed confidence and actual competence as students gave themselves higher marks than their teachers did (Chenery-Morris, 2012, Plakht et al., 2013, Clanton et al., 2014, Barnsley et al., 2004), even for those who were scored zero by their teachers (Barnsley et al., 2004, Plakht et al., 2013). Most students who performed below standard incorrectly assessed their competence (Laven et al., 2014), contrary to a study by Clanton et al. (2014) which found that self-assessment was reliable if the student had grasped the correct concepts, with confidence level and skill mastery level strongly associated.

Indeed, objective assessments with predetermined criteria were more trustworthy in identifying student’s weaknesses and strengths in learning (Chabeli, 2002). In this review, reliable methods included posters (Chabeli, 2002) and OCSEs which were criterion-based (Brosnan et al., 2006). Since criterion-based assessments were found to be unbiased and reliable, they were trusted. These approaches enabled assessment of the student’s progress in skill development and refinement and their confidence at the same time (Chabeli, 2002, Brosnan et al., 2006).
Nonetheless, Lake and McInnes (2012) found that cognitive skill development was hard to measure due to its invisibility and the use of inference through other skills like decision making. The students found the approach to be difficult since it not clearly reveal whether cognitive skills had developed or not. Nevertheless, the students were able to observe progressive improvement in their critical thinking skills related to experience with practice. Because the students felt that the programme did not have effective methods for measuring cognitive skills, they felt they lacked the skills at graduation. This was contrary to the findings of Lake and McInnes (2012) who found that simulation methods could develop cognitive skills among students.

There was no single measurement tool that could be validated to work alone and be reliable in its measurement of skill; therefore it is suggested that assessment tools should be complementary (Chenery-Morris, 2012). Student midwives in the study by Chenery-Morris (2012) felt that the issue of subjectivity in the assessments could either impact positively or negatively on the evaluation processes. The study also found that environmental factors, mentor characteristics and student-mentor relationships could adversely affect the process of evaluation if a single method was used.

2.9 Summary of findings
The literature revealed six overarching themes: teaching methods, assessment methods, learning environment, mentors, power dynamics and social processes. Facilitators and hindrances to competence development were inter-related; positive and negative factors co-existed, revealing their dichotomous nature of having a good and a bad side. For example, there was clear evidence that clinical placement assisted in closing the gap between theory and practice, but environmental challenges such as unfriendly and unsupportive mentors and policies hindered learning, creating a gap between theory and its application. Indeed, there was clear evidence that social interactions were strong predictors of competencies as they were crucial at every level of competence acquisition and development activities. The studies found that one single teaching method could not facilitate the learning of all the requisite skills for safe practice during training. This leads one to conclude that each teaching and learning method has its strengths and weaknesses, indicating their dualistic nature. Hence, there is a need for diversity and open mindedness in the use of teaching methods in facilitating competence development in the clinical area.
2.10 Gaps identified in the literature
Studies generally found that the methodological or philosophical processes involved in competence and confidence development had good sides and bad sides. It should be noted that most of these studies (51/62) were carried out in developed countries, with only six in Asian countries and five in African countries. LMIC countries are contributing higher numbers of maternal and child health mortalities and morbidities related to skill deficiencies (Day-Stirk and Fauveau, 2012). Among those studies carried out in Africa, three were in South Africa, two were in Kenya with none in Zimbabwe; three were qualitative, two were quantitative studies and none used mixed-methods.

There is a lack of literature on factors facilitating or hindering competence and confidence development in Africa and in Zimbabwe in particular. There is a need to carry out such studies in the context of Africa to develop home-grown strategies to strengthen midwifery training, again particularly in Zimbabwe. Despite clear evidence on the inherent nature of social interactions during competence development, no study was found that developed a theory grounded in data to explain the social processes hindering or facilitating skills development in midwifery training. This study aimed to fill those gaps.

2.11 Aims of the current study
The aims of this longitudinal mixed methods study relate to the literature review outcomes in a number of ways. Qualitative studies in this literature review used in-depth qualitative interviews were to be used to explore the participants' knowledge, perceptions and practices towards the ICM Essential Competencies. There were studies where the students successfully self-evaluated their progress. Though the initial purpose of this study was not to develop an instrument for measuring competences and development, because no suitable instrument was found in the current review, a checklist-based instrument was developed to capture both the midwifery student's self-assessed confidence and the student's competence as assessed by others in the clinical setting. This allowed confidence and competence to be measured and compared during the student's training and related to other background factors. A Glaserian Grounded Theory framework was used to develop a theory grounded in the social processes facilitating and or hindering competence and confidence development. No mixed-methods study was found that explored associations between competence levels and social processes during training. A qualitative and a quantitative exploration will lead to a deeper understanding of the underlying processes facilitating or preventing competence development. This will help understand the factors associated with
competence and confidence development in midwives and alert the responsible
stakeholders and policy makers on issues critical to developing midwives in Zimbabwe.

The current study “A mixed method study to explore competence based practice of
midwives in Zimbabwe” was guided by the following objectives:

1) To identify the characteristics of midwifery students in Zimbabwe.

2) To explore the knowledge, practices and views of student midwives in Zimbabwe
towards ICM essential competencies.

3) To develop an instrument to measure confidence in midwifery students as assessed by
themselves and their 360° competence as assessed by others.

4) To assess the relationship between levels of self-evaluated confidence and the 360°
assessed competence as assessed by others over time.

5) To explore factors related to self-evaluated confidence and 360° assessed competence.

6) To develop a theory grounded in the social processes affecting competence and
confidence development.

The next chapter covers the methodology of the present study which is the critical realist’
mixed methodology.
Chapter 3 Methodology

3.1 Introduction
The previous chapter gave a comprehensive summary of evidence that social interactions are strong predictors of competencies as they are crucial at every level of competence acquisition and development activities. That chapter concluded with clarifying the relationship between the literature review results and the objectives of the current study. Section 3.2 presents the concepts behind the present study, while Section 3.3 presents the philosophical and theoretical underpinnings. Section 3.4 discusses the critical realist paradigm chosen for this study, while Section 3.5 discusses mixed-methods methodology within this paradigm. Section 3.6 describes the selection of appropriate quantitative and qualitative methods to examine confidence and competence development for this study. Finally Section 3.7 presents a summary of the methodological issues.

3.2 Concepts behind the present study
Learning has been described as a change of behaviour related to experience (Hergenhahn and Olson, 2005, Olson, 2015, Olson and Hergenhahn, 2012) and it occurs as the individual interacts with the environment as they add information and knowledge to what they already know (Candela et al., 2012). Learning is posited to be a process and categorised as cognitive learning (getting theory), acquisition of skills and affective learning (change in values, feelings and beliefs). For example, midwives have to acquire knowledge in the domains of knowledge, skills and affective related to the ICM core competences (ICM, 2010, 2013) so they can become skilled birth attendants. Skilled midwives are the drivers of the UN SDGs (UN, 2015) (Regmi et al., 2016) related to the provision of quality maternal child health and ending preventable maternal and neonatal deaths (WHO, 2017). However, the midwife must be trained and equipped with the right skills and attitude towards midwifery care in order to achieve the ICM vision of providing quality care to all mothers and babies.

The literature review in Chapter 2 found that teaching and learning are interrelated but learning happens as a distinct and separate procedure to teaching. Teaching involves assisting someone to learn (Bastable, 2011) and teaching and learning is an interactive process (Ashwin, 2012, Ashwin, 2009). Hence, the teacher’s ability to assist the student to acquire the requisite skills is very important (De Laat et al., 2006, Lally, 2000, Lally and De Laat, 2002). This involves appreciating the learners’ learning styles and being able to manipulate the environment to the advantage of the learner (Lally, 2000). There are social
processes involved in teaching and learning which may either facilitate or hinder competence and confidence development among learners.

Globally, several studies have been carried out on social processes associated with teaching and learning in nursing and midwifery (Hughes et al., 2014, Norris, 2008, Warland and Smith, 2012, Tully, 2010a, Mole et al., 2007) but the evidence suggests that what determines the hindrance or the facilitation of learning are the individual’s experiences with the process (Thorkildsen and Råholm, 2010, Gilmour et al., 2013, Tsele and Muller, 2000b, Fiedler et al., 2012). Factors which hindered learning in some students were the same factors which facilitated learning in others. As a result it becomes difficult to separate these processes and classify them as either facilitating or hindering learning as perceptions, views, feelings and emotions are issues related to social interactions.

Since learning and teaching involves communication between two or more people, social processes are inherent in such a relationship. This thesis focused on these social processes to understand confidence and competence development in midwives in Zimbabwe.

3.3 Philosophical underpinnings of the study

After having developed a clear aim and objectives for a study, the next step is to identify the most suitable paradigm approach to direct the carrying out of the study (Sikes, 2004). Indeed, situating the study within specific guiding rules makes it possible to conserve consistency among the purpose, study objectives and its design, as posed by Marshall and Rossman (2014). Moreover the approach influences the study results (Kincheloe, 2004) and guarantees the quality of the findings (Ormston et al., 2014). A literature review is critical for the researcher to carry out and identify what is known about the problem of concern and identify the gaps in literature which need to be addressed (Burns and Grove, 2010, Grove et al., 2012). It can also identify some methodologies used by other researchers giving insight into what could be possible to use for addressing the present study. In addition, the highlighted strengths and limitations of the approaches used will assist the researcher in choosing an appropriate combination of paradigm, methodology and methods as well as exercising caution towards limitations (Wilson, 2013).

All disciplinary research should be conducted within a paradigm or belief system (Kuhn, 1970, 1972, 2010). The paradigmatic classifications and descriptions have changed over time. Guba and Lincoln (1994a, 1994b) defined the main paradigms as positivism, post-positivism; interpretivism and critical realism (see Table 3.1). Creswell and Garrett (2008) gave another perspective of classifying paradigms as post-positivism, social
constructivism, advocacy and participatory and pragmatic world view. Wahyuni (2012a) developed a more recent classification of paradigms: positivism, post-positivism (critical realism), interpretivism and pragmatism, having merged post-positivism and critical realism and added pragmatism. Hall et al. (2013) added a critical theory paradigm. However, the discussion will focus on critical realism which is the paradigm of choice for the present study.

Table 3.1 Research paradigms and assumptions

<table>
<thead>
<tr>
<th>Paradigm</th>
<th>Reference</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positivism</td>
<td>Guba and Lincoln (1994a, 1994b)</td>
<td>The positivist’s belief the world is regular patterned and governed by laws or closed systems, objectivity based on logic and measurement of observable events</td>
</tr>
<tr>
<td>Post-positivism</td>
<td></td>
<td>Similar to positivists</td>
</tr>
<tr>
<td>Interpretivism</td>
<td></td>
<td>Interpretivists believe that truth is subjective, socially constructed and contextual multiple meanings,</td>
</tr>
<tr>
<td>Critical realism</td>
<td></td>
<td>Ascribes to both interpretivists and positivists belief systems and inference of causal mechanisms through inquiry and theory building</td>
</tr>
<tr>
<td>Social constructivism</td>
<td>Creswell and Garret (2008)</td>
<td>Underpinned by interpretivism subjectivism and constructing reality</td>
</tr>
<tr>
<td>Pragmatism</td>
<td>Wahyuni (2012)</td>
<td>Interested in generated knowledge not world view, ascribes to both positivism and interpretivism</td>
</tr>
</tbody>
</table>

The choices of a suitable methodology and study methods are directed by the researcher’s paradigm (Morgan, 2007). There are paradigms suitable for both single and mixed-methods approaches (Bryman, 2006). For instance, a quantitative study can be influenced by positivism or post-positivism, a qualitative study by constructivism (interpretivism) and a mixed-methods study by pragmatism, transformative, dialectic or critical realism (Tashakkori and Teddlie, 2010). The belief guiding the study is critical in making the researcher’s chosen methods clearer and understood within a given worldview for guaranteeing that the study has methodological rigour (Shannon-Baker, 2015). This suggests that the choice of a paradigm and methodology should be guided by the purpose.
of the study (Creswell et al., 2011, Shannon-Baker, 2015, Guba and Lincoln, 2005, Hallebone, 2009, Saunders, 2009, Wahyuni, 2012b) and the research question (Guba and Lincoln, 2005, Hallebone, 2009, Saunders, 2009, Wahyuni, 2012b), and whether these need to be addressed using quantitative methods, qualitative methods or both. The present study adopted a mixed-method approach to address the research question. This approach enabled both quantitative and qualitative aspects to be addressed to fully answer the problem associated with competence and confidence development to the level defined by ICM core competences (to be discussed later in this thesis).

Mixed-methods is a methodological framework that combines the methodologies of both the quantitative research and qualitative research to gain a better understanding of the research phenomenon than could be obtained by using a single approach. Hence there is a need to choose a paradigm which embraces both the positivist and the constructivist stance. The proponents of mixed-methods believe that the paradigm guiding such a study should be compatible with mixed-methods (Creswell et al., 2011, Freshwater and Cahill, 2013, Hesse-Biber and Johnson, 2013).

Mixing methods is only acceptable when there is a possibility of adopting a common ontological and epistemological stance to address the phenomenon’ (Creswell et al., 2011, Freshwater and Cahill, 2013, Hesse-Biber and Johnson, 2013, McEvoy and Richards, 2006). The paradigms suited for mixed-methods studies each have a different purpose and stance (Guba and Lincoln, 2005, Hallebone, 2009, Saunders, 2009).

The dialectic paradigm is relevant when the mixed-method study is addressing two conflicting view points and the need for interaction with tension involved when the qualitative and the quantitative results are compared (Greene and Caracelli, 2003). Pragmatists are concerned with the best or practical ways of solving problems through communicating shared meanings through the research question but are not worried about the philosophical stances (Tashakkori and Teddlie, 2003). They view their research and objectivity when collecting and analysing data making it befit an approach rather than a paradigm (Morgan, 2007). As such Biesta, (2010) posit that pragmatists suggest what creates or generates knowledge rather than giving a world view. The transformative paradigm uses the transformative-emancipatory model and promotes participation of minority groups whose voices are not usually heard. This approach seeks to understand the situation from their point of view (Mertens, 2003) and aims to enhance empowerment through community participation. Critical realism considers the individual, the
environment and the underlying forces which generate the observed, experienced, unobserved and unexperienced outcomes (McEvoy and Richards, 2006). The critical realist paradigm will be discussed in detail as the paradigm directing the present study.

Critical realists believe that what is only observed does not constitute the absolute truth and some of the information needs to be probed for the underlying forces to be revealed. This was thought to be the best paradigm to guide research exploring social processes underlying the teaching and learning of midwives in Zimbabwe. The critical realists operate within the critical realism theoretical framework concepts and this will be revealed in the following discussion.

3.4 Theoretical underpinning of the present study
3.4.1 Philosophical framework for critical realism

Critical realism theory was established as a substitute for positivism and constructivism and its most significant writer is (Archer, 2000, Bhaskar, 1975, 1978, 1998, 2002). Unlike positivists and constructivists who focus on theories of knowledge (epistemology), critical realism is a theory of reality (ontology). They believe that ontology refers to what truly exists: the nature of reality and epistemology of how individuals know of the existing reality (Maxwell, 2012a).

Critical realists argue that there are two types of knowledge: human dependent (transitive) and non-human dependent (intransitive). The second type of knowledge is that which is beyond human production (intransitive) where none of the objects rely on human activities, for example, sound and gravity. As a result, critical realists argue that a real world exists despite humans constructing the knowledge about it from a specific point of view and it is not possible to be purely objective about the truth independent of all other perspectives. The other type of the knowledge is human created (transitive) such as those things which can be manipulated by people (such as student scores produced by facilitators) and their existence is more dependent on the humans who can develop or manipulate it, such as scientists and researchers. In addition, critical realists believe that all knowledge is theory-laden and this theory is true about the knowledge area it is describing (Maxwell, 2012a). They posit that the world is the way it is and these characteristics are specific and designed in such a way that it is possible to manipulate their structure scientifically (Bhaskar, 1975, 1978, 1998, 2002). Critical realists also believe that there is no single way of knowing about and/or understanding the world (Putman, 1999). Hence critical realists argue that it is not science which imposes the structure on the world but the world is the

Against this backdrop it can be argued that the critical realists presuppose the following rules. Firstly, critical realists believe that the world is structured and differentiated and this can be recognised through theoretical argument qualifying critical realism as a science. The critical realists give distinguishable patterns amid structure and events and among closed systems and open systems, the existence of which can be used to guide or stratify and differentiate the world. Secondly, the critical realists believe that ontology as a science is theory dependent and existence of the world is accounted for by such a theory.

The critical realists’ ontology revolves around the structure/agency model which posits that underlying social structures are repetitive and can be unconsciously duplicated through purposeful human activities (Bhaskar, 1975, 1978, 1998, 2002). Critical realists argue that we cannot know everything about the world and acknowledge that there are different and several standpoints about the world which are valid in describing the truth about it (Lawson, 2003). Viewed as different from the theory of knowing reality, the assumption is that what one knows does not limit the existence of reality because reality includes both what one knows and what one does not know (Bhaskar, 1975, 1978, 1998, 2002). In this regard, critical realists differ from positivists who believe that knowledge is out there to be discovered and there is only one truth, relying heavily on objectivism. Critical realists also differ from interpretivists who rely heavily on the premise of constructivists who believe that there are multiple realities and knowledge is constructed by the researcher and participant (Charmaz, 2006). According to constructivists, multiple realities mean that reality is incomparable, and can be either independently or socially constructed by individuals or societies and in different contexts (Charmaz, 2006, 2014). Multiple realities from the critical realists’ perspectives mean that there are different valid and acceptable perspectives of reality in the same context. The critical realists also believe that what people might see as reality might not be true (Maxwell, 2012b).

Hence it can be argued that the theory of critical realism is about the ‘human agency and the world and the interaction between these two’ and it has been posited that critical realists believe in ‘stratified reality’. In addition, they believe that nature ‘is not governed by laws’ and can be open to change and has ‘underlying forces and mechanisms’ related to the stratified nature of reality (Bhaskar, 1975, 1978, 1998, 2002). They rely heavily on the assertion that ‘the world is the way it is’ and human knowledge about it is infallible.
(Lakoff, 1987) as entities exist independently of being perceived or experienced (Phillips, 1997). The ideas of stratified reality, human agency and structure of reality, governing laws and underlying forces and mechanisms are described in the following paragraphs in relation to natural and social sciences.

3.4.2 Stratified reality, causal explanations and natural science
The critical realists believe that although knowledge can be the measurement of truth it is fallible. Consequently, they view truth as structured to give three levels of reality: the empirical, the actual and the real (Priestley, 2011). Indeed, these levels of reality according to Bhaskar (1975a) illuminate the extension of science which begins with observable events.

3.4.2.1 The empirical reality level
The empirical level of reality constitutes what one observes and feels and is the first level of viewing truth. At the empirical level, actions or items can be measured based on observations and feelings, and are frequently interpreted using common sense since these actions are constantly facilitated by individual understanding and interpretation (McEvoy and Richards, 2006). This is the level when the human created knowledge (transitive) level of reality is found. This includes the time where social ideas can be generated, meanings attached to occurring events, behaviours or actions and making decisions how to react towards those actions as they occur. However these events, ideas or behaviours can be causal (the cause of what is felt or observed) (McEvoy and Richards, 2006). The causal structures or ‘causal mechanisms’ producing the events at empirical level are known to be the integral properties in an object or structure acting as causal forces producing events that are observed or experienced at the empirical level (Morgan, 2007). Hence the main focus of critical realists at this level is to explain these social events in association with the causal mechanisms and the effects they can have throughout the three-layered concepts of reality (McEvoy and Richards, 2006).

3.4.2.2 Actual knowledge level
The actual knowledge level entails that there is no contribution of human experience (intransitive). It includes the observed or unobserved, experienced or inexperienced (Morgan, 2007). This explains that events take place even if they are or not experienced or interpreted by humans and these true incidences are often different from what is observed at the empirical level.
3.4.2.3 The real truth level
The real truth knowledge level includes the forces which are involved in producing the events which are felt or observed (Maxwell, 2012a) and these are determined by the individuals’ social conditioning (McEvoy and Richards, 2006).

3.4.3 Human agency and structure of reality
According to (Bhaskar, 1979), causal mechanisms occur only in the way of portraying the events they direct and cannot be empirically predicted without them. Bhaskar explains that these causal mechanisms and the connected outcomes are social products that can eventually be understood through empirical observation. Indeed, these exist within the phenomena at the empirical level, for example, human responses and thoughts that are produced by these mechanisms, making these phenomena amenable to scientific investigation. All social structures have causal powers and liabilities and these are potentialities or characteristics in an object or structure that facilitate or restrain it from acting in certain ways (Psillos, 2007). Circumstances in the open social world can hinder or enable the actualisation of a structure’s causal power. As a result these may either have or may not have an observable or felt effect at the empirical level (Bhaskar, 1975b, Fleetwood, 2001, Lawson, 1997, Psillos, 2007, Sayer, 1992). For example, the source of scientific explanations of chemical reactions is drawn from the actualisations of deeper powers and interrelated structures, and these are the phenomena of valency and bonding that are illuminated through theory of atomic structure and electronic theory (Mohr, 1982).

3.4.4 Critical realists and social structures
(Bhaskar, 1975b) provides a theory of social reality which is congruent to other social theories but because of its orientation to structure of reality, it does not ascribe to the other characteristics of social theories. Each individual is acknowledged as being unique and not reducible, and hence viewed in their totality in order to get a global picture of reality. Social systems (culture, human agency and social structure) each have their own characteristics which have to be taken into consideration when describing phenomenon (Archer, 2000). The critical realists believe that the social world, like the natural world, is differentiated and has countless social structures which are internally related to each other. Each of them has its own function and associated powers in terms of policies, laws, culture, family and so on (Bhaskar, 1989, Lawson, 1997), contributing towards the harmonious functioning of the global community. The function and impact on one of these structures has been noted to have ripple effects on the other related structures. For example an economic meltdown in the country can contribute towards lack of utilities in
government institutions and the problem will cascade down to the individual level (Bhaskar, 1998).

Critical realists perceive social structures as being made up of groups of people and they have inbuilt structures which individuals just fit or adjust themselves into by the virtue of being in a relationship (Archer, 1995, Bhaskar, 1989). These include social structures such as the teacher and student relationships which develop during teaching and learning interactions as well as the associated rules and regulation controlling the training. The individuals in a social structure are affected by the emerging social powers which can either hinder or facilitate human actions by the virtue of what they are (Sayer, 2000); making an individual a powerful causal object in the social world (Lewis, 2000).

The critical realists perceive social structures as separated from events they causally influence, individuals and their activities. Social structures, unlike in the natural sciences, are human-agency independent, since they are not created by human activity though human agency can reproduce and transform these social structures. The social relationships can only continue to exist if adequate individuals continue to join the structures, and hence social relationship is dependent on individuals (Bhaskar, 1989). Social structures do not depend on what is happening at that particular moment as they are always there and independent of actualisation of powers (the powers are inherently there whether exhibited or not). It is not guaranteed that such powers will be exercised though they are known to be there, but individuals are encouraged to act on their expectation and hence operate on mutual trust (Lawson, 1997). For example rules and regulations can be put in place but that alone does not mean people will adhere to them (Lawson, 2003). For example, a student entering a training institution knows that they have to work hard but some may conform to the set rules whilst others may not. Thus, social powers and their related structures can co-exist without their actualisation by anyone within the structure, and hence what is happening is deeper than what is being revealed.

3.4.5 Critical realists and positivist methodology

The critical realists’ belief that nature of reality is both structured and distinguishable carries epistemological and methodological implications for qualitative studies. Critical realists view science as a process of a continued search for deeper explanations extending stratified reality that emerges at each stage of analysis, each revealing a variety of emerging powers and causal explanations (Bhaskar, 1975b, Lawson, 1997). As a result, it is arguable that for a natural scientist to develop knowledge, they should be in a laboratory.
doing experiments and testing hypotheses in order to exercise the power over what is being measured. Critical realists believe that nature is structured, and that their status quo can be affected by other prevailing powers that interfere with actualisation and distort meaning as it is affected by the different nature of reality. They believe that scientists can potentially control these other powers confounding the measurement of reality to some extent to control bias when testing hypotheses (Lawson, 1997). Quantitative study designs which include testing hypothesis using methods such as correlation and RCTs (Maxwell, 2012b) meet the critical realists’ criteria of science (Maxwell, 2004) and these methods can be used in critical realist study framework without problems and yield better results. Critical realists may have differences with positivists but this approach inherently addresses these weaknesses and gives credibility to the results of a study which has been carried out within the framework of a critical realist.

3.4.6 Critical realists and interpretivist/constructivist methodology
Integration of critical realism and constructivism has been endorsed by a number of researchers (Barad, 2010, Keller, 1992) although not all researchers have adopted it as a method of choice for their studies (Maxwell, 2012c). However, proponents such as Maxwell (2012c) and Blumer (1969) argue that interpretivist qualitative research proponents seem to ascribe more to critical realists’ methodological principles in their focus and choice of study methods. Blumer (1969) justifies his assertion by indicating that the interpretivists focus on the symbolic interactionist approach to research as do critical realists. Blumer goes on to describe symbolic interactionalism as an empirical methodological approach in social sciences designed to produce verifiable facts about human group life and behaviours. Similarly, (Huberman and Miles, (2002)’s description of qualitative research with the added concept of causality qualifies the interpretivists’ methodology to fit into the critical realists’ ontology (Maxwell 2012c).

The concept of causality is not recognised by constructivists as they perceive it to be an invalid concept in science (Lincoln and Guba, 1985), though it is found to be accounted for in their assertion of multiple realities in socially constructed reality (Guba and Lincoln, 1989).

Both process theory and regularity make up the causal explanation and data collected through observations and interviews which are amenable to qualitative studies (Miles and Huberman, 1994, Sayer, 2000) and the strength of the method in paying attention to the process (McAdam et al., 2001).
3.4.7 Critical realists and approaches to causal explanation

The explanatory approaches according to the critical realist include both the mechanisms which cause events and the theory explaining causation and exposing variations between variables observed in the phenomenon (Pawson and Tilley, 1997). There are two approaches to causal explanation: process theory and variance theory (Mohr, 1982).

Process theory is used for descriptive purposes and is suitable for qualitative studies whilst variance theory is explanatory (Maxwell, 2012a) and suitable for quantitative studies (Mohr, 1999). Variance theory applies to the in-depth searching method in the problem solving of causality. It cannot assess social and thought processes directly but through assumptions in terms of correlated alterations in input and output as confounding variables are controlled (Maxwell, 2012a). This is contrary to applying process theory which enables the researcher to directly study causal processes by observing or interviewing and probing participants’ views and perceptions from their social settings (Mohr, 1982).

3.5 Critical realists and mixed-methods

Critical realists believe that when retroduction, induction and deduction are put together, their explanatory powers are enhanced (Scott, 2007)). Moreover, mixing quantitative and qualitative methods in a single study project provides a more complete picture of a given topic (Mingers, 2003), that cannot be achieved by either a quantitative or qualitative method alone (Ågerfalk, 2013). It gives the whole picture of the phenomenon (Venkatesh et al., 2013).

Critical realists believe that deductive (quantitative) methods test specific hypotheses whilst inductive (qualitative) methods are centred on formation of general inferences (Maxwell and Mittapalli, 2010b). They see the mixed-methods approach to research as collecting and analysing the quantitative and qualitative data separately, each producing their own results. The two results are then merged at an interpretation level using retroduction (Creswell et al., 2004, McEvoy and Richards, 2006, O’Cathain et al., 2010).
3.5.1 Purpose or reasons for mixing the methods

Critical realists acknowledge that qualitative and quantitative methods can be mixed, and it is important to put together those methods that will meaningfully address the question at hand (Casey and Murphy, 2009).

A mixed-methods study should have clear mixed-methods questions shaped by the purpose of the study and in turn informing the study process (Bryman, 2007, Creswell and Clark, 2007, Tashakkori and Teddlie, 1998), Benner (1984a).

There are three distinct ways of writing mixed-methods questions (Creswell and Clark, 2007). The quantitative and qualitative questions can be written separately with a shared mixed-methods research question; a hybrid mixed-methods research question may be broken down into quantitative and qualitative questions; or a question may be developed for each evolving phase of a study. Creswell and Clark (2007), comment that mixed-methods questions usually address the ‘what and how’ or ‘what and why’ aspects of the phenomenon.

The present study used mixed-methods to explore the newly qualified midwives’ competence and confidence development. The question for this study is a hybrid one: ‘Are student midwives in Zimbabwe prepared for competence-based practice to the level defined by ICM core competence?’ This was then broken down into qualitative and quantitative objectives respectively (see Sections 4.2 and 5.2 of Chapters 4 and 5). The question reflects the ‘what’ (competencies and confidence) and ‘how’ (prepared for practice) aspects of competence development of midwives.

Risjord et al., (2001) argued that different research methods can be mixed for three reasons – confirmation, completeness, and abductive inspiration or retroduction – to both confirm the reliability and validity of the results and counter the biases which can be reflected in either method (Shih 1998). For example, results from an interview may verify those collected through empirical measurements such in a sequential mixed-methods design. However methods can be mixed for completeness when the quantitative and qualitative research methods are used in the same study to address the phenomenon of interest in an attempt to give a fuller picture of it and understand the situation better than when one method is used (Creswell et al., 2006). Confirmation and completeness provide the basis for retroduction. This facilitates a deeper understanding of the problem beyond completeness (Creswell and Clark, 2007). This resonates with the reason behind the present study and hence it was decided to adopt a retroductive stance.
According to critical realists, quantitative and qualitative methods are not complete for theory building without retroductive reasoning (Mingers, 2003). During retroduction, a theory is generated creatively to explain the observed events involved in retrospect (Creswell and Garrett, 2008) for a deeper understanding of social process involved through in-depth interviews. This goes beyond the observable and includes investigating the mechanisms behind the event using comparisons or correlations, symbols and or model building (Lawson 1989). This process is not possible without collecting both quantitative and qualitative data.

**3.5.2 Mixed-methods design types**

Studies implementing a mixed-methods design collect and analyse both quantitative and qualitative data (Creswell et al., 2011, Onwuegbuzie and Collins, 2007a). Several authors give different types of mixed-methods designs arguing that they should reflect the philosophical stance, data collection and analysis methods of the study (De Lisle, 2011).

The classification of the mixed-methods research designs can be determined by the nature of their mixing level (design, data collection, and analysis or interpretation level); use (whether one method depends on building from the results of the other method to address the phenomenon, timing of data collection and priority accorded to each strand, whether a single study or in several phases) and point of integration (Creswell et al., 2011).

Four types of designs are convergent, sequential, embedded and multiphase (Creswell et al., 2011, Morse, 2010). Creswell (2003b), defined two major designs as sequential and concurrent. Concurrent or triangulated mixed-methods studies gather qualitative and quantitative data simultaneously and analyse the data separately and integrate the results at interpretation level (Onwuegbuzie and Collins, 2007b). Such a mixed-methods design is employed to measure and compare the same phenomena’s different attributes from two perspectives for completeness (Creswell, 2003b, Stentz et al., 2012, Downward and Mearman, 2004). In a convergent design, the quantitative and qualitative data are also collected at the same time but the results from each are complementary (Creswell, 2003a).

In a sequential design, either the quantitative data or the qualitative data are collected first to inform the collection of the other, so the methods are implemented in a sequential manner. This is ideal if the second method needs information from the first to start it off or if the second is to confirm the findings of the first (Denzin, 1989). There are several other combinations of sequential research methods but the importance of each research design will depend on the research question (Creswell and Clark, 2007).
The quantitative and qualitative methods can be given equal status where they maintain their unique characteristics with results to be merged later (Moran-Ellis et al, 2006) or one method may be given more weight than the other (Mason, 2006). Popular sequential mixed-methods designs in health and social science research are the exploratory design (qualitative dominant) and the explanatory design (quantitative dominant) (Creswell and Clark, 2007). If the methods are not accorded the same impact, the minor one can be imbedded or nested in the major one. This method is usually biased towards quantitative data (Giddings and Grant, 2006).

3.6 Designs and methods chosen for the study
Quantitative and qualitative data can be collected concurrently to complement each other allowing for a complete analysis and to give a full picture of the problem (Holloway and Wheeler, 2002, Holloway and Wheeler, 2010, Holloway and Wheeler, 2013, Johnson and Onwuegbuzie, 2004, Tashakkori and Teddlie, 1998). The qualitative data can give an extended explanation of the complexity associated with experiences or observed behaviours of participants (Creswell et al., 2011). Within a concurrent/triangulation design, the quantitative and qualitative data collection is separate but occurs at the same time, each addressing its own question (Creswell and Clark, 2007).

3.6.1 Mixed-methods design
A convergent concurrent mixed-methods design was chosen to address the study question of confidence and competence development in midwifery students in Zimbabwe as they approached the end of their training programme and entered clinical practice. For the convergent concurrent mixed-methods design chosen for this thesis, the quantitative and qualitative phases were given the same status, with data collected and analysed separately. Each of the quantitative and qualitative phases addressed a different aspect of the problem but with the same weighting in answering the research question, and the results were integrated at interpretation level (Creswell and Clark, 2007)
3.6.2 Quantitative and qualitative designs
The quantitative phase was an explanatory longitudinal correlation study which measured competence and confidence development as the student midwives approached the end of their training and afterwards. Competence as assessed by clinical facilitators and peers and confidence as self-assessed by the student were measured objectively using specially developed instruments. This was carried out at three time points, and correlation and regression were used to study the relationships between the different measurements at different time points.

The qualitative phase was based on in-depth interviews with student midwives to explore their own competence development and their knowledge, practice and views of ICM essential competencies. Grounded theory was chosen to analyse their responses and develop a theory of the social processes affecting confidence and competence development.

The way in which quantitative and qualitative results were mixed for this study will be discussed next.

3.6.3 Integration of quantitative and qualitative findings
Proponents of mixed-methods research argue that the purpose of the study should determine the level at which the methodology can be mixed. This could be either at the design, data collection or data analysis levels (Creswell and Clark, 2007, Johnson et al., 2007, Tashakkori and Teddlie, 2003). Critical realists believe that qualitative and quantitative studies share common analysis principles because of a specific ontological structure (Lewis, 2000). Hence, they believe that a combination of methods is possible at the analysis level (Lawson, 1997). The retroduction (mixed-methods) approach to research involves collecting and analysing the quantitative and qualitative data separately. The two data are then merged at the interpretation level (Creswell et al., 2004, O’Cathain et al., 2010, McEvoy and Richards, 2006). Two processes are necessary to combine the results: retroduction and triangulation. Retroduction facilitates the analysis and explanation of the observed facts through assumption whilst triangulation validates the explanation by positioning them within a specific context for a reference point (Downward and Mearman, 2004) as described next under each process.

3.6.3.1 Retroduction
Retroduction is an analytical tool used in critical realism (Danermark et al., 2002) facilitating a deliberate backward and forward movement between observed facts until a
certain explanation about the observed facts is reached (Downward and Mearman, 2006). The process allows creation of hypotheses for the observed patterns of confidence and competence scores and the other participants’ variables such as previous work experience, age and gender for example. Retroduction is a means of knowing conditions necessary for the existence of a phenomenon and operates on the premise that social reality is made of structures and internally related objects. Hence knowledge of reality can only be reached through questioning the empirically observable and creating concepts that are critical to the development of the observed phenomenon (Danermark et al., 2001). Retroduction can therefore be used to unify qualitative and quantitative study results to come up with descriptions (qualitative) explaining patterns of the scores observed in the quantitative study. The process is three fold as it encompasses induction, deduction and assumptions and the cycle is facilitated by the individual’s previous knowledge (Chiasson, 2001). The researcher’s prior knowledge of midwifery training, practice and experiences in both midwifery education and practice collectively influenced the interpretation of the integrated study results during retroduction.

Retroduction is a method which critical realists acknowledge as making it possible to mix qualitative and quantitative data through inference at the interpretation level (Sayer, 1992). The merging or mixing of data in a mixed-methods study should be clearly noted as showing convergence, divergence or complementary if the results are interpreted for a deeper understanding of the phenomenon (Creswell et al., 2004, McEvoy and Richards, 2006).

From a critical realist perspective, retroduction facilitates the mixing of data coming from the same ontological stance but sharing different epistemological views (Downward and Mearman, 2004). The premise behind retroduction is the critical realists’ belief in the concept of stratified reality at the level of empirical reality as described in Section 3.4.2. It is believed that reality is observed and experienced by individuals and recorded by scientists, so the empirical realm is the access level of transitive knowledge created through observation and experience (subjectivity and objectivity). Hence, according to critical realists, to guard against the fallibility, validation occurs through triangulation (Downward and Mearman, 2006).

Retroduction moves beyond the proposed results through inference to acquire the depth of meaning of the results producing an explanation that holds ontological depth (Downward and Mearman, 2003). For example, the quantitative data analysis may suggest causal
explanations. These ideas may be complemented by the qualitative study by studying related data and causal mechanisms can be proposed. Thus the concept of cause derives its meaning after emergence from the interaction of human agency and institutions and structures (Downward and Mearman, 2006). With this thinking, the scope of the agency such as the mechanisms associated with action or responses and the related context require different types of measurements and explanations to reveal their true nature (Downward and Mearman, 2006). Hence, the logic in retroduction is that each set of data reveals a pattern of general sets or repeated events associated with an interpretive research in which an explanation is given to why some things happen in some cases and not in others. The intention is to find an interpretation that is independent of the way the data were collected (Danermark et al., 2002).

3.6.3.2 Triangulation
Triangulation is a technique used in mixed-methods studies to validate the reality of positioning the results from both quantitative and qualitative in describing the phenomenon of concern (Modell, 2009).

Triangulation in research involves a mixture of two or more investigators, theoretical perspectives, methodological approaches and data sources (Denzin, 1970, Denzin, 1978, Kimchi et al., 1991) and data analysis methods (Kimchi et al., 1991), and is named according to the level of triangulation: data sources, investigator (different investigators collecting same data), theoretical or methodological. Methodological triangulation involves combination of two different methods quantitative and qualitative methodology (between methods) where their results of analysis are brought together and mixed at the interpretation level (Downward and Mearman, 2004). Of note at times triangulation can be equated with mixed-methods, though use of this equivalence has some controversy (Blaikie and Blaikie, 2000, Blaikie, 1991). The present study used it from the critical realists’ perspective of the integration of research methods (Erzberger and Kelle, 2003, Moran-Ellis et al., 2006) and validating the results (Downward and Mearman, 2004). The same type of data (within a method) can be triangulated within the same method or between methods that triangulating data from different methods like from the quantitative and the qualitative methods. Investigator triangulation involves using the different researchers to collect data for the same study. It is argued that it is possible to find one research using more than one form of triangulation and this is called multiple triangulations (Denzin, 1970, Polit and Hungler, 1995, Woods and Catanzaro, 1988). Data from both qualitative and quantitative methods were triangulated at interpretation level.
through retroduction which is also viewed as a mixed-method type in the critical realist’s perspective (Downward and Mearman, 2006).

3.7 Summary
This chapter described the methodology underpinning the present study, including the rationale for choosing the methodology. Adopting the paradigm of critical realism, a concurrent mixed-methods approach was chosen to address the study question of confidence and competence development in midwifery students in Zimbabwe. This included an explanatory longitudinal correlation study to measure confidence and competence development as the students approached the end of their training and afterwards. It also included in-depth interviews with the student midwives to explore their own competence development and their knowledge, practice and views of ICM essential competencies. Grounded theory was chosen to analyse their responses and develop a theory of the social processes affecting confidence and competence development. Chapter 4 describes the methods used in the qualitative component while Chapter 5 describes the methods used in the quantitative component. The integrative chapter facilitates the use of retroduction and triangulation to develop a model explaining the scores generated in the quantitative study through the qualitative findings. The retroduction process facilitates generation of the researcher’s assumptions whilst the triangulation gives logic to the assumptions making them reasonable.
Figure 3-1 Outline of the methodology of the study

Paradigm
Critical realism

Mixed study Methodology
Critical realist Mixed study Methodology
QUAN = QUAL

Mixed methods designs
QUAN = exploratory

Sampling
Qualitative - exploratory Critical realists grounded theory (process theory)

Data collection
Collection methods -

Quantitative - explanatory
correlational design - (variance theory)
Collection methods -
Observation and questionnaires

Data (confidence and competence scores)

Qualitative - exploratory Critical realists grounded theory (process theory)

Data Analysis
Analysis statistics - correlation coefficient (r)

Relationship direction
(negative, none or positive)

Relationship strength (-1, 0, +1)

Analysis - concurrent comparative analysis of emerging themes

Interpretation level
Merged results
(QUAN (scores) + (QUAL (themes))
Exploring the causal relationships between underlying mechanisms and outcomes
Interpretation using triangulation protocol (convergence or divergence or Complimentary)

Retroduction

Causal relationship Explanatory model
Model explaining competence and confidence scores

Grounded theory
Theory grounded in processes facilitating and or hindering competence and confidence development
Chapter 4 Qualitative Study Methods

4.1 Introduction
The present study is a mixed-method study guided by a critical realist approach (Maxwell and Mittapalli, 2010a). The previous chapter has covered the overall purposes and objectives of this critical realists’ mixed-method approach, the theoretical aspects of mixed-methods and the relationship between the qualitative study and critical realist stance. The chapter will be structured as follows: Section 4.2 will describe the objectives of the study; Section 4.3 will describe the study sites; Section 4.4. will discuss sampling; Section 4.5 will cover recruitment of study participants; Section 4.6 will describe data collection; Section 4.7 will detail the data analysis; Section 4.8 will discuss ethics and Section 4.10 will provide a summary of the chapter.

4.2 Objectives of the qualitative study
1) To explore the knowledge, practices and views of student midwives in Zimbabwe towards ICM essential competencies

2) To develop a theory grounded in the social processes affecting competence and confidence development

4.3 Data collection sites
A study site is a natural setting where participants with characteristics describing the phenomenon under study are found (Polit and Beck, 2013, Creswell and Clark, 2007). In Zimbabwe, midwifery education and training are hospital-based with students assigned to the maternity departments of the hospital where the training school is situated to correlate theory and practice. This study took place in three settings; Hospital A, Hospital B and Hospital C Central Hospitals Maternity Departments and Schools of Midwifery. These central hospitals serve as referral centres for high-risk maternity cases, attachment areas for midwifery students within the training institutions and those from the provincial midwifery training schools and medical students for obstetrics and gynaecology experience. Students enrolled in the midwifery programme are selected from ten provinces across the country using the quota system, meaning there is variation among students.
4.4 Sampling in Grounded Theory

4.4.1 Purposive sampling

Purposive sampling is associated with identifying and recruiting participants with characteristics which enable them to address the study objectives (Corbin et al., 2014, Corbin and Strauss, 2008, Creswell, 2012, Glaser and Strauss, 1967). A purposive sampling approach was used to obtain study participants with experience of the area of investigation (Bryman, 2012, 2015). In the present study the researcher purposively sampled one participant from the newly qualified midwives for initiating the interviews; after which theoretical sampling was employed (Glaser and Strauss, 1967). The aim was to recruit adequate numbers of students with a variety of experiences from the three different schools in different settings and contexts. The sample included newly qualified midwives and their facilitators from the Chitungwiza, Parirenyatwa and midwifery training schools and maternity department’s wards.

4.4.2 Theoretical sampling

‘Theoretical sampling is ...the process of data collection for generating a theory whereby the analyst jointly collects, codes and analyse this data and decides what to collect next and where to find them to develop his theory as it emerges.’ (Glaser and Strauss, 1967 pp 45). Of importance is that the process of theoretical sampling is directed by the emerging theory. Theoretical sampling is the central part of grounded theory methodology and it is a processing strategy including identifying cases for comparing incidences for producing a multivariate conceptual theory. Hence, facilitating the researcher’s ability to generate categories and their properties as the theory emerges (Glaser, 2014).

A theoretical sample for the present study emerged as the researcher continued to collect, code and analyse the data. Indeed being theoretical sensitive or aware of the participants’ concerns towards the “social processes” facilitating and hindering competence and confidence development to enable the process to be successful. The students’ perceptions and views towards the ICM and ICM core competencies emerged from initial interviews. The researcher was then able to direct the interview process and data collection towards these concerns as they signposted the emerging theory (Glaser, 1998). The process continued until the categories were saturated and connected the relationship between these categories (Corbin et al., 2014, Corbin and Strauss, 2008, Creswell, 2012, Glaser and Strauss, 1967a). The categories were developed according to their characteristics or exhibited pattern (Glaser, 1998).
Consequently, the purpose of theoretical sampling is to uncover data and confirm similarities which will feed into the developing new theory.

The main concern which emerged and directed theoretical sampling was ‘Becoming a midwife’ so several questions were directed towards finding out what was it about becoming a midwife. After a few interviews, it was clear that midwifery was a profession which starts its training by socialising neophytes to the profession by giving information on the fundamentals of the profession. This involves creating teaching and learning relationships giving rise to the code ‘being socialised into the midwifery profession’. It also became clear that that the nature of relationships was determined by the characteristics of the students as these determined the nature of the relationship which was created between the student and the facilitator; thus another category ‘Student typology’ emerged. I also noticed that for the student to be able to qualify as a midwife the individual had to fulfil some requirements, and this led to the development of another main category, ‘Finding a place in the midwifery profession’. The codes seemed theoretically sound, so I applied theoretical sampling to continue recruiting students from different schools, age, expectations of the course, and experiences of students with the environment. It emerged that there were some behaviours associated with the facilitators and the characteristics of the learning environment which included the structure and organisation of teaching theory and skills. It then became apparent that I needed the facilitators of midwifery training to be involved in the study to reveal the reasons behind their handling and nature of support they give to students.

Theoretical sampling also includes searching for negative cases which do not fit the most common emergent pattern in the data (Glaser, 1998) and these cases are included to illuminate the merging categories (Glaser, 2014). Another aspect which influenced theoretical sampling was those participants who were at both extremes of performance; that is I theoretically sampled those participants who performed well and poorly during their training. However, it was discovered that those participants who performed very well during their training were easy to recruit into the study unlike those who were performing poorly. It appeared that the trend was congruent from all the study sites though a few of the poor performers did consent to participation.

Glaser is of the opinion that it is not possible to determine the sample size before carrying out the study (Giske and Artinian, 2007). He argues that interviews should only stop when categories are saturated, and a core category explaining the diversities among the variable
or connecting the rest of the categories have emerged (Glaser, 1998). The argument is that issues of concern arising during data collection from the midwives and how they were solved are not known until they have emerged from the data (Giske and Artinian, 2007, Glaser, 1978). However, it is argued that a minimum sample size of 20-30 for a grounded theory study will enable data saturation to occur (Creswell and Clark, 2007, Guest et al., 2006, Tuckett, 2005).

4.5. Recruitment of study participants
The process of recruitment and securing informed consent (see appendix 5) includes providing potential participants with a participation information sheet (see appendix 6) giving and debriefing on the purpose of the study and explaining to the participants why they have been chosen (Goldblatt et al., 2011), after which written consent is obtained. The present study is a concurrent mixed-method study therefore participants were recruited at the same time for both qualitative and quantitative study. Participants were recruited into the quantitative study first during which the participants were informed that accepting to participate in the quantitative study made them eligible for the qualitative study. The consents for the qualitative study were obtained by the Clinical Research Associate (CRA) and given to me so I could document those who were recruited into the study. The identification numbers were created by the data collectors according to the sequence of participant attendance for data collection. Identification numbers were then assigned pseudonyms at random. The first participant to be interviewed was purposively selected from the list as a starting point and thereafter selection was through theoretical sampling until I reached data saturation with 36 participants.

4.6 Data collection
Grounded theory methodology allows for specific ways of collecting data (Glaser, 2014); a key method being semi-structured interviews, which the researcher adopted for the present study. In grounded theory, the interviews assist the researcher to explore the participants’ opinions, views, experiences and understanding of their situation. In this case it allowed for further explanation of students understanding and development of competence and confidence and the environmental factors which could impact on this.

The importance of interview as an instrument has been argued on the origins that generate accounts produced within the social setting where data is collected and perceived to represent reality (Murphy et al., 1998, Silverman, 2013). As such interviews generate real data from the participants’ world (Hammersley and Atkinson, 2007). The interviews are therefore assessed in association to the environment where data is generated, and the
cultural contexts revealed by participants construct of reality (Mason, 2006, Murphy et al., 1998). Interviews are perceived as being influenced by social dynamics and cannot be divorced from the social context (Fontana and Frey, 2005), hence they are a relevant data collection method for this study.

Topic guides were used to focus in-depth interviews; one topic guide for the newly qualified midwives and one for the student midwives’ facilitators both from the school and the clinical area (Green and Thorogood, 2013, Kvale and Brinkmann, 2009). It is argued that interviews can explore participants’ beliefs, experiences, understandings and inspirations concerning specific issues (Gill et al., 2008). During interviews the researchers can penetrate superficial descriptions by probing fluctuating topics, altering the pace and returning to earlier points that have been discussed (Charmaz, 2006, 2014). The significance of interviews as an instrument for data collection is related to the ontology and epistemological suppositions and the ability to generate accounts which are socially situated (Brinkmann and Kvale, 2005, Mason, 2002).

The interviewer should have a comprehensive strategy guiding interviews including a set of open-ended questions though the order of asking the questions is not important as the interviews are expected to be conversational and directed by the participant (Green and Thorogood, 2013). However, Charmaz and Belgrave (2002) propose the use of interviews in grounded theory studies in exploring and understanding the social world as interviews are flexible and can narrow the focus of the investigation along with a theoretical direction as categories emerge.

In grounded theory, two processes of data collection and analysis occur simultaneously guided by comparative analysis and theoretical sampling (Charmaz, 2014). The emphasis of the classical grounded theory in data collection was asking the midwives open-ended questions (Glaser, 1998). These open-ended questions enabled the midwives to talk freely about their knowledge, attitude or view towards ICM core competencies without any contribution of or imposing the researcher’s ideas on the participants (Glaser, 1998). The purpose of data collection in grounded theory is to obtain participants’ views related to their experiences (Glaser, 2014). This approach made it possible to identify participants’ concerns about ‘becoming a midwife’.

4.6.1 The interview process

Before initiating the interviews, the purpose of the study and the process was explained to make the participant feel at ease and relaxed enabling them to discuss their views freely
(Creswell, 2012). Such an approach enabled the participant and the researcher to create rapport and to facilitate the participants to give their detailed views to ensure generation of quality data (Maxwell, 2012c).

The interviews were conducted in private in an area chosen by the participants themselves as they knew their work places well. The interviewer informed participants of the purpose of the study, how the interview would be conducted and details regarding the distress protocol. Participants were made aware that the interviews were audio recorded, and were not going to be accessed by anyone other than the interviewer and her supervisors. They were also informed that recordings would be deleted after transcription and analysis. An example interview transcript can be seen in Appendix 6.

Glaser argues that there is no need for interview guides as there is no need for participants to answer the same questions; participants should be probed in such a way which exposes the intention of the study (Glaser, 1998). Nonetheless, the researcher used interview guides to help get started since she was inexperienced in the interviews (Giske and Artinian, 2007). However, the researcher is aware that the questions on the interview guide (Glaser, 2001) may only be peripherally relevant to the midwives necessary for labelling the phenomenon of concern (Corbin and Strauss, 1990).

The credibility of the questions in grounded theory is in the questioning technique and the wording of the questions to be able to get to know the participants’ experiences and the reason behind their action in solving the problem (Charmaz, 2014). The process is facilitated through theoretical sampling and sensitivity (Corbin and Strauss, 1990). For example, the initial questions focused on the participant’s knowledge of ICM core competences will be “What do you know about ICM?” On views “What are your views about ICM core competencies?” and for practices. “Which skills do you think you have acquired for you to practice?” and for social processes “Tell me about the social interactions which you were involved in during your training.” Appendix 7 and Appendix 8 shows the ICM core competences used to develop the questions. The questions were phrased in such a way so as to be a neutral as possible (Glaser, 1978). However, the interview process works through mutual trust between the researcher and the participant. The researcher was sensitive to the types of questions she asked in attempt to make the participants to truly expose their thinking. Such an approach is said to produce quality and trustworthy information, which was an aim of the present study (Giske and Artinian, 2007).
4.7 Data analysis
Data analysis, from a critical realist perspective, involves two processes categorising and connecting approaches where these are based on similarity and congruity. The similarity relationships are determined by the likenesses or common characteristics disregarding nearness of time or space. Relationships of congruity determine real connection or association, not just similarity (Maxwell, 2012c). In this process, data analysis follows data collection by comparing and contrasting incidences in a sequential manner. Though data are coded, the codes are predetermined and based on the theoretical framework guiding the study. Glaser called this coding method Qualitative Data Analysis (QDA) and advised against its application in grounded theory. Glaser (2014), believes that codes should emerge from the data being analysed and not be researcher-dependent. QDA is believed to weaken the classical grounded theory methodology strategies by blocking the abstract idea of conceptualisation of latent patterns upon which the foundations of grounded theory are laid (Glaser, 2014). In grounded theory methodology, the codes emerge from and are embedded in their data, dependent on comparative analysis, theoretical sampling and theoretical sensitivity. These processes, Glaser believes, if carried out rigorously are assumption-free, hence not influenced by the researcher (Glaser, 2014). According to Glaser and Strauss (1967a), data analysis in grounded theory is its strength. They proposed a data analysis process for the grounded theory methodology. Data collection and analysis of grounded theory methodology occur concurrently. However, the classical grounded theory proponents are labelled as critical realist (Griffiths et al., 2012), but it appears that Glaser’s data analysis and that of critical realist differ in their timing and purpose. The coding processes, constant comparison, memo writing, and theoretical sampling facilitate theory emergence and development of a theoretical framework (Lincoln and Guba, 2013). Intense line by line coding is the initial stage of analysing data in grounded theory to later raise the codes from descriptive to conceptualisation levels as categories emerge (Glaser and Strauss, 1967, Glaser, 1978). A category according to Bryant and Charmaz, (2007) is a concept particularised to symbolise the real world phenomena and different grounded theorists describe coding procedures in different ways.

Glaser (1978) presents coding in two stages: substantive and theoretical. The substantive codes are the emerging codes which are used to develop categories through constant comparative analysis. Concepts which explain the relationship between the substantive codes are called theoretical codes; alternatively, Strauss and Corbin (1998) provided three levels of coding: open, axial and selective, revealing that each data in grounded theory has
to be scrutinised and coded to produce a theory (Charmaz, 2006, 2014). These coding processes are similar to those produced by Glaser and Strauss (1967b) which involves initial, focused and theoretical coding. The present study followed the Glaser (1978) format which involves open, selective and theoretical coding as described in 4.3.7, 4.7.4 and 4.7.5.

4.7.1 Theoretical sensitivity
Theoretical sensitivity is the capacity to systematically work out relationship statements and concepts and their development is directed as data collection progresses during comparative analysis. The ability of the researcher to use their background knowledge to understand what is in the participants’ narrations and attach meaning to them is facilitated by the process of comparative analysis; therefore, it is critical for the researcher to be able to conceptualise. Hence, there is a need for the researcher to have a good insight into the area of research to maximise their ability to build concepts and generate hypotheses during theory building (Strauss and Corbin, 1990). Constant comparative analysis is facilitated by being sensitive or able to identify unique events in individuals (Strauss and Corbin, 1990). Probing these unique events deeply is crucial for the emergence of data that informs theory building. Theoretical sampling, theoretical sensitivity and constant comparative analysis work together to reach theoretical saturation.

4.7.2 Constant comparative analysis
Constant comparative analysis is a continuously growing and progressive process which operates backwards and forwards during data collection and coding in a comparative fashion. The researcher compares new data and new codes with previous ones respectively, allowing for the core category and theory to emerge; the process is necessitated through theoretical sensitivity. This is a continuous and developing process consisting of four stages: comparing incidences applicable to each category, integrating categories in their characteristics and delimiting the theory, and writing the theory (Glaser and Strauss, 1967). These four processes making up comparative analysis are ongoing and overlap (Glaser, 1978, 1998). According to Glaser (1998), data analysis in grounded theory requires the researcher to engage in conceptualisation; that is, discovering and naming hidden patterns and the relationships between these patterns as they emerge in the data and are substantiated by interchangeable data. The process starts with the researcher coding each incident in the data. Breaking down the data enables patterns to emerge through observations of their interconnectedness, within a given context.
This process takes place concurrently with data collection, data coding and is an iterative process. There are two types of codes: substantive and theoretical according to Glaser (1998).

It is argued that substantive codes are in two types: open coding (for discovering the core variable) and selective coding (starts when core variable is identified and concerned with data related to the core variable only). Finally, theoretical coding involves determining the connection between substantive codes (Glaser, 2014). Glaser (2003) posited any researcher using the classical grounded theory data analysis approach should be technology free as inbuilt reframing may lead to the forced emergence in addition to losing focus on seeing what is happening in the data as the flexibility is lost. Since this study is guided by the critical realist’s perspective, the data collection and data analysis processes have some similarities with the processes theory as described by Mohr (1982), described in the methodological chapter. The critical realist methodology is flexible (Maxwell, 2012), however, this conflicts with the qualitative data analysis approach which Glaser suggests derail the essence behind theory generation (Glaser, 2014). The present study used the classical grounded theory to guide the study. As such, the researcher designed a data analysis matrix based on the classic grounded theory concepts (Appendix 9).

Constant comparative analysis is closely related to theoretical analysis as it facilitates the realisation of theoretical saturation which is reached when no new theoretical categories are emerging from the data (Glaser, 2014). It is argued that codes need to be compared with the previous codes in a similar or dissimilar group within the same category (Glaser and Strauss, 1964). For example, the code ‘student midwife being assessed’ was compared with the other previous category of ‘student-clinical instructor relationship and peer support’ to make it clearer and distinct by comparing the category with other different situations other than those that are related to it (Glaser and Strauss, 1967). As comparative analysis continued, it became apparent that the relationships were more noticeable in guiding and supporting the student in acquiring and developing the skills; giving evaluation and feedback respectively.

4.7.3 Open coding
During open coding, description is inherent and should be quickly controlled by raising these descriptions to a conceptual level whilst being aware that it is easier to describe than to conceptualise (Glaser, 1978, 2014). If the researcher fails to raise these descriptions to theoretical level the process turns into more of a QDA analysis and the descriptions
become irrelevant as they fail to depict an emerging theory. Since the goal of doing grounded theory is to generate an emergent of concepts and their characteristics conceptualisation should take precedence. Hence, the researcher is advised to adhere to open coding for a core concept and thrive to saturate the concept with a small number of indicators of characteristics (Glaser, 1978).

The process of opening coding is systematic, enabling the researcher to identify as many codes as possible until saturation with relevance and fit of the concept occurs (Glaser, 1978). During comparative analysis review of old and new codes is continuous until they fit into the emerging theory. Open coding gives room for theoretical sampling as it directs the information to focus on. Glaser (1978) developed guiding principles for an effective open coding process for researchers using the classical grounded theory. The following paragraphs show how the researcher used the guiding principles to come up with categories. The guiding principles included three questions (What is this study of? What category does the incident indicate or property of core category?; What theoretical codes may apply to integrate the emerging theory?) and the abstract of ‘person, place and time’.

1) What is this study of? This question is said to limit descriptions as it enables data to be tied to the core main problem and emerging core category. For example, in the present study the core category ‘being interactive’ was related to the interactions associated to ‘becoming a midwife’ which appeared to be embedded in the interaction between the students and their facilitators during competence and confidence development.

2) What category does the incident indicate or property of core category? As data collection and coding continued, the researcher was able to ask the participants questions and was able to answer the question ‘what is this study of?’ The answer was that it was a study of exploring competence and confidence development among midwives.

3) What theoretical codes may apply to integrate the emerging theory? This enabled the researcher to clump descriptions and integrates concepts that have emerged into the emerging theory, for example, some of the concepts which emerged were learning environment characteristics, relationship building and students being supported.

4) During comparative analysis, a pattern is expected to emerge and open coding stops and makes trailing of the theory development process and the concept of fit and relevance possible (Glaser, 2014). To demonstrate the concept of fit and relevance in classical grounded theory, the emerging pattern of abstract of person, place and time was applied to
explain the latent patterns of learning midwifery theory, defining ICM core competencies and student learning styles among others (see Appendix 10).

4.7.4 Selective coding
Open coding continues until a core category is identified. Selective coding allows the researcher to focus on variables directly associated with the emerging theory, side-lining the rest of the codes (Glaser, 1978). During this process, concepts are identified and named regarding abstract conceptualisation levels of whom, where and when. A core concept which describes the concerns and logical solution between them is then specified to reflect its indicators and typologies. In this study selective coding identified six subcategories: awareness of the midwifery profession, defining midwifery competency, the composition of students, student information processing patterns, traversing learning challenges and developing midwifery skills (Appendix 11).

4.7.5 Theoretical coding
Open and selective coding places theory building into the conceptual level while the theoretical coding will move it to the theoretical level. Theoretical coding shows the interrelatedness of concepts in a form of hypotheses to be included in the theory (Glaser, 1978). Here the researcher analysed how the concepts of the core categories were explicitly connected to each other, and this category can explain the variations among the concepts (Glaser, 1978). The procedure is facilitated by repeatedly developing and writing memos allowing for conceptualisation to take place through comparative analysis. This explained the possible relationships revealed between the variable and the emerging theory. The theory is relevant, fit or works in explaining the social processes facilitating or hindering competence and confidence development in midwifery training through a relevant model grounded in the data (Glaser, 1978). For example, during theory coding ‘being interactive’ core category was connected to three main categories: ‘being socialised into the midwifery profession’; Student typology and finding a place in the midwifery profession). Each with two subcategories (awareness of the midwifery profession, defining midwifery competency, the composition of students, student information processing patterns, traversing learning challenges and developing midwifery skills) (Appendix 11).

4.7.6 Memoing
Memo writing is a key aspect of grounded theory methodology Green and Thorogood (2013) and is an extensive process that runs concurrently with data analysis in grounded theory methodology. In this study, for example, I identified dissonance between the
supervisor and student and this prompted me to write a memo related to the idea that there are differing types of relationships between students and facilitators.

Theoretical memos facilitate the researcher to capture their ideas in writing which Glaser (2014) called ideation or abstraction as the researcher examines the data, codes, sorts and writes. Such memos are called ‘theorizing write up’ about substantive codes and their conceptual connectedness, they initiate new thoughts and awareness (Glaser, 1978). In this study, the researcher sorted memos in relation to the core category (Appendix 12).

Memos are a record of the grounded theory development; coding which reflects those concepts familiar to the emergence of the theory. Memo writing also facilitates emergence by providing an audit trail of the process. Glaser (2014) believes that since data is always there for inspection, ideas are fragile and need to be captured as soon as possible and that memos can always be modified as more emerges about the topic (Appendix 13).

Data collection, coding, memo writing and sorting occur simultaneously, continuously and are over-lapping; which is the key to unlock theory generation (Glaser, 1978) (Appendix 14). Whilst coding conceptualises the data, memos give insight into the relationship between the theoretical codes and their characteristics. Memo development is a continual process which starts immediately with data collection and is facilitated through constant comparative analysis. Memos are developed initially from a constant comparison of an incident to another incident to develop a conceptual code. As soon as the conceptual code emerges, memos are then generated through comparing incidents to the emerging conceptual codes. Memos are also generated through comparing memos to memos, as well as from literature review and finally memos are generated during sorting and writing the theory. Memos force pacing, which facilitate verification of categories, their verification, integration and fit as well as relevance work of the theory see functions of memos (Appendices 15).

In the current study, the researcher wrote memos to document any situation and ideas arising during the research process (Charmaz, 2014). In accordance with Glaser (1978) memos were written throughout the process and organised to contain the date it was developed, an idea, hypothesis or question connected to the interview questions, emerged themes and the literature references used (Giske and Artinian, 2007). Such an organisation allowed for easy development of a theory grounded in social processes facilitating or hindering competence and confidence development in midwifery training, i.e. being interactive. Verification of the categories through data occurred through continuous
comparative analysis and the use of multiple perspectives until a substantive theory was developed (Glaser, 1998).

4.7.7 Field Notes

Field notes are summaries a researcher write down of impressions in the field while (participant-)observing, listening in, talking, asking, doing (Sanjek 1990) see appendix 16. Writing field notes is a vital part of recording and analysing data in qualitative research (Crang and Cook 2007) as a method of documenting needed contextual information which goes beyond the researchers. Through critical reflection, researchers are better prepared to produce descriptions that provide the foundation for analytical writing and conceptual reasoning (Crang and Cook 2007).

4.7.8 Pacing

Generating theory using classical grounded theory methodology is a discovery trajectory in which the researcher passively waits for the core concepts of the theory and their interrelationships to emerge and be discovered by him/her (Glaser, 1998). As such, the researcher is advised to exercise patience to allow the emergence and discovery process to occur unhurriedly and this Glaser (2014) called ‘pacing’. Pacing is a critical element in classical grounded theory, likened to the maturation process as revealed in the following Glaser’s statement ‘Little increments of coding, analysing and collecting data cook and mature and then blossom later into theoretical memos. Significant theoretical realisations come with maturity in data and outside and this is outside the analyst’s awareness’ (Glaser, 2014pp 395). Hence during maturation, patience is critical to embracing the associated confusion and avoiding the shutting down of analyst’s creativity and conceptual ability. For example, in this study, the researcher got to the point where it seemed to be difficult to identify emerging theory and felt as if she had reached a dead end. Initially she could not see that the data revealed varied definitions of ‘competence.’ After leaving the analysis for a month and revisiting it afresh, she was able to determine meaning and develop theory.

4.7.9 Reading literature

Traditionally a literature review is carried out to assist the researcher to become emerged in the existing evidence. Glaser (1978) argues that this ‘contaminates’ the researcher’s mind with preconceived ideas or hypotheses. Glaser argues that the knowledge of hypothesis or variables related to the area of theory development stifles the emergence of the theory
causing a premature closure of the theory building process. Consequently, Glaser suggests different stages of literature review during the development of a theory grounded in data (Giske and Artinian, 2007). In this study, the literature in the substantive area (skill acquisition and development theories) was sought when the present theory seemed to be adequately grounded. The Benner, (1984) skill acquisition and development model gave me ideas on experiential learning, whilst Bandura’s Social Learning Theories, Cognitive and Behavioural learning theories (Bandura, 1977) added to this. Hence, data about the theory was first collected and analysed in the field and then the specific literature was reviewed later. The researcher identified differences and similarities in her substantial or tentative theory with those in existing and verified theories. This was of benefit as it increased the chances of modifying the theory further (Glaser, 1998).

4.8 Researcher subjectivity and research relationships
In a realist model of research design, all the processes involved in the research study from conception to completion are viewed as influencing the research project (Maxwell, 2012b). The researcher’s identity and relationships are an integral part of the actual research methods. For the researcher to be able to facilitate their data collection, relationships had to be created with gatekeepers for ease access to the participants and obtain consent (Maxwell, 2012b). It has been argued that with few exceptions the researcher, especially for qualitative studies, have close contact with their participants (Hammersley and Atkinson, 2007). Hence there is a need for the researcher to indicate how they may have influenced the study, data collection, analysis and interpretation since it has a high impact on the conclusions drawn from the study and can be a threat to credibility (Maxwell, 2012b). The researcher acknowledges prior experience, purposes, beliefs, values and subjective qualities that may influence perceptions of the study and its process. Although the researcher may influence the quantitative and qualitative elements of the study, the potential impact is more significant in the qualitative one (Maxwell, 2012b).

4.8.1 Researcher subjectivity
Critical realists argue that subjectivity is part of the actual process of data collection. Hence, it is argued that researcher subjectivity should be visible within the process and should be reflected upon by the researcher. Self-reflection is discussed further in 9.3.

4.8.2 Researcher relationships with those studied
In a qualitative study, the investigator’s engagement over time in participants’ day-to-day lives demands the researcher to create and maintain a favourable and accommodating field
relations (Maxwell, 2012). With this objective in mind it is vital to create a reflexive component into the research, exploring how the researcher and the researched relate with each other within the context of school and how they are challenged by political and ethical dilemmas (Maxwell, 2010). Drawing upon my experience while conducting a this mixed method study in the three schools of midwifery situated in three of the five central hospitals in Zimbabwe, I reflected on issues: establishing field relations and how they were established and their relationship to research ethics and rational reasoning.

The researcher and participant relationships are complex, influenced by the ethical and political context in which the study takes place. Power-relationships, in particular have an influence in such situations and need to be overcome through building commonalities between the researcher and the participant (Brown and Gilligan, 1991). These ethical and political issues will be discussed in the following paragraphs.

4.8.2.1 Ethical considerations
Ethical issues are a greater concern when in research and need careful consideration prior to recruitment and data collection. Ethical approval was sought from the University of Manchester (Appendix 17), Medical Research Council of Zimbabwe (Appendix 18) Chief Executive Officers and Heads of the schools and maternity departments of Hospital A (Appendix 19), Hospital C (Appendix 20) and Hospital B Ethical clearance from Joint Research Ethical Clearance (JREC) (Appendix 21).

4.8.2.2 Process followed for ethical clearance
The University of Manchester first reviewed the research proposal. Permission from the chief executive officers and of the schools of D Hospital, A Central Hospital, C and B Hospitals were also sought and granted. The process and challenges faced in securing ethical clearance are described in detail in Appendix 22) and amendments sort to solve the problem (Appendix 23) and approval given (Appendix 24).

4.8.2.3 Confidentiality
Confidentiality and anonymity had to be pledged so that participants were assured that no names would be used on the scripts and the information divulged will not be revealed to anyone (Karnieli-Miller et al., 2009) outside of the study team. All hard data was kept in locked storage, accessed only by the researcher. Computer stored data was encrypted and the direct quotes were disguised so that participants were not identifiable (Burns and Grove, 2010). See participant information sheet (Appendix 5).
4.8.2.4 Protection of participants
The harm caused to the participant can be both physical and emotional, and potential participants should be made aware of all risks (Burns and Grove, 2010). In this study the potential for emotional distress was of concern. The student may reveal stress during data collection and may undergo psychological distress and anxiety as a result of the competency assessment. Interviews were likely to evoke emotions due to unpleasant experiences which might have been encountered during training. For the present study, a distress protocol was designed to protect participants from harm related to the interview and assessment process (Burns and Grove, 2010), such as emotional stress (Cook and Nunkoosing, 2008) and a feel of discomfort (see Appendix 25).

4.8.2.5 Power imbalances
It is argued that there is an inherent power imbalance where two or more individuals are involved (Nunkoosing, 2005). The source of researcher power is in their dominant position when aiming to gain information (Cook and Nunkoosing, 2008). The participant is equally powerful as they have the information the researcher wants, have control over it and hold the right to refuse to give it. In this study, the researcher is a midwifery teacher. As a result, the student-teacher relationship may have made students feel obliged to participate in fear of victimisation (Epstein et al., 2005). To mitigate for this the researcher used a clinical research associate as a neutral person to recruit participants, as described in 4.5 and 5.7.2.

4.8.2.6 Lone worker
Throughout the research process, a researcher may be vulnerable to harm which may include stress associated with travelling to a place unfamiliar to the researcher (Tisdale, 2004). Researcher safety and health issues were considered and I observed the lone worker policy (Appendix 26). Interviews were only conducted during working hours and, as far as possible, at the students training institution. In some instances, I was required to travel long distances to collect data (see figure 1.1) and ensured family and friends were aware of my movement by use of text messaging. Access to supervision is argued to assist in dealing with emotional problems (Dickson-Swift et al., 2008). Throughout this study, I kept in touch with my supervisory team including the University of Manchester team and local team.

4.8.2.7 Reflexivity
Reflexivity can be viewed as the influence the researcher has on the collection and interpretation of data (Altheide and Johnson, 1994). To be reflexive the researcher must acknowledge their views which may have influence on the management and outcome of
the study (Horsburgh, 2003). Glaser (2014) takes the stance that data collection and analysis are free from the influence of the researcher and does not acknowledge the researcher as part of research the process, unlike other GT proponents (Charmaz, 2006, 2014). However, I could not escape completely from the influence of my prior knowledge, beliefs and knowledge of the subject area. My role as a midwifery teacher and my knowledge of the literature will have undoubtedly influenced the study design, research process and interpretation of the results. However, I tried to strictly adhere to the principles undepinning the classical grounded theory in data collection and analysis by remaining assumption-free and allowing my data to speak for itself (Glaser, 2014).

4.8.2.8 Relationality and reciprocity

It is argued that, the investigator-participant relationship has the possibility of being reciprocal, where each of them is expected to contribute something towards the other’s needs or desires. For example, the participants dedicate their experiences, wisdom time and effort to enlighten and shape the researcher’s study (Nickles, 2017). The researcher's nature scope and depth of the inquiry introduce vulnerability to participants' lives and make them psychologically and or physically harmed and needs to be protected and not coerced to participant in a study (Nunkoosing, 2005). In turn, researchers are susceptible to variable interactions connection and apathy from participants (Nunkoosing, 2005). Calling for the need to understand each other and reach a consensus on the give and take concept of the study (Martin, 2011). Hence it be argued that the concepts of relationality and reciprocity are inherent in qualitative research. In this study the power of reciprocity was revealed after the researcher approached the prospective data collectors and the potential participants as they demanded to know what was in it for them in my study. The data collectors were happy to participant in the data collection because of the monetary benefits and gaining knowledge and skill in data collection. In return the researcher benefited that she managed to fulfil her mandate of data collection analysis and access the data collection sites by making gate keepers feel important and associated with the ongoing research process as they felt they were in control of the situation. As for participants the fact that they were involved in generating data which would determine the direction of midwifery training in Zimbabwe they were happy to participate and give the required information for the success of the study. Therefore, reciprocity is not only a strong predictor of human behavior; it is an powerful method of enticing someone to comply with a request (Nickles, 2017).
4.8.2.9 Gaining access to research sites
Access to research sites and recruiting participants can be a challenge, but identifying gatekeepers creating rapport and involving them can help facilitate this (Holloway and Wheeler, 2013). Gatekeepers are individuals in charge of an area with whom the researcher should liaise to gain access (Creswell and Garrett, 2008). The researcher was familiar with the research sites and knew most of the heads of departments at a personal level and therefore found it easy to approach them. The researcher briefed the gatekeepers on the purpose of the study and why they had been chosen and gave them the study protocol to acquaint themselves with study. The researcher, the gatekeeper and the clinical research associate then later arranged to meet the students together and were granted access to the institution to carry out the study. Gaining access to the research and the challenges involved are reflected in Appendix 22.

4.9 Rigour and trustworthiness of this study
Glaser (2014) believes that accuracy is not a trait in grounded theory since it is fallible and modifiable when new evidence is generated through research. As a result, he questions the terms used to describe and measure credibility such as accurate, reliable, valid and verified. Instead Glaser prefers to use the following concepts: relevance, fit, works and modifiability and called the process ‘trustworthiness’ as discussed in the ensuing paragraphs.

4.9.1 Conceptual credibility
Due to the rigorous techniques in generating a theory grounded in the data, the main worry is not accuracy but the theory’s ability to explain how the participants’ main concern is repeatedly resolved in a substantive area in addition to its general conceptual applicability. Indeed this gives the grounded theory unique characteristics which are used to measures its credibility: relevance, fit, works and can be modified when compared conceptually through new data and descriptive accuracy. A theory which is procedurally generated and conceptually fit, works and is relevant in the emergence of the categories cannot be rushed. In this study the category of student typology fits in the data in describing the relationship between ‘the student characteristics’; ‘learning styles’ and ‘outcome of their learning’.

The category of ‘student typology’ and the associated theory is relevant in explaining skill acquisition and development in midwifery training.

4.9.2 Product proof
The worthiness of grounded theory is embedded within its product whose proof of its generation can be tracked through memos developed using the comparative analysis. The possibility of tracking the process involved in developing a grounded theory from beginning to end ensures validity of the product. Hence, the validity of the substantive theory developed is measured through the criteria of fit, workability, relevance and modifiability and enduring grab extended beyond the data that yield it. *‘This enduring grab and product proof goes ... beyond the described details of the procedures and the rigour that generated them ... Then the properties of concepts showing the modifications which occur during constant comparisons of old and subsequent collected data’* (Glaser, 2014, p324) are revealed in the memos. For example, this study has transcription, line on line coding, selective coding, theoretical coding (Appendix 27) and generated memos and theory write up (Appendix 28) (Glaser, 2014).

### 4.9.3 Credibility origins in grounded theory

The detailed description of the research process at each level of data collection reveals the levels of credibility, plausibility and trustworthiness. Indeed every level of the research process is discussed and justified by its original data to reveal the trustworthiness of the procedures (Glaser, 2014). For example, the present study described the process of conceptualisation through constant comparative analysis to reveal the emergence of the core category ‘being interactive’.

Grounded theory uses the abstract of people, place and time to identify the core categories. The approaches to theoretical sampling, constant comparison, coding and analytical sensitivity guarantee the emergence of theory and its usefulness in the substantive area. Indeed the emerged theory should be useful to the empirical world and should reveal the variations in the processes of the studied area and must ensure a fit and a grab as this theory should be able to explain, predict and explain what happens (Glaser, 2014). For example, the theory of *being interactive* can describe the social processes involved in skill acquisition and competence development; it can predict that negative relationships are associated with interfering with student’s acquisition and skill development in midwifery training.

### 4.10 Summary

The present chapter discussed the qualitative approach to the study including the classical grounded theory principles which guided the study. The next chapter covers the
quantitative methods for the mixed method study. Of note the researcher did not include
reflexivity in this chapter since she believes that she tried to implement the classical
grounded theory principles as religiously as possible. This is reflected in the study process,
rigor and trustworthiness of the study part of the study.
Chapter 5 Quantitative Study Methods

5.1 Introduction
This chapter describes the methods used in the quantitative study summarising characteristics of midwifery students in Zimbabwe and exploring their confidence and competence over time. Section 5.2 states the aim and objectives of this quantitative study while Section 5.3 looks in more detail at the longitudinal correlational design used, its limitations, the study variables included and the hypotheses being formally tested, these being at the heart of the quantitative research process. Section 5.4 describes the sampling used in the study while Section 5.5 presents the sample size justification. Section 5.6 describes the instruments used to collect quantitative data and their testing, while Section 5.7 describes the process of data collection in the study. Section 5.8 presents the statistical methods used for data analysis, and Section 5.9 gives a summary of the chapter.

5.2 Aim of the quantitative study
The constructs of self-assessed confidence and 360° assessed competence of midwifery students were first operationalised as quantitative measurements. The aim of this study was to find the strength, form, degree and direction (LoDico et al., 2006) of relationships between the measurements of assessed confidence assessed by the student and the 360° assessed competence as assessed by the ward supervisor, senior midwife and clinical instructor, following the 360° feedback concept of Levin and Drucker (2002).

5.2.1 Objectives of the quantitative study
1) To identify the characteristics of midwifery students in Zimbabwe

2) To develop an instrument to measure confidence in midwifery students as assessed by themselves and their 360° competence as assessed by others

3) To assess the relationship between levels of self-evaluated confidence and the 360° assessed competence as assessed by others over time

4) To explore factors related to self-evaluated confidence and 360° assessed competence

5.3 Longitudinal correlation study
The observed causal factors underlying measured constructs can show different responses if placed within defined conditions. Variance theory is a framework for identifying parts of the variance that can be attributed to different factors in an effort to understand causation in a quantitative approach (Mohr, 1982). Experimental designs such as randomised controlled trials allow investigation of causation in terms of attributing differences between
experimentally manipulated (randomised) groups in outcome variables to differences in conditions (interventions) between groups (Maxwell, 2012b). The current study design was by necessity observational with no experimental control over the participants or any conditions, and consequently any relationships are subject to confounding due to observed, unobserved or unobservable factors. The observational study itself is therefore not able to explain causation (Creswell and Garrett, 2008).

The present study design was an explanatory longitudinal correlation study to examine the relationships between self-assessed confidence and observed levels of assessed 360° competence over time. Data were collected at three time points – after the students sat for their state final examination but before they received those results, after they had received those results and after they had been working in the clinical area for three months – to see how their confidence and competence changed over time.

A correlational study is used to investigate relationships between variables and there are three types: - naturalistic observation, the survey method and archival research (Ary et al., 2013). One of the key measures used in correlation studies is a statistical correlation coefficient itself, which takes a value that ranges from −1 to +1 (Ary et al., 2013, Creswell, 2002, Creswell, 2003b, Fraenkel and Wallen, 2003, Odom et al., 2005). The magnitude of the coefficient indicates the strength of the relationship, while the sign indicates the direction of the relationship. A positive correlations means that both variables decrease or increase or concurrently and a correlation close to +1 denotes a strong positive correlation. A negative correlations means that when the value of one of the variables is increasing, the value of the other is decreasing, and a correlation coefficient near to -1 shows a strong negative correlation. A correlation close to 0 means there is no relationship between the variables. Correlations measured in a sample are estimates of correlations in the underlying population. When the population correlation is 0, the sample correlation is usually near 0; the significance of its closeness to 0 can be determined using a statistical hypothesis test or confidence interval. As described in Section 5.8, because of the skewed nature of the variables used to represent confidence and competence, the correlation used in this study was Kendall’s rank correlation (tau_b or τ_b) ((Bland, 2000a).

The naturalistic type of correlation is associated with observing and recording the concern variables in their natural environment and free from manipulation by the researcher to observe the variables of interest from their natural setting. Indeed this has an advantage of giving insights for further studies, although it may be time-consuming and expensive, it
may be difficult to control extraneous variables and responses may be subject to the 
Hawthorne effect under which the behaviour of participants may be altered by the 
knowledge that they are in a study (Creswell, 2014b). The present study is the naturalistic 
type as confidence and $360^\circ$ competence will be assessed for the students while they give 
care to the women in their natural settings (antenatal clinic, labour ward, postnatal wards 
and neonatal wards).

5.3.1 Limitations of correlational studies
Correlational studies may indicate a relationship between two or more variables but have 
an important limitation: they cannot demonstrate that the change in one of the variables is 
caused by the other, meaning correlation is not the same as causation (Ary et al., 2013, 
instance, this correlation study can show a relationship between the midwifery school and 
confidence or competence, but cannot determine that any differences found are due 
entirely to the school. Other variables may have an impact such as cognitive abilities, 
social relationships, socio-economic status, personality and work ethic, some of which are 
measurable at least approximately and some of which are not measurable at all.

5.3.2 Study variables
A variable is a characteristic which takes different forms or values from individual to 
individual or object to object (Creswell, 2014a). These same conditions, measurements or 
characteristics can be compared across different individuals or objects. An independent or 
predictor variable logically influences the outcome of a dependent or outcome variable 
(Creswell, 2014a). Confounding variables are ones that can interfere with the relationship 
between an independent variable and a dependent variable (Campbell et al., 2010). For 
example, gender may confound the relationship between midwifery school and confidence 
or competence if male and female students are treated differently during their training in 
different schools. Similarly, school may confound the relationship between gender and 
confidence or competence. Factors like these cannot be controlled for experimentally but 
they can be controlled for statistically (Dijkers, 2005). A further complication is that the 
true reality remains unknown in quantitative studies when they are based on a sample from 
a population. The probabilistic extrapolation of sample results to the population will be 
discussed later in the following section on hypothesis testing (Tate et al., 2006).

In this study, the main dependent variable was the self-assessed confidence of the student at 
three time points (before receiving the results of state final examinations, after receiving 

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the results and after three months of clinical practice). In some analyses, the 360° assessed competence at those time points was also used a dependent variable. Except for confidence after three months of practice, these variables also acted as independent variables in some analyses. Other independent variables in the study that might affect confidence and competence included age, gender, school of midwifery, years of working experience as a RGN before enrolling into midwifery training, level of education, and working experience before enrolling to midwifery training. Variables such as marital status, place stayed during training, status held before midwifery training, person stayed with during training, clinical areas worked in before midwifery training were other independent variables that could be looked on as confounding variables as they were of less theoretical interest in the prediction of confidence and competence (Creswell, 2014a). The effects of independent and confounding variables can be controlled for in multivariable analyses such as multiple regression, as described in Section 5.8.

5.3.3 Hypothesis testing
In quantitative data analysis, a statistical hypothesis is a testable statement about the behaviour of data regarding describing reality, mainly involving some aspect of the behaviour of one or more variables in a population. Hypothesis testing is the comparison of two competing statements, deciding between the two competing realities based on probability rather than perfect certainty (DeShea and Toothaker, 2015). This means that the absolute truth of either reality cannot be proven, only that one is more likely than the other, based on the evidence in the quantitative data (DeShea and Toothaker, 2015). The idea behind hypothesis testing is congruent to realists who believe in developing transitive (human dependant) knowledge which they acknowledge is fallible and limited to the ability of the individual. Hence reality can neither be observed nor be constructed through objective or subjective means; it can only be inferred (McEvoy and Richards, 2006).

One of the competing statements, the alternative hypothesis, is a statement related to what the research is meant to show, that there is a change, or difference, or a relationship present (DeShea and Toothaker, 2015). The other, the null hypothesis, is a statement of no change, no difference or no relationship (DeShea and Toothaker, 2015), i.e. the status quo. The alternative hypothesis may specify the direction of the change, difference or relationship (a one-sided hypothesis) or may just state that there is a change, difference or relationship without specifying a direction (a two-sided hypothesis). In healthcare research, alternative hypotheses are almost always two-sided as this provides a conservative test in situations where there is considerable uncertainty (Bland, 2000a).
The decision between the null hypothesis and alternative hypothesis is based on the probability associated with a test statistic, which is a value calculated from the sample, under the null hypothesis. The p-value is the probability of obtaining the observed value of the test statistic or a more extreme one if the null hypothesis is correct. A high p-value suggests that the null hypothesis is more likely to be true because the data are more consistent with the null; a low p-value suggests that the alternative hypothesis is more likely to be true because the data are more consistent with the alternative (Bland, 2000a).

While the actual reality remains unknown, different costs are applied when the decision between the null hypothesis and alternative hypothesis turns out to be wrong. The costs are chosen before a study starts. Deciding against the null hypothesis when it is true (a false positive) is called a Type I error; deciding against the alternative hypothesis when it is true (a false negative) is called a Type II error (Bland, 2000a). Choosing between the null hypothesis and the alternative hypothesis is based on probabilities, and the costs are indirectly based on limits for those probabilities.

The probability of making a Type I error (the statistical significance) is set to be small, as incorrectly rejecting the status quo is considered to be a serious error. A researcher wants the significance level to be low because that reduces the chance of wrongly deciding against the null hypothesis, and \( \alpha = 0.05 \) is widely used as a conventional value for the significance level. So typically, a researcher compares the p-value calculated for a hypothesis test with a significance level of \( \alpha = 0.05 \); when the p-value less than or equal to \( \alpha = 0.05 \), the null hypothesis is rejected. When the null hypothesis is in reality true, it may be wrongly rejected one time in 20 (Creswell and Garrett, 2008). A significance level of \( \alpha = 0.05 \) was used in this study.

The probability of making a Type II error is allowed to be larger, usually 0.20 (or sometimes 0.10), as this is considered a less serious error (Bland, 2000a). When the alternative hypothesis is true, it may be wrongly rejected one time in 5 (or one time in 10 if the stricter condition is followed). This can be reworded as saying that when the alternative hypothesis is true, it may be correctly accepted four times in 5 (or 9 times in 10). The probability of correctly accepting the alternative hypothesis when it is true is called the statistical power, the power here being \( \beta = 0.80 \) (or \( \beta = 0.90 \)). Researchers want the power to be high, so there is a higher chance of rejecting the null hypothesis when the alternative hypothesis is true, and the sample size determines the statistical power.
5.3.3.1 Study hypotheses
The main hypotheses for the quantitative study were as follows:

Hypothesis 1

H₀ - There is no relationship between self-assessed confidence and 360⁰ assessed competence at each point in time

H₁ - There is a positive relationship between self-assessed confidence and 360⁰ assessed competence at each point in time

The rationale for this hypothesis was that competence development is associated with erosion of self-confidence when someone does not view themselves as having the required skills. The researcher therefore expected the null hypothesis to be rejected.

Hypothesis 2

H₀ - Levels of self-assessed confidence and 360⁰ assessed competence will remain the same at subsequent point times

H₁ - Levels of self-assessed confidence and 360⁰ assessed competence will improve at subsequent point times

The rationale for this hypothesis was that competence development and experience are associated with improvements in self-confidence and confidence over time (Fullerton et al., 2011a).

Although the alternative hypotheses are one-sided ("a positive relationship" rather than "a relationship" and “improve” rather than “change”), they were tested statistically using two-sided testing, this being the conservative standard approach in healthcare research (Bland, 2000b). Again, the researcher expected the null hypothesis to be rejected.

As described in Section 5.8, Hypothesis 1 was tested statistically using Kendall's correlation without adjustment for other factors and using multiple linear regression when including adjustment for other factors. Hypothesis 2 was tested statistically using Kendall's correlation and the Wilcoxon matched-pairs signed-ranks test without adjustment for other factors, and using multiple linear regression when including adjustment for other factors.

Other hypotheses were tested during the course of the statistical analysis. The methods used for hypothesis testing and data analysis in this study are described in Section 5.8.
5.4 Sampling

In quantitative studies, the participants are considered to form a sample from an underlying population, which may be physical or conceptual (Campbell, 2015). In this quantitative study, the recruited participants were students at three Schools of Midwifery in Zimbabwe (Hospital C, Hospital A, and Hospital B) who sat for their state final examinations in November 2015 and April 2016 but before they received their results. Although the number of accessible and available midwives at the three schools was finite, they were considered to be a realisation from a conceptual population of student midwives who could have been studying at the three schools. All students sitting their state final examinations at the three schools were invited to take part, which meant that this was an example of complete or consecutive sampling, a stronger form of convenience sampling with no selection bias at the invitation stage (Campbell, 2016). Under this approach, the sample can be considered to act as a random sample from the conceptual population (Campbell, 2016), which is convenient as the statistical methods described in Section 5.8 assume random sampling (Campbell, 2015).

5.5 Sample size

A study should be large enough to achieve its aims (Whitley and Ball, 2002). For a quantitative study, the sample size should be large enough for the main analysis to be performed reliably so that the results give a reasonably true reflection of the relationships between variables (Slavin and Lake, 2008). In hypothesis testing, the statistical significance was set at the conventional level of $\alpha = 0.05$, with the statistical power set at a value of $1 - \beta = 0.80$.

5.5.1 Sample size for multiple linear regression

The main method of analysis for this quantitative study was multiple linear regression. Tabachnick and Fidell, (2001) recommend that the sample size $N$ for analysis satisfies the following formulae to detect medium-sized effect sizes, where $m$ is the number of independent variables in a regression model:

- $N \geq 50 + 8m$ to test the overall effect of regression in explaining the variance of the dependent variable using the $R^2$ measure
- $N \geq 104 + m$ to test individual regression coefficients

In this study, the number of independent variables was considered to be five or six before data collection commenced, which requires $N \geq 90$ and $N \geq 98$ respectively for testing $R^2$, and $N \geq 109$ and $N \geq 110$ for testing individual regression coefficients.
Miles and Shevlin (2001) consider these recommendations to be conservative and limiting. They used the software package G*Power (Faul et al., 2009) to explore the sample size for other effect sizes. Figures 3.1 and 3.2 show plots of the statistical power by sample size for different effect sizes when there are five and six independent variables respectively.

**Figure 5-1 Statistical power by sample size for five independent variables in multiple linear regression for different effect sizes**
In these plots, an effect size of $f^2 = 0.15$ is considered to be a medium effect size, while $f^2 = 0.35$ is considered to be a large effect size (Cohen, 1992). (The values of $f^2$ correspond to values of $R^2$ of 0.05, 0.09, 0.13, 0.17, 0.20, 0.23 and 0.26.) Each plot is interpreted by choosing the power (e.g. the horizontal line at $y = 0.8$), tracing along until one of the four curves is reached, and tracing vertically to find the sample size needed to detect that effect size at the chosen power value. For example, for a medium effect size of $f^2 = 0.15$, for a power of 0.80, the sample size needed is at least 86 for five independent variables and 98 for six independent variables. For a slightly higher effect size of $f^2 = 0.20$, the sample sizes needed are at least 70 and 75; a higher effect size of $f^2 = 0.25$, the sample sizes needed are at least 48 and 61.

In this study, the effect size was thought to be higher than medium especially in regression models relating assessed confidence or competence at one time point with the same measurement at another time point, suggesting that at least 70-75 participants were needed for a regression analysis. The total number of student midwives at the three midwifery schools in 2015 was 158. Allowing for possible refusal to participate and attrition, all available students were approached to take part in the study to reach the study target of 70-75 with complete data for analysis.

5.5.2 Attrition of study participants
Attrition occurs when participants drop out of a research study. It has an impact on the sample size calculation, since the calculation arrives at a target figure needed for reliable statistical analysis allowing for attrition. It is important to examine the characteristics of individuals who drop out and how their lack of completing the study may impact on the findings (Miller and Wright, 1995, Thygesen et al., 2008). If participants who take part in a study do not all complete it, those dropping out may introduce a bias to the results if their behaviour is different to that of participants retained in the study (Twisk and de Vente, 2002). Attrition has been known to introduce bias to longitudinal study results, no matter how small the drop-out (Polit and Beck, 2010). It is important to compare characteristics of those who are retained in a study and those who drop out (Vandenbroucke et al., 2008) to determine whether there was any attrition bias introduced (Polit and Beck, 2013).

Statistical methods used in this study to compare characteristics of students who were retained with those who dropped out are given in Section 5.8.

It is also important for researchers to examine issues which are associated with attrition in their study and attempt to minimise drop-out (ZebracKi, 2012). Participant attrition may be associated with the nature of a longitudinal study: due to multiple contacts over time, the participant may just lose interest or they may change address and no longer be contactable. Alternatively, the participants may decide that they are not interested in the development of the study, or may not have the time to dedicate to the study. In studies in which participants are subjected to medical tests, the test results might not be appealing or the tests may be associated with unnecessary stress and the participant will decide to withdraw (MacCallum, 2012, Miller and Wright, 1995).

To increase the retention rate, the researcher has to keep the participants interested and motivated to continue in the study. For example, the researcher should give a clear purpose for the study at the beginning, stress the participants’ role in the study and give insights to the participants on the importance of finishing the study. Giving the timeline in advance may also keep participants interested and increase the retention rate (ZebracKi, 2012). In the current study, the researcher reimbursed transport costs related to the study or arranged for a follow-up (ZebracKi, 2012) at their participants' workplaces to limit the attrition rate.
5.6 Data collection instruments

The instruments used in this study to collect quantitative data on confidence and competence were based on instruments currently being used for 360° summative evaluation and feedback within the midwifery programme, extended to include demographic details.

The 360-degree feedback concept revolves around multiple feedbacks which improve skills and work productivity based on a competence model focused on the performance of individuals in an organisation. The individual gets feedback on their performance from peers and their supervisors as well as a self-evaluation, the objective being to improve the way they do their work aimed towards improving production and working in teams (Maurer et al., 2002). The 360° assessment concept has been successfully implemented in assessing the competence of company employees for some time (Levin and Drucker, 2002), although it was not clear whether the tool was used in measuring skill development in training. The researcher thought that the idea behind the 360-degree feedback concept could be applied to the training of skilled midwives, and it was decided to adopt the concept of 360-degree feedback concept tool design and implementation. From the present literature review, no study had used more than one assessor to evaluate competence in midwifery students.

5.6.1 Construction of the 360° assessment instruments

Required competencies for midwives as defined by the (ICM, 2010, 2013) at the end of the midwifery training programme were used to design the confidence and competence measurement instruments for the quantitative study. The idea of designing confidence and competence measurement instruments was borrowed from a number of studies (Hoogenboom et al., 2015, Stewart et al., 2000, Marteau et al., 1989, Sharma et al., 2013, ICM, 2010, 2013). The measurement scales were already being used for summative evaluation in the programme (MoHCC, 2014) and were adapted to suit the objectives of measuring confidence and competence in this study (appendices 29, 30 and 31). The items used in the instruments form a checklist of the midwifery care given to women within each of antenatal, intra-natal, postnatal and neonatal care (Appendix, 32). They were selected according to the competencies associated with the highest causes of maternal and infant morbidity and mortality in the Zimbabwe Demographic survey (2011-2012). There were 20 items in total forming four scales: antenatal care was measured using four items, intra-natal care 11 items (four for the 1st stage of labour, three for the 2nd and four for the 3rd), postnatal care two items and neonatal care three items (Appendix 33) and (Appendix 34).
Each item was scored from 1 to 10 reflecting either the amount of help needed by the student or the level of competence, giving a total confidence or competence score ranging from 20 to 200. Separate instruments were designed completed by the student for self-assessed confidence (Appendix 33), and the ward supervisor or senior midwife, a peer and the clinical instructor for 360° assessed competence Appendix 34). They were intended to be easy to complete in a busy working environment and easy to enter into a data file on computer.

A second part of the instrument covered demographic data considered to be relevant to confidence and competence development. The final version of the instrument included: age, gender, school of midwifery, years of working experience as a RGN before enrolling into midwifery training, level of education, marital status, whether the student was a resident during training, and prior responsibilities prior to midwifery training, and clinical areas and types of health institution worked in prior to midwifery training.

5.6.2 Administration of the 360° assessment instruments

In summative evaluation on the midwifery programme, either the clinical instructor or the tutor leads the summative evaluation process and has the final say over the student’s performance assessment. Two assessors (including the clinical instructor, either the ward supervisor or senior midwife, and the tutor) pair together to make the assessment. They each make their own evaluation and then sit down at the end of the assessment to agree on one evaluation form after reaching a consensus on a single score for record keeping. The student also self-evaluated themselves but their score was not formally recorded but is only used during a discussion of the student's performance and justifying their final competence score. Hence, there is only one summative assessment score for the student for each assessment during the programme.

The data collection for the present study was independent of the student’s summative evaluation process. In the present study; the instruments were administered at three time points and completed by four individuals to provide a 360° measurement as described by Levin and Drucker (2002). There were four score sheets for each student at each time point, meaning that for each student completing the study, there would be 12 score sheets, nine for 360° assessed competence scores and three self-assessed confidences scores. Time 1 was after the participants had sat for their state final examination as students but before they received those results. Time 2 was after they had received their results became newly qualified midwives. Time 3 was after they had been working in the clinical area for
three months as newly qualified midwives. The confidence and competence scores were expected to improve progressively over time (Fullerton et al., 2013a).

The ward supervisor or senior midwife, a peer and the clinical instructor were chosen as assessors of the student's competence they were involved in the summative evaluation of midwives. A peer was chosen as one of the assessors as they have would have gone through the same evaluation and be aware of the requirements (Biernat et al., 2003). With adequate training, peer assessment in competence development is reliable (Clanton et al., 2014) and helps makes the process objective and transparent (Clanton et al., 2014) and non-threatening (Levin and Drucker, 2002). The peers in this study would also have been invited to participate in self-assessment and it was hoped that this would improve the retention rate.

5.6.3 Testing the 360° assessment instruments for reliability and validity
Reliability (producing the same results each time an instrument is used by people trained to use it) and validity (the instrument measures what it claims to measure) are critical to producing unbiased quantitative results (Trochim, 2006a). They indicate the degree of truth and trust which with the results should be treated and be extrapolated to other settings (Hair, 2010). Many instruments used in quantitative research involve the transforming of abstract constructs to numbers or scores which need to be examined for accuracy and precision (Creswell and Garrett, 2008). Hence, there is the need for the researcher to defend the reliability and validity of the study instruments used to collect data (Trochim, 2006c).

In the current study, the competence and confidence of midwifery students were reduced to scores through operationalisation of the constructs for antenatal, intra-natal, postnatal and neonatal care (Appendix, 35). Because these were being used for summative evaluation in the midwifery programme in Zimbabwe, the 360° assessment instruments were considered to already have been validated (Polit and Beck, 2013) and there was no need to assess content, criterion, construct concurrent and face validity (Kristal and Potter, 2006). The internal consistency reliability of the instruments and their component scales was assessed using Cronbach’s alpha coefficient, as described in Section 5.8. It was not considered feasible to assess test-retest reliability.
5.6.4 Testing the 360° assessment instruments for usability
As the 360° degrees feedback concept was used for the first time in this study to assess students’ performance, the instruments were tested for usability on five individuals who had similar characteristics to the study participants but who were not included in the study (Polit and Beck, 2013). Usability was tested by the researcher together with four other data collectors representing the different 360° assessors and the five participants testing the self-assessment tool. A workshop was successfully carried out for data collectors to acquaint them in the study and to ensure consistence in the way they collected the data (Appendix 36). The instruments produced same confidence and competence results each time they were used on these five different participants. The demographic data collection was adjusted after this pilot test, however. Initially, only age, gender and school of midwifery were requested, but the other items described in the Section 5.6.1 were added as they were considered to be important in competence and confidence development.

5.7 Data collection process
Quantitative data were collected from participants at the three midwifery schools from students who sat their state final examinations in November 2015 between 7 December 2015 and 30 April 2016, and from those who sat their examinations in April 2016 between 8–30 May, 2016 and 8–31 August 2016.

5.7.1 Participant recruitment
The study was advertised to the students through the gatekeepers (Heads of Midwifery at the three schools) and the researcher. The researcher described the study and answered questions about the study in front of a group of participants who were called to gather together for the purpose by a gatekeeper. A Clinical Research Associate (CRA) was then introduced as the individual to do all recruitment, obtain consent and ask the participants to sign the consent form before passing them on to their data collectors (the clinical instructor, the ward supervisor or a senior midwife, and peer).

To reduce potential bias, the researcher was minimally involved in the recruitment for the quantitative study. She was only contacted when there were challenges being faced by data collectors, mostly to do with study logistics, guidance and support. Ethical and power relation issues for student recruitment for this study are discussed in detail in Chapter 4.

The CRA recruited students from all the three midwifery schools. He was based near School A and School B, and travelled to School C twice. Any subsequent communication with the students was by telephone and the WhatsApp app, which is widely used in
Zimbabwe and provided a familiar, cheap and easy-to-use means of communication. The CRA performed group recruitment, distributing the participant sheet and the consent form to the entire group in person. He gave the participants his mobile phone number to communicate with him using WhatsApp. He created a WhatsApp group and sent a follow-up message to the whole group after 24 hours. Those who showed interest in participating in the study contacted him via his private box to avoid potential coercion or discouragement from other group members. Not all WhatsApp group members responded, so reminders continued to be sent to the group until the first phase of data collection elapsed.

After obtaining agreement from the student and asking the student to sign a consent form, the CRA referred participants to their data collectors (the ward supervisor or senior midwife, peer and clinical instructor), the same data collectors being used for all the three phases of data collection for each student. It should be noted that the data collectors were the same individuals who performed formative and summative evaluation for the student, while the peer provided peer support and was involved in the same teaching, evaluation and feedback processes.

The recruitment process was the same for all three phases. At time 2 and time 3, participants who did not respond within four to five days were then phoned individually. Participants were also phoned a day before they were due to come to confirm their availability and for planning purposes.

The CRA then coordinated the data collection process between the participants and the data collectors. The researcher, data collectors and the CRA formed a WhatsApp group which was used for communicating issues related to the study. The data collectors informed the researcher of on-going progress. The process was periodically supervised by the researcher to check whether it was going well, and she addressed any challenges that arose.

The data collectors generated the codes for the participant and kept the names and generated codes separately until collected by the researcher. The data instruments were kept by the lead person for each data collecting team, who kept them separate from the codes with the participant's name and shared the information with no-one other than the researcher.
The students were informed that the study had both quantitative and qualitative threads. Only one data sheet and one consent form were used during recruitment even though not all students agreeing to participate would participate in both studies. The students were informed that their participation in the qualitative study would be determined by theoretical sampling, as described in Chapter 4. Agreement to participate meant that they would automatically be part of the quantitative study and would be eligible to take part in the qualitative study if they satisfied the theoretical sampling criteria. It was made clear to them that that if they were chosen to participate in the qualitative interviews, participation was voluntary and they could refuse to take part in the interview.

5.7.2 Data collection timelines
Table 5.1 shows the dates of data collection for each time point for each group of participants according to their examination month, November 2015 or March 2016. Figure 5.3 shows the flow of participants over the three time points.

<table>
<thead>
<tr>
<th>Time point</th>
<th>Date of state final examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 2015</td>
<td>March 2016</td>
</tr>
<tr>
<td>Time 1</td>
<td>7 December 2015 - 31 December 2015</td>
</tr>
<tr>
<td>Time 2</td>
<td>17 January 2016 - 15 February 2016</td>
</tr>
<tr>
<td>Time 3</td>
<td>15 March 2016 – 30 April 2016</td>
</tr>
</tbody>
</table>
5.7.3 Measurement of outcome variables

The main outcome variables were the total self-assessed confidence scores and the total assessed competence scores from the 360° assessment instruments. The six scale scores for each of antenatal care, care in the first stage of labour, care in the second stage of labour, care in the third stage of labour, postnatal care and neonatal care were calculated first by adding responses over the relevant items. If a response to single item was missing within a scale, it was replaced by the mean across the other items in the scale, following Shrive et al. (2006); if more than one response was missing within a scale, the scale score was set to be missing. Total scores for each of the assessors were calculated by adding
together the six scale scores; if any one of the scale scores was missing, the total score was also set to be missing. Further details are given in Section 5.8.1.1.

5.8 Data analysis
IBM SPSS Statistics Version 22 was used to analyse the quantitative data. Data were entered by two people into SPSS from 8 December 2016 to 18 December 2016, and the researcher performed data cleaning from 18 December 2016 to 20 December 2016.

5.8.1 Handling missing data and data capturing errors
Data cleaning is an important preliminary to data analysis (Salkind, 2010). During data collection in preparation for a quantitative data analysis, some information may not be available because the respondent has not provided it although other relevant data may be there (Boslaugh, 2005, Toepoel, 2015). Alternatively, the data may have been present but wrongly captured. In all these two instances, these are called ‘missing data’ or ‘dirty data’; data have to be cleaned through removing these impurities prior to data analysis, which involves correcting wrong entered data and seeking missing data (Salkind, 2010, Salkind, 2012). Contaminated data is associated with reducing statistical power due to a reduced sample size, resulting in a narrowing of confidence intervals because of larger standard errors (Salkind, 2010), and introducing the potential for bias if the impurities are not random.

Data cleaning is associated with the type of study design and the data collected. It is critical in longitudinal quantitative study designs which may include multiple treatments, evaluations and scoring tests at different time points (Allison, 2001, Allison., 2002, Salkind, 2010). It was needed in the present study because there were gaps in the assessment scores given by the student, ward supervisor or senior midwife, peer and clinical instructor. During data cleaning, inaccurate, inadequate or irrelevant data can be corrected, modified, replaced deleted or imputed, (Shrive et al., 2006).

It can be argued that the best way of handing missing data is by asking the participants to provide the data at the point of data collection, which is best done by those who collect the data since they are familiar with their data gathering protocol (Salkind, 2010). However, in this study, missing data were found in both the 360° assessed competence scores and self-assessed confidence scores. It was possible to correct some of the missing data from entries on the checklist-based instruments used in the study, which shows that keeping accurate records is vital in data collection in order to minimise missing data (Salkind, 2010). Some of the missing data could not be corrected in this way, and missing responses...
in the competence and confidence scales were imputed or replaced by reasonable approximations (Section 5.8.1.1). Data entered into SPSS were also checked by generating an SPSS code book (Section 5.8.1.2) (Appendix 37).

5.8.1.1 **Imputing missing values in measurement scales**

There were missing responses in the six measurement scales for antenatal care, care in the first stage of labour, care in the second stage of labour, care in the third stage of labour, postnatal care and neonatal care in the students' self-assessed confidence instrument and the 360° assessors' competence instruments. Tables 5.3, 5.4 and 5.5 show the number of missing responses for each item at times 1, 2 and 3 respectively.
Table 5.2 Available and missing responses to items on 360° assessment instruments at time 1 (before students sat their state final examination) (cells show available/missing, maximum n=85)

<table>
<thead>
<tr>
<th>Item</th>
<th>Ward supervisor / Senior midwife</th>
<th>Peer</th>
<th>Clinical instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antenatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel am able carrying out a booking history</td>
<td>84/1</td>
<td>85/0</td>
<td>84/1</td>
<td>82/3</td>
</tr>
<tr>
<td>I feel I can perform a physical examination</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
<td>82/3</td>
</tr>
<tr>
<td>I feel can perform an abdominal examination</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
<td>83/2</td>
</tr>
<tr>
<td>I feel can give client-centred health education</td>
<td>84/1</td>
<td>85/0</td>
<td>84/1</td>
<td>82/3</td>
</tr>
<tr>
<td><strong>First stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can admit a patient in labour</td>
<td>84/1</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can use a partograph to manage a patient in the first stage of labour</td>
<td>84/1</td>
<td>84/1</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can a perform a vaginal examination</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can perform a digital pelvic assessment</td>
<td>84/1</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td><strong>Second stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can perform an episiotomy if needed</td>
<td>50/35</td>
<td>43/42</td>
<td>41/44</td>
<td>79/6</td>
</tr>
<tr>
<td>I feel I can conduct a delivery</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can do an Apgar score rating of the newborn</td>
<td>83/2</td>
<td>84/1</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td><strong>Third stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can conduct an active management of the third stage of labour</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>83/2</td>
</tr>
<tr>
<td>I feel I can do a placenta examination</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can estimate and record blood loss</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can do post-delivery observations for mother and baby</td>
<td>83/2</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td><strong>Postnatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can admit the mother and baby to the post-natal ward</td>
<td>85/0</td>
<td>84/1</td>
<td>84/1</td>
<td>83/2</td>
</tr>
<tr>
<td>I feel can assess the progress of mother and baby in the puerperal period</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>83/2</td>
</tr>
<tr>
<td><strong>Neonatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can resuscitate the new-born and document actions taken</td>
<td>36/49</td>
<td>20/65</td>
<td>15/70</td>
<td>80/5</td>
</tr>
<tr>
<td>I feel I can perform, record and report on the initial examination of the new-born</td>
<td>84/1</td>
<td>85/0</td>
<td>85/0</td>
<td>83/2</td>
</tr>
<tr>
<td>I feel I can perform, record and report on continuing care of the new-born</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>83/2</td>
</tr>
</tbody>
</table>

* One student did not complete the assessment tool at time 1 (but did so at times 2 and 3); the student’s ward supervisor/senior midwife, peer and clinical instructor completed the tool at time 1
Table 5.3 Available and missing responses to items on 360° assessment instruments at time 2 (after students had the results of their state final examination) (cells show available/missing, maximum n=65)

<table>
<thead>
<tr>
<th>Item</th>
<th>Ward supervisor / Senior midwife</th>
<th>Peer</th>
<th>Clinical instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antenatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel am able carrying out a booking history</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can perform a physical examination</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel can perform an abdominal examination</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel can give client-centred health education</td>
<td>65/0</td>
<td>63/2</td>
<td>65/0</td>
<td>64/1</td>
</tr>
<tr>
<td><strong>First stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can admit a patient in labour</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can use a partograph to manage a patient in the first stage of labour</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can perform a vaginal examination</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can perform a digital pelvic assessment</td>
<td>64/1</td>
<td>64/1</td>
<td>65/0</td>
<td>64/1</td>
</tr>
<tr>
<td><strong>Second stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can perform an episiotomy if needed</td>
<td>32/33</td>
<td>33/32</td>
<td>23/42</td>
<td>64/1</td>
</tr>
<tr>
<td>I feel I can conduct a delivery</td>
<td>64/1</td>
<td>64/1</td>
<td>62/3</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can do an Apgar score rating of the newborn</td>
<td>63/2</td>
<td>62/3</td>
<td>64/1</td>
<td>65/0</td>
</tr>
<tr>
<td><strong>Third stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can conduct an active management of the third stage of labour</td>
<td>64/1</td>
<td>64/1</td>
<td>64/1</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can do a placenta examination</td>
<td>64/1</td>
<td>64/1</td>
<td>64/1</td>
<td>64/1</td>
</tr>
<tr>
<td>I feel I can estimate and record blood loss</td>
<td>64/1</td>
<td>64/1</td>
<td>64/1</td>
<td>64/1</td>
</tr>
<tr>
<td>I feel I can do post-delivery observations for mother and baby</td>
<td>63/2</td>
<td>64/1</td>
<td>61/4</td>
<td>65/0</td>
</tr>
<tr>
<td><strong>Postnatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can admit the mother and baby to the postnatal ward</td>
<td>64/1</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>I feel can assess the progress of mother and baby in the puerperal period</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td><strong>Neonatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can resuscitate the new-born and document actions taken</td>
<td>31/34</td>
<td>15/50</td>
<td>10/55</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can perform, record and report on the initial examination of the new-born</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>64/1</td>
</tr>
<tr>
<td>I feel I can perform, record and report on continuing care of the new-born</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
</tbody>
</table>
Table 5.4 Available and missing responses to items on 360° assessment instruments at time 3 (after students had been in clinical practice for 3 months) (cells show available/missing, maximum n=58)

<table>
<thead>
<tr>
<th>Item</th>
<th>Ward supervisor / Senior midwife</th>
<th>Peer</th>
<th>Clinical instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antenatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel am able carrying out a booking history</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can perform a physical examination</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel can perform an abdominal examination</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel can give client-centred health education</td>
<td>57/1</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td><strong>First stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can admit a patient in labour</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can use a partograph to manage a patient in the first stage of labour</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can a perform a vaginal examination</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can perform a digital pelvic assessment</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>57/1</td>
</tr>
<tr>
<td><strong>Second stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can perform an episiotomy if needed</td>
<td>41/17</td>
<td>41/17</td>
<td>37/21</td>
<td>57/1</td>
</tr>
<tr>
<td>I feel I can conduct a delivery</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>57/1</td>
</tr>
<tr>
<td>I feel I can do an Apgar score rating of the newborn</td>
<td>58/0</td>
<td>57/1</td>
<td>57/1</td>
<td>58/0</td>
</tr>
<tr>
<td><strong>Third stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can conduct an active management of the third stage of labour</td>
<td>57/1</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can do a placenta examination</td>
<td>58/0</td>
<td>57/1</td>
<td>57/1</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can estimate and record blood loss</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can do post-delivery observations for mother and baby</td>
<td>58/0</td>
<td>57/1</td>
<td>56/2</td>
<td>56/2</td>
</tr>
<tr>
<td><strong>Postnatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>57/1</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>I feel I can admit the mother and baby to the post-natal ward</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can assess the progress of mother and baby in the puerperal period</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td><strong>Neonatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can resuscitate the new-born and document actions taken</td>
<td>50/8</td>
<td>40/18</td>
<td>29/29</td>
<td>56/2</td>
</tr>
<tr>
<td>I feel I can perform, record and report on the initial examination of the new-born</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can perform, record and report on continuing care of the new-born</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
</tbody>
</table>
Eighteen of the 20 items in the six scales were routinely completed by most 360° assessors. Many ward supervisors/senior midwives, peers or clinical instructors did not enter a response for the items “I feel I can perform an episiotomy if needed” and “I feel I can resuscitate the new-born and document actions taken”. This may have been because they had not observed the student performing an episiotomy or a neonatal resuscitation and could not rate the student's competence. Almost all students gave a response to the item, however.

Treating a missing response as 0 would underestimate the confidence or competence of a student in an area of midwifery care. For example, in a 3-item scale such as care in the second stage of labour, the scale score for a student for whom the item on episiotomy was missing would have a maximum score of 20 instead of 30. Making the scale score and hence the total confidence or total competence score missing would throw away useful data and reduce the effective sample size. If this was applied for students for whom the competence rating on episiotomy was missing, about half of the students would not have competence scores for the second stage of labour or total competence scores at time 1.

The approach adopted in this study followed Shrive et al. (2006), who showed that imputing or replacing a missing value by the mean score for the other items in a scale was an effective way of dealing with missing values in additive scales. The underlying assumption is that the missing value is replaced by a value that represents the participant's average response to the scale. The six scales only contained 2-4 items, so one missing item was allowed per scale and this was replaced by the participant's average over the other items in the scale, so that the scale score was calculated by adding up responses for the valid items and the imputed value. If more than one item was missing in a scale, the scale score was set to be missing. The total confidence or competence score was calculated as the sum of the scale scores; if one or more scale scores were missing, the total score was set to be missing too. To avoid any human error in the calculations, all imputation and the calculation of scale scores and total scores were performed using SPSS.

5.8.1.2 Correction of wrongly entered data
The correction of the wrongly entered data for the present study involved developing a code book (Litwin, 2003), which was used when entering data into SPSS (Boslaugh, 2005). The code book listed all variables, including the items as worded on the self-assessed confidence and 360° assessed competence instruments and the demographic variables, with meaningful SPSS names and labels presented in a tabular form (Taylor,
2007) (see Appendix 37). All textual variables like ‘gender’ (male or female) were coded into numbers for data entry and analysis (1 = male, 2 = female). Such specific structured formats help reduce errors as well as making it easy to detect errors (Salkind, 2010). Using the code book, it was easy for the researcher to identifying missing data or wrongly entered data, for example where a female participant had been given a male code.

Data for this study were double-entered and cross-validated. Two people used the code book to enter the data independently (Salkind, 2010). They then cross-checked their data for any differences, verifying and correcting 10 data entry errors on SPSS code book. They then merged their data into one data file for the researcher to analyse the data. Before running any analysis, the researcher reviewed the data entered into SPSS for errors and missing data. She compared the data entered on the score sheets with data in SPSS and identified and corrected two wrongly entered values even after the double-entry and cross-validation.

5.8.2 Recruitment, retention and attrition rates
The first step in data analysis was to summarise the number of participants at each stage of the study, and estimate recruitment, retention and attrition rates by midwifery school. For each rate, a 95% confidence interval for the percentage was estimated via Wilson’s method (Newcombe, 1998) using a Microsoft Excel spreadsheet prepared by Newcombe himself (available at http://profrobertnewcomberesources.yolasite.com/). A confidence interval is a range of values containing the unknown population value, such as the population attrition rate, with 95% confidence: if it were possible to repeat the study 100 times, then the population value would be contained in the confidence interval 95 times (Campbell et al., 2010).

5.8.3 Characteristics of participants
This was followed by a descriptive summary of the characteristics of the participants by school of midwifery at time 1, before the student midwives sat their state final examination. All participating students were included in this analysis to provide the most complete summary of the underlying population. Frequency counts and percentages were used for categorical variables such as gender and means, standard deviations and ranges were used for continuous variables such as age. Schools were compared using Pearson’s chi-square test or (for small cell sizes) Fisher’s exact test for nominal variables, and the Mann-Whitney U test for continuous variables as they had skewed distributions and there were only sufficient participants to compare two schools (School A and School B).
5.8.4 Reliability analysis of 360° assessment instruments

The reliability of the instruments used for 360° assessment of confidence and competence was assessed in two stages separately for students and each of their assessor at each time point. The first stage involved counting the number of present and absent responses for each item to assess the ability of students and assessors to complete the instrument. In the second stage, the internal consistency of each scale and of the instrument overall was assessed using Cronbach's alpha coefficient. The value of Cronbach's alpha depends on the number of items in a scale and the sample size (Ponterotto and Ruckdeschel, 2007). The general guide to interpretation proposed by Ponterotto and Ruckdeschel (2007) shown in Table 5.5 was used to assess the internal consistency of each scale.

<table>
<thead>
<tr>
<th>Items per scale</th>
<th>Rating</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;100</td>
<td>100-300</td>
</tr>
<tr>
<td>≤6</td>
<td>Excellent</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>0.60</td>
</tr>
<tr>
<td>7-11</td>
<td>Excellent</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>0.65</td>
</tr>
<tr>
<td>≥12</td>
<td>Excellent</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>0.70</td>
</tr>
</tbody>
</table>

Note: A value of Cronbach's alpha below "Fair" should be deemed "Unsatisfactory"

5.8.5 Dropout analysis

It was important to determine whether there were any differences in characteristics between those who remain in the study and those who dropped out (Vandenbroucke et al.,
Characteristics of students remaining in the study at time 3, after 3 months of clinical practice, were compared with those who dropped out using Pearson's chi-square test or (for small cell sizes) Fisher's exact test for nominal variables, the Mann-Whitney U test for ordinal or skewed variables, and independent-samples t-tests for continuous variables with approximately Normal distributions.

5.8.6 Analysis of total confidence and total competence scores

At each time point, total confidence and competence scores were summarised using means, standard deviations, medians and ranges. The scores had expectedly skewed distributions as many scores were grouped near the maximum of 200, mostly above 150, with relatively few low scores below 130.

Total confidence scores for the student and competence scores for each assessor were compared by midwifery school at each time point. Because there were insufficient responses from School B students, scores for School A and School C students were compared using the Mann-Whitney U test because they had skewed distributions.

At each time point, the student’s total confidence score was plotted against each of the other assessor’s total competence scores using scatter plots, with all three midwifery schools combined, points being identified by midwifery school. The relationship between the different scores at each time point (again, all midwifery schools combined) were summarised and tested using Kendall’s rank correlation (τb) due to the skewed distributions. Kendall's correlation has an advantage over the other widely used nonparametric correlation, Spearman's correlation, as it has a direct interpretation: τb is the proportion of pairs of data values showing concordance (agreement in the relative order of x and y values) minus the proportion of pairs of data values showing discordance (disagreement in the relative order of x and y values) (Bland, 2000a). All relationships were expected to be positive: when confidence increases, competence is expected to increase; when one assessment of competence increases, another is expected to increase (Creswell and Garrett, 2008). The difference between the student’s score and each other assessor’s score in turn was tested using the Wilcoxon matched-pairs signed-ranks test (again, all midwifery schools combined).

Finally, student’s confidence scores at different time points were plotted against each other on scatter plots, points again being identified by midwifery school. Because there were no responses from School B students after time 1, these plots were for students from School A and School C only, and points on the plots were identified by school. Relationships
between scores at different time points were summarised and tested using Kendall’s
correlation, and differences in the scores between pairs of time were tested using the
Wilcoxon matched-pairs signed-ranks test (in both cases, with School A and School C
combined). Relationships were expected to be positive, reflecting an increase in confidence
over time.

5.8.7 Analysis of total confidence and total competence scores adjusted for other
factors
The previous section described statistical analyses of total confidence and competence
scores that involved the score variable itself and one other variable. Because each analysis
involves two variables, it is often called a bivariable analysis. In reality, several factors
may be present at the same time that potentially has an impact on confidence or
competence. For example, a student midwife’s competence may be affected by their
training environment (school of midwifery), their gender and age, their years of previous
experience or perhaps the kinds of work they previously did. Bivariable analyses cannot
show the true picture, so there is a need to introduce multivariable analyses to bring several
variables into the analysis at the same time. Even then, it is important to recognise that it is
only possible to include variables representing factors that can be measured and that were
actually measured in a study. The analyses focused on meaningful regression models to
explore important relationships to investigate the underlying theoretical model (Salmon,
1989).

Confounders are variables that are related to the explanatory variable of interest (e.g. the
total competence from an assessor) and the outcome of interest (the student’s confidence
score), and they are present in all observational studies (Mann, 2003). It is important to
identify as many confounders as possible to maximise the amount of variance explained by
an analysis (Mann, 2003), but for practical reasons, this exploratory quantitative study only
collected data on the midwifery student’s gender, their age, their midwifery school,
whether the student was a resident during training, the number of years of experience post-
RGN qualification, whether the student had prior responsibility as a sister-in-charge or
matron, the clinical areas in which the student previously worked and the type of health
institution in which the student had previously worked.

The primary outcome for the main multivariable analysis was the student’s total
confidence score at time 3, after three months of clinical practice. This was a continuous
dependent variable, so multiple linear regression was used to find a model predicting this
from other variables (Campbell et al., 2010). Because of the limited simple size, only a restricted set of predictor variables were included. The student’s total confidence score at times 1 and 2 (before and after they received the results of their state final examination) were used as explanatory variables, while the confounding variables were gender (a dichotomous variable coded 0=male and 1=female), age in years (continuous) and school of midwifery (coded 0=School A and 1=School C) and number of years of experience post-RGN qualification. It was not possible to include the total competence scores at time 3 from the other assessors because they were too strongly related to the student’s confidence score. The regression equation was

Confidence at time 3 = a + b_1 \text{Confidence at time 1} + b_2 \text{Confidence at time 2} + b_3 \text{School C} + b_4 \text{Female} + b_5 \text{Age} + b_6 \text{Years of experience post-RGN qualification} + e

where a, b_1, b_2, b_3, b_4, b_5 and b_6 are regression coefficients estimated from the data and e is an error or residual term. Regression coefficients show the association between the dependent variable and each independent variable adjusted for the other independent variables (Cohen et al, 2003). Each of b_1, b_2, b_3, b_4, b_5 to b_6 show the mean change in the dependent variable when the corresponding independent variable increases by 1 and the other independent variables remain constant (Cohen et al., 2003). If the independent variable is coded 0-1 like School C or Female, then the regression coefficient shows the mean change in the dependent variable as the independent variable increases from 0 to 1 (Cohen et al., 2003).

The performance of the regression model was assessed using the regression analysis of variance F-test, which tests the null hypothesis that the population regression coefficients for all independent variables are 0 (Cohen et al., 2003). The significance of each the independent variable in the regression model was assessed using a t-test of the coefficient, testing the null hypothesis that that population regression coefficient is 0 (Cohen et al., 2003). The amount of variance in the dependent variable explained by the model was measured using Adjusted $R^2$ (Cohen (Cohen et al., 2003). The amount of variance in the student’s confidence score explained by this model was expected to be low because other factors were expected to be involved. The underlying assumptions of multiple linear regression (linearity, Normality and homogeneity of variance of residuals, and the absence of multicollinearity between predictor variables) were assessed (Cohen et al., 2003).
Corresponding models were fitted to predict each of the total competence scores given by the ward supervisor/senior midwife, the peer or the clinical instructor at time 3 from their scores at times 1 and 1, with the same confounding variables.

Each regression model was fitted into a two-stage process to gather evidence of the underlying theoretical model. In the first stage, unadjusted associations between the explanatory variables and the dependent variable were estimated as differences in means and medians and then tested using Mann-Whitney U tests for dichotomous independent variables, and measured and tested using Kendall’s correlation for continuous independent variables. These associations ignore the impact of other independent variables. The adjusted associations between the explanatory variables were estimated and tested using multiple linear regression. The unadjusted results and the adjusted results were compared to assess the impact of adjustment for other variables.

5.8.8 Analysis of total confidence scores by other factors
It was not possible to include all potential predictors of the student’s total confidence score at time 3, after three months of clinical practice, in the regression model. The association between the student’s total confidence score at time 3 and each of the following dichotomous variables was measured in terms of means and medians and tested using a Mann-Whitney U test: whether the student

- was a resident during training
- had prior responsibility as a sister-in-charge or a matron
- had previously worked in the medical area
- had previously worked in the surgical area
- had previously worked in the paediatric area
- had previously worked in the maternity area
- had previously worked in a rural health centre
- had previously worked in a private hospital or clinic
- had previously worked in an urban clinic
- had previously worked in a district hospital
- had previously worked in a provincial hospital
- had previously worked in a central hospital

5.9 Summary
This chapter described how the longitudinal correlation study was implemented by collecting data at three midwifery schools in Zimbabwe. The chapter described the
construction of instruments to measure the confidence as assessed by the student and the competence as assessed by a ward supervisor/senior midwife, peer and clinical instructor to give a 360° assessment. These were based on an instrument currently used for summative assessment in the Zimbabwe midwifery programme. The chapter also described how the quantitative data were collected, entered into SPSS and subsequently analysed.
Chapter 6 Qualitative Study Results

6.1 Introduction
This chapter will present findings on the demographic data on knowledge perceptions and practices of midwives in Zimbabwe towards ICM core competences of those participants who were involved in the interviews. The core category being interactive and three main categories emerged from the analysis of the interviews from students and supervisors of students, namely the clinical instructors, tutors and ward supervisors respectively. These will be divided and discussed in sections as follows: Section 6.2 characteristics of the interview participants; Section 6.3 main category one ‘Being socialised into the midwifery profession’; Section 6.4 main category two ‘Student Typology’; Section 6.5 main category three ‘Finding a place in the midwifery profession’; and Section 6.6 the core category ‘Being interactive.’ Finally Section 6.7 presents the summary of the chapter.

6.2 Characteristics of the interview participants
The participants in this study comprised of newly qualified midwives, their supervisors from both the clinical area and the school. Individual interviews were conducted with 36 participants from the three training schools of midwifery situated in four of the central hospitals in the country. The participant groups were: newly qualified midwives (n=21) from the January and May groups of year 2015 within their first month of receiving their accrediting results from School A Central Hospital, School B Central Hospital and School C Central Hospital. There were four clinical instructors, three acting clinical instructors, five ward supervisors (two sisters in charge, one senior midwife and two junior midwives) and four tutors (see Tables 6.1 and 6.2 respectively).
### Table 2.2 Characteristics of student facilitators

<table>
<thead>
<tr>
<th>No</th>
<th>Participant ID</th>
<th>School</th>
<th>Age</th>
<th>Sex</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blessing</td>
<td>SMA04</td>
<td>33</td>
<td>M</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>2</td>
<td>Jani</td>
<td>SMA06</td>
<td>35</td>
<td>M</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>3</td>
<td>Memory</td>
<td>SMA08</td>
<td>35</td>
<td>F</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>4</td>
<td>Gama Liza</td>
<td>SMA14</td>
<td>30</td>
<td>M</td>
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</tr>
<tr>
<td>5</td>
<td>Miriam</td>
<td>SMA18</td>
<td>40</td>
<td>F</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>6</td>
<td>Chelesi</td>
<td>SMA20</td>
<td></td>
<td>M</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>7</td>
<td>Kudakwashe</td>
<td>SMC06</td>
<td>48</td>
<td>F</td>
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</tr>
<tr>
<td>8</td>
<td>Kate</td>
<td>SMC03</td>
<td>29</td>
<td>F</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>9</td>
<td>Mildred</td>
<td>SMC08</td>
<td>53</td>
<td>F</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>10</td>
<td>Grace</td>
<td>SMC11</td>
<td>39</td>
<td>F</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>11</td>
<td>Kudzi</td>
<td>SMC15</td>
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<td>F</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>12</td>
<td>Mari</td>
<td>SMC18</td>
<td>32</td>
<td>M</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>13</td>
<td>Nyasha</td>
<td>SMC19</td>
<td>30</td>
<td>F</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>14</td>
<td>Susan</td>
<td>SMC25</td>
<td>31</td>
<td>F</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>15</td>
<td>Tatenda</td>
<td>SMC28</td>
<td>37</td>
<td>F</td>
<td>Newly midwife qualified</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>SMC</td>
<td>School</td>
<td>Age</td>
<td>Gender</td>
</tr>
<tr>
<td>------</td>
<td>--------------</td>
<td>------</td>
<td>--------</td>
<td>-----</td>
<td>--------</td>
</tr>
<tr>
<td>16.</td>
<td>Kumbira i</td>
<td>SMC29</td>
<td>School B</td>
<td>32</td>
<td>F</td>
</tr>
<tr>
<td>17.</td>
<td>Tsitsi</td>
<td>SMC31</td>
<td>School B</td>
<td>38</td>
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<tr>
<td>18.</td>
<td>Tario</td>
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<td>19.</td>
<td>Claudia</td>
<td>SMC33</td>
<td>School B</td>
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<td>F</td>
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<tr>
<td>20.</td>
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<td>28</td>
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<tr>
<td>21.</td>
<td>Stella</td>
<td>SMC42</td>
<td>School B</td>
<td>30</td>
<td>F</td>
</tr>
</tbody>
</table>
### Table 3 Characteristics of students’ facilitators

<table>
<thead>
<tr>
<th>Participant ID</th>
<th>Age in years</th>
<th>Experiences in RGN (Years)</th>
<th>Years of experience as a midwife (Years)</th>
<th>Years of Experiences supervising students (years)</th>
<th>Role of facilitator in students’ training</th>
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</thead>
<tbody>
<tr>
<td>1 TAT 1</td>
<td>53</td>
<td>30</td>
<td>19</td>
<td>12</td>
<td>Tutor - Teaches 60% theory, 40% practical – standard oriented- less exposure to student in clinical area</td>
</tr>
<tr>
<td>2 TAT 2</td>
<td>47</td>
<td>24</td>
<td>21</td>
<td>8</td>
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<tr>
<td>3 TCT 1</td>
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<tr>
<td>4 TCT 2</td>
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<tr>
<td>5 ACIWA 1m</td>
<td>36</td>
<td>12</td>
<td>6</td>
<td>4</td>
<td>Acting clinical instructor - 40% Theory and 60% - more exposure to student</td>
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<tr>
<td>6 ACIWA</td>
<td>41</td>
<td>13</td>
<td>8</td>
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<td>7 ACIWC</td>
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<td>2</td>
<td>Acting clinical instructor</td>
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<tr>
<td>8 CIGA 1</td>
<td>35</td>
<td>11</td>
<td>5</td>
<td>3</td>
<td>Clinical instructor -60% theory 40% practical- Takes disciplinary measures and decides the student’s fate in the clinical area-standard oriented.</td>
</tr>
<tr>
<td>9 CIGA 2</td>
<td>46</td>
<td>22</td>
<td>10</td>
<td>7</td>
<td>Clinical instructor</td>
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<td>Instructor</td>
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<td>WSJSB 1</td>
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<td>Supervisor</td>
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6.3 The first main category: Being socialised into the profession
The first category ‘Being socialised into the profession’ comprised two subcategories ‘Awareness of the Professional Association’ and ‘Newly qualified midwives’ perception associated with ICM’ (Figure 6.1). These emerged when study participants were probed on the knowledge, perceptions and practices towards ICM core competencies. The subcategory of awareness of the professional association revealed what the participants knew about ICM and ICM core competences. Whilst the subcategory ‘perceptions of midwifery core competences’ revealed how the students perceived the ICM core competences. Additionally, participants were probed on social processes facilitating and or hindering competence and confidence development among newly qualified midwives in Zimbabwe. This section relates to objective two; ‘To explore the knowledge, practices and views of student midwives in Zimbabwe towards ICM essential competencies’.

**Figure 6-1 Being socialised into the profession**

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Being socialised into the profession

Awareness of the ICM as a professional association

Newly qualified midwives’ perception associated with ICM
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6.3.1 Awareness of the ICM as a professional association

Differing levels of knowledge of the ICM were displayed by participants. The first level represented sound knowledge, understanding of the purpose and role ICM plays in the midwifery profession. The second level demonstrated a partial understanding of ICM, as participants could not give a detailed definition and clarification on some of the functions of ICM. The third group, indicated a lack of knowledge where the participants failed to give the definition or the correct functions of the ICM. The different levels of knowledge represented a continuum of no knowledge to sound knowledge.

Those with sound knowledge of the ICM were confident in their discussion of its roles and functions.

‘I know about ICM ...they represent issues of the midwives ... However, the country has to register and be ... Affiliated to it... As I was training, we were told about the ICM board that it is the one, which defines who the midwife, is the theory and practice as well as the scope of practice of the midwife.’ [Stella.]

The second group of participants in the continuum would indicate a level of doubt when discussing the ICM. This group of participants seem to evade the fact that they were taught about the subjects they were being probed on. It appeared that when students failed to recall some of the information they have learnt they passed the blame to those who were supposed to provide them with the information, reflecting that it was not their fault.

However, the participants were aware that the ICM is responsible for setting standards for the midwifery profession which includes training, association and practice standards globally; this has been revealed from Tatenda and Susan’s following quotes respectively.

‘What I understand is that it’s an organisation of midwives world- wide but not really sure of the details ... not actually got details about it, what I know is that we have been trained according to ICM standards.’ [Tatenda]

‘ICM, not really sure but I think I know something about it ......an association at global level which ... oversees midwifery associations in many countries and has to do with issues to do with midwives I think...’ [Susan]

The third group, however, demonstrated surprise when they were asked the question and indicated a lack of knowledge about the ICM. Hence the participants were only able to give limited details of the functions of ICM. This third group of participants stated that this was not covered in their training, although they were able to summarise what some of the key roles were, as revealed by Mari in his following quote.
‘Aah! ICM! Aah! I have not heard about it... However, I think ICM ....set standards for midwives ... Maybe professionalism ...like ... Conducting daily duties as midwives ......maybe check ...Professional ethics, dress codes ... if... competent enough or have enough information during practice...’ [Mari]

The incidences associated with learning about the ICM and the teaching methods used may have contributed to whether or not the information was learnt and recalled by individuals. Students were introduced to the ICM information early in their training, but for some the functions were only understood when the students were preparing for assessments. The use of past examination questions was suggested as a way of helping students to remember the topic area.

‘Maybe during revision when we saw a question about it in a past examination paper ... we were told that this is umbrella board which controls midwives worldwide and under the board, there are some bodies like here in Zimbabwe we have ... ZICOM which falls under ICM [Kate].

Hence, there is variation in knowledge of the ICM for participants in this study.

6.3.2 Newly qualified midwives’ perception associated with ICM

The newly qualified midwives in Zimbabwe revealed three distinct areas of their perceptions associated with ICM; perceptions towards the role of ICM core competencies, perceptions towards midwifery skill development and defining competence. The ICM core competencies were viewed in the context of competences in general and then in the context of midwifery.

6.3.2.1 Newly qualified midwives perception towards the role of ICM Core competencies

A variety of views towards ICM core competencies were expressed by participants. Overall, the participants perceived the ICM core competencies to be country-specific and culturally sensitive, though they allow for midwifery skill to be recognised globally. These competencies are also used to develop and regulate midwifery practice. It was believed that these competencies reflect midwifery scope of practice and theory, ultimately defining who midwives are. Participants understood the importance of a safe practitioner to provide clients with a secure environment. The training based on the ICM competencies was believed to provide reassurance to clients of the adequacy of those trained.
The participants felt that the ICM core competencies give the midwifery profession an assuring uniformity of its members globally, as revealed by Claudia’s following statement.

‘I think it’s a good thing to have ICM core competencies because we will have a uniform outcome where ever mothers get pregnant and give birth... Irrespective of whether is a rural setup or urban setup it’s in SA or Zimbabwe... The outcome should be the best...I think that’s an effort in trying to make sure that the best care is rendered to the clients ...’ [Claudia]

Professional associations determine standards of practice and provide regulation and licensing of the profession (Hoxmeier and Lenk, 2003). Florence perceived that consistent high quality care is essential, hence the importance of the ICM core competencies as she revealed in here following statement.

‘I think ... Because midwives need to be competent ... They should know what makes them competent and ... They will be able to do uniform things when they learn similar things when they nurse a patient with a similar condition not that one midwife is competent in this aspect and the other midwife is not able to do it ...’ [Florence]

Participants were aware of the global impact of competence, such as reducing maternal mortality and morbidity through the adequate training of midwives, as Grace reveals in the following quote.

‘I think... ICM competences are important.... They are essential for me... these they are the core business for a midwife like what I said before they help ... to reduce maternal mortality and morbidity rate ... To have a healthy nation ...I think if a midwife is competent after receiving adequate training ... Can easily identify a problem ... Safely treat complications ... Conduct a safe delivery.’ [Grace]

The participants also felt that the purpose of the midwifery training programme indirectly fulfils the reproductive rights of women to safe maternity care services through provision of adequately trained midwives who can offer quality care.

‘It provides a sense of security...I know with a qualified midwife I have the right to access ...that is proper to feel comfortable that there are competent midwives ...taking care of me and ... my right....... to be assisted ....safe hands ...having a qualified midwife properly trained ..........putting ....surety for quality care.’ [Susan]

6.3.2.2 Newly qualified midwives’ perception towards defining Competences

The concept of competence meant different things to different individuals in this study. Participants defined competence from both a broad perspective and the midwifery perspective; both definitions had distinct approaches. Based on these findings, it could be
concluded that competence is a complex and controversial issue that defies a neat definition both as a broad concept and midwifery context. From a broad perspective the midwives defined competence as a belief system and a dependent concept. While in the midwifery context it was defined as the expectation of the profession, attitude and affect of individuals and multi-dimensional, including the curriculum, the subject matter, placement area, the aim of the program, the environment, the client and the care provider interplay.

6.3.2.2.1 Defining Midwifery from a broad perspective

Defining competence as a belief system
The participants indicated that competence is measurable and could be classified, with competence being measured through a level of performance indicating the attitudes, knowledge, and skills necessary for a profession. Therefore, based on the level of performance against set standards, it is possible to define an individual’s level of competence and label the individual as either competent or not competent. Competence appeared to be defined depending on the individual perceptions and self-belief in their ability. This ability can be determined by the knowledge, understanding, confidence; values collectively influencing how the individual can perceive themselves about the task at hand.

Based on the findings, indicating the individuals element of self-evaluation, it could be deduced that being competent is closely associated with self-confidence, professional growth and self-motivation. A feeling of being able seems an internal force which will drive the individual to seek help as they recognise their deficits. It appears from the findings that it could be concluded that the definition of competence and belief are sensitive to environmental factors, learning and perception.

‘If I can add on competence definition... What I have seen is that you cannot end just being certified in that field ...to be called a competent person. I also believe that partly competence comes from a person ... within... that she can say ... on her own, I think I am now competent in this area, so I believe that if there are some areas I feel that in these areas I am not competent... ’ [Mercy]

Defining competence as a dependent concept
Participants understood that the ICM core competencies define what competence in midwifery is; in particular competence is associated with skill development. The study revealed that the concepts of comparator and evaluator act as drivers of competence and confidence development. Students compared their current ability with the position they would ideally be in, in the future.
‘When I started training I was not able to care for pregnant women... Right now after completion I can say that I am capable of booking a mother even conducting a delivery, though I am still yet to polish up.’ [Grace]

6.3.2.2 Defining competence from a midwifery perspective

Defining midwifery competency as a multidimensional concept
Some newly qualified midwives defined competence as a multifaceted construct encompassing specific components related to the attributes of the midwifery curriculum and the differing activities of the profession.

‘Competence is what the midwife must do give antenatal care to pregnant mothers and labour care from onset of labour. Care for mothers after delivery in the post-partum within 6/12 ...Antenatal care ... Labour care and postnatal assessment. Even the theory covered in the junior block, senior block, revision, and state final examination. ...The midwife should go through and pass to be called a midwife...as defined by the ICM as the governing body of the profession’ [Jani]

Defining midwifery competency as an affect
Competence development could also be considered from an emotional point of view revealing the individual ‘self’ embedded in it. The individual comprises mind and body which is very difficult to separate, hence feelings, emotions, perceptions and knowledge can determine how one felt about their abilities. Midwives described how they felt and viewed their overall performance of procedural skills, as discussed by Susan.

‘Yes ...I feel empowered ....like I feel that I know.... how to deal with a pregnant woman.... to identify complications ... I know that I have acquired the competences I feel it’s in me that I am now a midwife...' [Susan]

Defining midwifery competency as an expectation
Being competent in the midwifery context has been described by some students as the evaluation of one’s personal abilities in relation to the job one is doing, identifying problem-solving solutions within the working environment. The competence definition appears to include the concept of self where individuals are defining the concept in comparison to given standards which a competent midwife should attain. Students related competence to the individual domains they were expected to master during training, as revealed by Kumbirai in the following statement.

‘A competent midwife is one....who can identify complications.... manage a mother ... antepartum care ...Intra-partum care...Post- partum... the ... baby ... soon after delivery ... antenatal booking ... subsequent visit ... the first stage of labour ...Second stage of labour...The third stage of labour ...Complications that may arise... Post-natal.... care for the woman and the baby ... Offer health ... education to the mother. Teach ... Mothers where ... Lacks ... example cord care...’ [Kumbirai]
Defining midwifery competency as an attitude

Individuals’ attitudes influenced their views of competence, either positively or negatively. Being positive can be viewed as being satisfied that one is competent and being negative may be viewed as expressing dissatisfaction towards one’s competence. The concept of attitude appears to be associated with the individual ‘self,’ the interactive environment and the characteristics of the student. Based on the findings it can be deduced that students’ attitudes towards learning can interfere with competence development. As Grace revealed in her quote

‘These are competences I suppose... made to be acquired... and you might not be able to acquire them all ... and after training ...you should be attached to those areas to keep on improving the skills of the job you are trained for... but I don’t know if there is need to push the student too hard for the student to acquire them. They will eventually get them anyway... ’[Jani].

Overall, despite some similarity of view about competence, a consensus definition was not reached by participants, indicating the complexity of the concept.

6.3.3 Summary of emerged findings on being socialised into the midwifery profession

In summary, the key emerging theme was ‘Being Socialised into the Profession’. This main category was supported by two subcategories ‘Awareness of the professional association’ and ‘Newly qualified midwives’ perception associated with ICM’.

Socialisation into the profession allowed students to understand the profession and aspects of the role of the ICM. Newly qualified midwives in Zimbabwe revealed three levels of knowledge about their professional association. The subcategory ‘Awareness of the professional association’ demonstrated that knowledge of the ICM was on a continuum from sound knowledge to limited knowledge.

The second subcategory which emerged was ‘Newly qualified midwives’ perception associated with ICM’ revealed views on the value of ICM core competencies. The newly qualified midwives were found to have three central perceptions: perception towards the role of ICM core competence, perception towards the development of ICM core competencies, and perceptions towards the definition of competence in general and related to midwifery. Hence, students in this study believe that ICM core competence development is progressive, hard work and interactive as it needs support, guidance, evaluation and constructive feedback for one to be seen to be progressing along the competence development continuum. Finally, the newly qualified midwives described their understanding of competence as consisting of several dimensions; including a belief
system, an affect, an attitude, expectation, and as a multidimensional and dependent concept.
6.4 The second main category: Student typology
The second main category ‘student typology’ and its two subcategories ‘contextualising learners’ and ‘student learning characteristics’ emerged when the students were describing their reasons for enrolling into the midwifery programme and their approach towards learning. The composition of learners related to their working experience and status before enrolling in midwifery, including age, gender, previous work experience and status. ‘Students’ learning characteristics related to their approach towards learning (Figure 6.2).

Figure 6-2 Student typology
6.4.1 Contextualising learners

Age, gender and previous work experience had an impact on student learning experience.

**Previous work status and working experience before enrolling for training**

As adults, the participants brought different backgrounds and experiences into the training programme. A number of participants had held positions of authority prior to commencement of the course. This was not always acknowledged by supervisors, causing dissonance in the teaching environment.

One ward supervisor revealed some of the behaviours associated with previous working experience, especially by those who had worked in a maternity ward previously.

‘*Those who want signatures only... they have that mentality that I know everything because I was working in maternity ...before ....yet they forget they were just helping out because they did not have the knowledge on how to do the procedures and why they were doing it... When you assess them ...you find out they need more time... have difficulties in performing their tasks...’* [WSJSB1]

These same supervisors also complained of problematic students who were not ‘hands on’ at their work place and not motivated to participate in activities associated with acquiring the skills. Students from the uniformed forces were forced to be in midwifery training to facilitate their promotion at work. It was believed that undertaking the course merely for career progression resulted in difficulties, as revealed by one of the clinical instructors, CIGA1:

‘*Usually the problem comes with those who just want post-basic [qualification] for promotion ...not they want to do it... they are forced... like in ZRP and ZDF... to change rank...hands on know nothing ...but it will be difficult to cope with the program ... but no choice.’* [CIGA1]

The problem posed by ZRP and ZDF was also echoed by their peers, as reflected in the following statement by Jani.

‘*Some of the students are problematic, especially those who just want the certificate to climb the ladder at their work place, the schools should have a selection criteria so that they chose those who would practice midwifery. After qualifications, for example, someone working in the office with ZRP or ZDF what do they want midwifery for? Instead of being problematic as they refuse to work and wait for examinations.’* [Jani].

**Age**

Age also appeared to be an issue, with older students finding it difficult to take advice from younger supervisors.
‘One of the problems which I have noticed... most of my clinical instructors are young ...most of students ... come for training are older ...this age difference make some the students uncomfortable. Being supervised by someone younger than you... most are already promoted are sister in charge and others matrons...’ [TCT1]

In Zimbabwe it is believed that there is a natural progression in thinking with age and experience. Hence, age is likened to wisdom and maturity. The clinical instructors appeared to determine a ‘cut off’ of 30 years, below which students were categorised as ‘younger’ and those above categorised as ‘older’. Assumptions were drawn about some of the students based on their age grouping.

‘Laziness usually is one of their problems of the older ones who do not care. The lazy ones they do not care what is happening in the ward, they do not participate in procedures meant to develop their skills. Like nowadays some of the students who come for midwifery training some of them are still young seem not to care about whatever happens to them they face it usually those below 30 years 25, 26 or23...’ [CIGAI]

Older students were generally considered to learn at a slower pace and were therefore considered more problematic for supervisors; hence they were often classified as ‘lazy’.

**Gender of student**

The findings from this study indicate that gender seems to influence the student-teacher relationships and access to learning. Male students appeared to suffer discrimination from the facilitators as they were irritated by their inquisitive and questioning nature. Asking too many questions was perceived to be disrespectful among the clinical instructors. This created uncertainty among students as to when and to what extent they should engage their facilitators in dialogue. Newly qualified male midwife Chelesi states.

‘I think students have to interact with the clinical instructors to benefit ... could not approach them I had a fear of victimisation ..... The clinical instructors would say ‘this one is a problem ... think they know too much’. Heard stories before that here at [name of hospital] if keep on asking question you be victimised... silly questions .....Many questions ...especially a male.’ [Chelesi]

**6.4.2 Students’ learning characteristics**

**6.5.2.1 Learning speed**

Findings from this study revealed that two distinct type of learners could be found among midwifery students in Zimbabwe; these were categorised as fast learners and slow learners. Interestingly the two different types of learners were found to complement each other in the competence development process and facilitate peer support. The faster learners contributed to the slow learners’ skill acquisition and development process. As revealed in the following quotes by Tariro and Kudakwashe respectively.

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‘Supervisors should take each student as they are ... Some are fast learners ... and some slow learners.’ [Tariro]

As students we had realised that there were fast and slow learners and we had accepted that those who are fast learners will assist the slow learners...We had also agreed that those who would go it fast in the clinical area and class would pull the slow learners with them until they also get it correctly ... It was working very well ...as those who mastered procedures faster showed others how to do it ...’ [Kudakwashe]

Slow learners
Slow learners required several repeated contacts with new procedures for meaningful learning to take place. This takes time and appears to be a problem for the facilitators as it requires tolerance. The slow learners needed both visual and verbal instructions at the same time. Clinical instructors were aware of this type of learner.

‘The problem is you can demonstrate ... And ask for a return demonstration you can be actual back to zero then you wonder and she will tell you that ‘I was there sister it’s only that I am forgetting sister’ you take her again ... You have to talk and talk and talk...however, she later improved with one on one interactions ... Unlike in group demonstration and return demonstrations they were not learning anything’ [CIGA1]

As a result of the frustration of the clinical facilitators the slower learners would lose self-confidence and withdraw from the process.

‘I had one who took long to grasp procedures ... She had many challenges because she would give an excuse in everything as to avoid you to do any procedure with her... Be it an assessment... Anything and at first I thought it was meal one, but we found ... She would say to say ‘I’m not ready’ to everyone...’ [CIWAI]

Clinical instructors used similar teaching methods of group demonstrations. This allowed them to provide a demonstration to a larger number of students, but some students felt this was unsuitable for their learning needs. Mary viewed the group demonstration teaching method used by clinical instructors as not catering for all students’ learning styles.

‘They... would come for group demonstrations and do it faster and you do not see or not learn anything or .... Supervising you as a group and do group return demonstrations only one person doing the procedure whilst the rest are watching clinical instructors are fewer than students 10 clinical instructors out of 50 or 60 students these contacts are not beneficial to students.’ [Mari]

Patience is crucial in supporting gradual learners to acquire skills and gain confidence. It appeared that these learners needed extra time to develop their skills and pass assessments. Whilst supervisors could become frustrated with such students, the student group
themselves would provide peer support aimed at enabling slower learners to gain competence and confidence in their skills.

‘I was slow to catch up. My colleagues were so patient... They also wanted me to pass.... Colleagues they would take turns to make sure I am well supported even if I would fail my assessments the colleagues would take it upon themselves to make sure I work and master on the area posing problems... Had it not been of my colleagues I will have left this place with nothing.’ [Kudakwashe]

**Fast learners**

Faster learning is associated with the ability to grasp and master the skills within a short period of time. Such learners were more likely to seek out opportunities for learning from the clinical instructors. This allowed them to gain more exposure to procedures and increased opportunities to practise. These students were viewed as easier to teach and helped them to build favourable relationships with supervisors. This enabled students to gain favour and receive more support from the facilitators. These facilitators, in turn, would call for these students’ support in crisis management.

‘We treat all students equally... though you tend to incline to those who are forth coming and quickly grasp their stuff because of its less work ... fast learners ... can be used as a pair of hands in crisis.’[WSJSC1]

Consequently, students who were faster learners were often afforded more opportunities to develop and therefore could gain competence and confidence more quickly than their counterparts.

**6.5.2.2 Learning orientations**

**Individual-oriented learners**

A number of participants preferred to work alone in developing their skills. Participants identified such individuals as having specific characteristics and behaviours and was particularly associated with females and high self-esteem. It was also related to poor help-seeking behaviour as it appeared as if getting help from others threatened the individual’s integrity. Tsitsi states.

‘There were those people who were not cooperative and did not want to work with others.... Usually, such people will show pride after failing they will say ‘I just did a small mistake’. However, as colleagues, we will see the stress they will be trying to hide and help them, and they will take it. They were also rude in such a way that if they are doing an abdominal palpation wrongly and you try to correct them, before failing, they will say ‘that is the way I do it’.’ [Tsitsi]

The desire to work as an individual made these students appear uncooperative and difficult to interact with. They were also more rigid in their thinking and failed to take
advice on
board. Peers were not tolerant of their difficult colleagues and viewed them negatively, as revealed by Blessed in his following statement.

‘I had already done my own assessment ... seen that she was not listening or practising correctly as she worked alone and I had developed a negative attitude towards her. Everything she did I will not see it positively and I would not trust her ... you talk to her on a procedure she has done wrong she can support the wrong way and will justify it and would also ask for a justification why it can’t be done ... that way it was irritating ... Makes people angry as it becomes very difficult to correct such a person.’ [Blessed].

In addition, individual oriented learners were revealed to be the ones who faced greater relationship building and learning challenges, as said by Kudzi in the following statement.

‘Those who do not work with others they face many challenges ... Ended up failing ... had a hard time because everything was upside down...not practising with others she was too confident for nothing, and she was also rude in such a way that if you try to correct her ... she will put you off and ... say that’s how I do it ... They were not able to work well with others’ [Kudzi]

As a result, individual oriented learners missed out on peer support from their colleagues, who viewed them negatively, and faced relationship building and skill acquisition and development problems.

**Group-oriented learners**

Others preferred learning in a group, finding support in this. These participants revealed that competence development is both an individual and group effort as peer support is needed to facilitate individual growth and autonomy in the process. This is discussed by Susan in her following statement.

‘Learning together as a group assisting each other ... knows the right thing ...trying to do it the proper way... You give the patient instructions of what is expected .....You know to give your assistant instructions on like to say to give oxytocin ....a sterile procedure and maybe you are still gloved .......after the delivery of the baby.’ [Susan]

Group oriented students were perceived to be patient and committed to peer support and helping each other, as revealed in the following statements by Florence.

‘They won’t leave you until you get it. Even though sometimes it might become very difficult for this other person....you will realise that ... There is someone who is able and is good who will put things in a way you will understand so I don’t know if one will ever find themselves in a situation where they cannot do it despite everyone trying to help them.’ [Florence]

...
6.4.3 Summary of emerged learner typology results

The category of student typology is supported by two subcategories; student composition and student learning characteristics. Student composition identified the nature of students enrolling in midwifery of education, revealing the students as individuals, combining bio-psychosocial elements. The bio-psychosocial nature of the individuals determined their perception, attitude and behaviour towards learning. The second category: Students’ learning characteristics revealed learning speed, orientation to learning, perception towards learning competencies and experiences with the skill development process. These include acquiring and processing information and acquiring and refining skills including experience with relationship building, supervision, feedback and evaluation and the role of the environment, facilitator and student characteristics play on these experiences were revealed. Finally, the chapter revealed that the student characteristics could be grouped into biological characteristics, which incorporated the composition of learners, the biological makeup of the students, relationship building and related support needs and the sociological aspect of the learner. The student experiences with learning revealed the psychological nature of the individual learner and their learning orientations and experiences.
6.5 The third main category: Finding a place in the midwifery profession

The third main category ‘finding a place in the midwifery profession’ had two subcategories ‘learning environment characteristics’ and ‘learning midwifery skills’ (Figure 6.3). The process the students went through to find their place in the profession depended on the characteristics of their learning environment, particularly those that required the students to find ways of getting around problems introduced by issues arising from the environment, together with their skill acquisition and development which include theory, skill acquisition and students’ experiences with relationship building, supervision, evaluation and feedback.

Figure 6-3 Finding a place in the profession

6.5.1 Learning environment characteristics

6.5.1.1 Training Standards and Institutional Administrative policies

The learning environment refers to the different physical settings and cultures in which students learn; this includes how the individuals interact with and treat one another. The related qualities and characteristics associated with a learning environment can
reveal a
wide variety of factors about learning outcomes and students held different views depending on their training institution. Blessing states the following about School C

“They usually, say midwifery here at School C is very difficult you really work for your diploma ... Clinical instructors are very harsh and tough.’ [Blessing]

Participants who trained at School B of Midwifery had a different perception of their training environment.

“Most of the people from out there they love to train at school A because you know that you do not have much pressure during the year until you reach state final examinations ... here you know that you do not fail hospital examinations you can do your redoes with the school here and there in theory because you have to get it correct... its stressing but you will cope, it’s cool you just have to read and know your stuff and you ... you are done…” [Miriam]

There was a difference between the institutions in the implementation of training regulations. Some of this related to the booking of assessments. At school A students were able to book assessments in advance, which gave them time to plan for them.

“Here at school A, we book the assessment. Discuss on the prerequisites, either a day before the assessment or in the morning of doing the assessment. ... and you can actually dump the allocated assessor if you don’t want and do the assessment, before the one, you are booked with knows’ ...[Jani]

Students at school C were not able to book assessments in advance and felt disadvantaged by this. They were aware of the high standards required by the institution, but were disheartened by the culture which made it likely that they would fail an assessment.

“At school C we get it tough, I don’t know.... Some students from other schools they tell us that what is happening here does not happen at their institutions. No one fails assessments ...Here at school C almost everyone fails, you might find only four or five would pass on the first attempt ... may they want to produce quality midwives, I don’t know, but it’s hard for you to pass the assessments here ... Moreover, some of our colleagues from the other hospitals tell us they book assessments, us here we don’t book, but we are spotted as long as on duty you anticipate them and is very stressful.’ [Chelesi]

In contrast to school C, where the focus was on the quality of students, the institution at school A appeared to have a policy of ensuring students would pass assessments. The clinical instructor at school A revealed the following impact on institutional policy has on midwifery skills.

“When we do assessments students are not able to perform well they do not know what they are doing they do not reflect what is signed for by the ward sisters who do most of the follow-ups with them ... now it is difficult to fail them fail them the
rule here is no one fails, so you make up a 50% or more or even make it a follow up
that is what is happening with assessment here assessment ... students are not even able to perform deliveries. ... Until they qualify. ... At the end of the day, you just leave them, but you will make sure you talk to your students.' [CIGA2]

A particular area of conflict related to the 24 hour signature policy. This policy required that skills were signed off within 24 hours of completion. Some clinical instructors were rigorous in their interpretation of this policy.

‘You have to be strict ... when I know about them, (procedures are done by students, ward supervisor, and signed for after 24 hours). I will just nullify them the signature is only accepted if it is given within ... 24 hours of supervising and giving the student feedback about their performance when the memory is still fresh. Moreover, anything beyond that is not acceptable they just have to follow the stipulated regulations.’ [CIGCI]

This impacted on students, who sometimes found it difficult to obtain signatures within the requisite time period. They were also concerned that the failure of a supervisor to sign for a procedure may affect the way in which they are perceived by the clinical supervisors.

‘The ward sister might give you a hard time when they refuse to sign the procedures, or they go away for more than 24 hours without signing for them. Then if you had entered those procedures in your practical book, it becomes a problem... Clinical instructor might come the following day and ... See your practical books ... Ask why are these procedures not signed for and it appears as if the student is just entering procedures not done by them. .... The sister gives a signature which is not clear, the clinical instructor nullifies it... Those who were the challenges that a student or some of us would face... but not all sisters refused to sign and some would feel for you and sign without seeing the procedures... if you are lucky [Kudzi]’

However, other supervisors were less strict in their interpretation of the policy. This difference was evident between the two institutions with supervisors at School A training institution implementing the policy more leniently.

‘We always tell them that the student should do the right thing but when the sisters give their signatures ... Here at School A, there is no hard and fast rule on the time frame only to say you should sign for the student when you still remember how the procedure went on and mostly within 24 hours ... Should give the student feedback on areas they need to work on and the area they did well and actually enter it in the comments, but usually, you find there is a meaningless comment if it’s ever there and the procedure can be signed for after three weeks, and it is accepted... Even the clinical instructors when they do assessments it go for the whole week without before finishing the assessments for there is no respect for training regulations.’ [TAT2]

Other institutional policies could have an impact on the culture of the clinical area. One of these such policies was the ‘rotation policy’. This determined that midwives were moved between clinical ward settings. This resulted in experienced midwives being moved from
one setting, where they are skilled, to another area which they are less familiar with. Hence they were not always in a position to teach skills to students, which could impact negatively on a student who is expecting a skilled and experienced mentor. The clinical instructors appreciated the rotation of midwives within the hospital as facilitating their professional development and growth. However, they were concerned with the quality of support and guidance offered to the students in the areas affected as well as the quality of care offered to the mothers and their babies. There were concerns that the policy did not take into account the learning needs of the students, as revealed in the following quote by Florence.

‘To rotate midwives within the maternity department ... I think it should happen after 2 years or so of working in one...if one want to move out ... There is no need to change everyone at the same time ... It is good to leave some with the expertise. To remove a small number maybe who have experience ... The skills in the area for the benefit of those who are coming as they also be learning ... Students as well since this is a training institution those are some of the things which should considered when making a change list or even experts in their area.’ [Florence]

Besides policies, other institutional factors can determine the running of training activities in which the school is situated; for example, the culture of the area and the way in which the facilitators planned and organised their clinical settings. Academic dishonesty was evident among both the facilitators and the students creating an environment where there is no respect for standards, violating practice ethics. The concern is that this problem will become endemic, affecting the entire academic and the clinical area staff, leaving the student with little choice but to join the trend. Newly qualified midwives from School A revealed that students believe that clinical skills can be paid for and one can qualify without being involved in all the activities required for acquiring and mastering the skill in a specific area. In certain areas, it appeared there was a culture of facilitators soliciting for bribery.

‘Because here at School A there is no respect for standards ... The student tells the qualified midwife that I have done a delivery there can you sign for me ... Nobody will have supervised that student on the task he or she have carried out and being signed for. The students pay bribes and get signatures, and it’s a common practice here at [name of school] among both some clinical instructor’s tutors and ward supervisors .... The student can pay up to $100....You could actually hear students bragging about it.....Moreover, we are not allowed to fail any one... they get away with it ’. [CIGA1]

Others spoke of the potential consequences of this.

‘Myself I would not talk of being involved in paying of bribes because I was not involved but I know those who are doing it .... That’s why you see most of those
midwives trained here are not confident, they suffer after qualifying...they don’t know what they are doing, they are not competent, they have no confidence at all...it is an open secret.’ [Blessing]

Less overt methods of favouritism were also evident in the units. It was apparent in this study that economic hardships existed, and certain staff supplemented their income by selling items to staff and students. Some believed this impacted on midwife-student relationships, as revealed by the clinical instructor CIGA1.

‘I don’t think the selling is actually supposed to be there ... I don’t know it’s due to the economic hardships... I think one could actually sell without the favouritism but sometimes I see it happening ... You find out that it is during this time of buy and sell ... that’s when these close relationships began... When you make friendship with the student you start sharing even your social life ... When you want to assess that student, you will have that aspect of friendship ... Can actually give them marks they do not deserve?’ [CIGA1]

Participating in this activity appeared to afford an advantage to some students, if only as a result of the building of favourable relationships with supervisors. However, some felt male students were disadvantaged by the type of items on sale as they favoured females.

‘Clinical instructors should stop selling goods to students .... Brings favouritism, were selling things for the ladies only .... This clinical instructor phoned me ... I might be assessed tomorrow yet others .... Two weeks of labour ward attachment ... can be assessed any time .... As long as on duty... That makes me think there was favouritism going on if you buy their items KKKKK’ [Stella]

These findings indicate that the differing approaches to assessment and implementation, along with elements of the culture of the individual institutions may impact on the training and potential competence of the midwives produced.

6.5.1. 2 Staffing and equipment issues
The shortage of staff in facilities had the potential to impact on midwifery training standards, worsened by a shortage of resources to support student learning. Midwifery facilitators in Zimbabwe provided examples of scenarios which could compromise the quality of the skills developed in the programme. A key aspect of this was staff shortages. Ward supervisors and clinical instructors were aware of this shortfall and the potential impact on students. A ward supervisor and a clinical instructor make the following points.

‘Sometimes when it’s busy ... when doing a VE with the student ... you can be called for a delivery or something else and ...... you leave the student and say continue ... and then you go to attend something else’ [WSJSCI]
‘Students also complain that the supervisions in the unit do not prepare them adequately for the assessment... They need thorough supervision from the school which prepares them adequately for the procedures...’ [CIGCI]

Not only were students aware of the issues in staffing, they invested trust in individuals with whom they worked so they would comply with direction, as revealed by clinical instructor CIWCI.

‘The student will just tell you... The sister said I should go ahead so I... Complied with what the sister...who said I should examine without her presence...’ [CIWCI]

Even when students were aware that what they are doing was contrary to training standards, they found themselves with no choice in such an environment. This risks both professional and ethical standards in practice. Participants, such as newly qualified midwife Susan, suggested the quality of skills could diminish if the environment does not promote their development. For example, supervisors may take short cuts in clinical procedures to save time, however this may result in substandard quality skills being passed down to students.

‘Area is busy and supervisors are few...at times doing the procedures wrongly. In the clinical area there is a lot of short cuts in doing procedures to make things move fast...say which you end up joining and this makes it difficult for us to gain the correct skills. At times the ward sisters will supervise you and acknowledge those short cuts...’ [Susan]

There were also shortages of resources, such as packs for procedures, and this could impact on the quality of skills taught. Clinical instructors tended to have access to equipment and to therefore demonstrate the correct way to complete procedures. However, wards were often lacking in such resources, hence students were being shown other methods which may not be to the standard expected by the clinical supervisors or the institution. Students were aware of these differences, as noted in the following statement by Tsitsi.

‘I have noticed that the clinical instructors’ skills are more refined than of the ward supervisors because I think mostly they are doing the procedures correctly with adequate resources it is very rare to improvise if ever they will do it. With sisters in the wards they go through a lot...you find each group of people show skill deficits related to the shortages which were there during their time and most of the time they are not aware of it. Us students we pick it up since we are supervised by all of them.’ [Tsitsi]

Ward supervisors were aware of the difficulties in sourcing equipment and the potential impact on students. One supervisor discussed how her role was to rectify this, but issues outside of her control, such as the wider economic environment, prevented this.

‘One of our duties is to source resources...and correct the way procedure are done in the wards by other staff. We discuss student learning problems in the clinical
6.5.2 Learning midwifery skills: Acquiring and developing skills process

The findings highlighted that acquiring and developing skills is a process which involves three key phases; the first phase of acquiring the skills which takes place in the classroom and skills laboratory, the second phase of transferring the skills from theory to practice and the third and last phase is actualisation which takes place in the clinical area. However, it has emerged relationship building, supervision, evaluation and feedback are inherent in acquiring and developing skills process. Within each phase, a number of recognisable stages can be identified. These are: initialisation, acclimatisation, transition, resolution, familiarisation and naturalisation.

The newly qualified midwives themselves indicated that they saw skill acquisition as an on-going process with recognisable stages; from initial theory acquisition to the embedding of skills in practice, as indicated in the following quote by Kudzi.

‘It like we can say that what we went through was a process involving several stages, the initial stage we are in class get theory... watch demonstration then comes the stage I think where you transfer your theory into skills ...you have to be in a clinical area where you adapt to what is happening then ... go into transition stage, you resolve your deficits with colleagues and clinical instructor then you qualify...That’s when you get to know and become familiar with the common problems in the clinical area ...you know when to consult until it’s in your blood ...you feel it’s part of me.’ [Kudzi]

The findings in this section will discuss experiences of the three phases and six stages of skill acquisition.

6.5.2.1 Acquisition Phase

This phase consists of the initialisation stage.

Stage 1: Initialisation stage

Learning theory is only an initial point in learning and not an end in itself, since the skills needed to develop that theory are acquired in practice. Providing students with understanding of underlying theory before they enter the clinical area creates a common ground and basis of reference for the profession. The theory is seen as related to the integrative teaching to be applied to practice, and the facilitators need to show the students in the clinical area when and how to appropriately use the theory learnt from the classroom. The theory is not only about the procedure, but includes ethical issues related to practice. The clinical environment is ever-changing, and it could be argued that no matter
how effective the teacher is in the classroom, it could never cater for the complexities of the clinical situation. Learning is said to take place through dialogue and attention to nursing practice. A tutor explains the process.

‘My role as a tutor is to initiate the neophyte into the profession. Give them history about midwifery, ICM as Midwifery, midwifery ethics and all theory though. During junior block is to introduce the student to the profession, go with them to the skills laboratory to practice skills, or teach them history taking where I pair them and collect history from each other before they go into the wards. Clinical instructors will take a demonstration on Saturdays when they will be still on the block to prepare them for clinical attachment…’

[TC1]

6.5.2.1.1 Learning of procedural theory

Learning is said to have occurred when an individual has changed their behaviour, attitude and thinking as result of interacting with their environment; this is a process which occurs over time (McEwen, 2014a). Participants revealed two key processes involved in acquiring and developing midwifery competencies; acquiring the theory and acquiring the skills. Both of these processes included acquiring, processing, retaining and recalling information, then expressing what is learnt for both theory and skills. Experience and confidence gained when acquiring and processing information is progressive as revealed by Kudzi.

‘During our first block we were not that confident. We went into the wards, started to practice, gained confidence… It was a process … Being helped by the clinical instructors to do the procedure … Also the sisters in the wards….With my colleagues, we would practice. ’[Kudzi]

Regardless of the level of knowledge students had when they entered training they indicated they understood more of the information as time passed. This progression was acknowledged by the students’ who saw the development and change in their thinking and understanding.

Using knowledge of the ICM as an exemplar, it is clear that this is different at the start of midwifery training:

‘I think it (ICM) was talked about from the beginning. However, the issue of understanding you get to understand more as the course continues…You probably not heard about anything of the sort.’ [Claudia].

Learning, retaining and recalling of information is a process

It appears that student midwives in the study classify information they learn as that which should be remembered when one is in school and out of school. Individuals can relate to information both as an individual and as part of the group and refer to their recalling of
information from both the self and the group perspective. Based on the findings it could be concluded that being in a group with a common agenda can assist the group members to recall some of the past events as they are shared and they can be remembered as such. This could help the group oriented individuals learn. However, sometimes the essence of the information was lost, as noted by Stella.

‘Ummm I have forgotten a lot of it but usually, when we are at school we know all of these things but now ah just now I can’t remember.’ [Stella]

**Information retrieval process**

Findings from the study indicated that when asked a knowledge probing question individuals appeared to go through an information retrieval process comprising of interpretation of the question, searching the memory, recalling, retrieving stored information and presentation. When participants were asked what they knew about the ICM most of them did not respond immediately to the question, they appeared to be going through a thought process, explaining a series of events taking place, before they responded to the question; this was labelled as ‘stages of retrieving information’ as described below.

**First stage: Interpreting the question**

The initial stage was associated with interpreting the question and activating the memory to recall the information required to answer the question. The initial stage was observed to end with the individual considering whether or not the information required had been stored in her memory. It was noted, for example, that when asked to present information on what she knew about the ICM, Blessing verbalised the phrase ‘Ummm, about ICM’ and this was assumed to mean that she was preparing to identify information related to the ICM from memory.

‘....Ummm about ICM... I just read something about it [ICM] in passing, and I do not know much ... ’ [Blessing]

**Second stage: Searching the memory**

During this second stage, the individual appeared to be going through all the knowledge they had and seemed to recall all information about ICM stored in their memory for retrieval. During this process, it was observed that Susan face reflected that she was thinking deeply whilst searching for information. The process ended with the individual verbalising the ICM information found and ideal to address the question. Stella verbalised that her knowledge of the ICM was created through reading information about ICM and
the impact of the methods they used to learn about the ICM. Based on the findings it can be deduced that timing, context and individual effort in learning information are important in determining the quality of information recall and retrieved when activated.

I think it was the first day when we started training ... there were the highlights that what midwifery is...ethics in midwifery as outlined by ICM. It’s quite a lot; it’s only that it running out it was too much ... I cannot remember much ... I know ...they represent issues of the midwives ... [Stella]

Third stage: Analysis and evaluation

The third stage appeared to involve analysis and evaluation of the recalled information. Having recalled information, the participant appeared to analyse and evaluate the information in order to respond to the question appropriately. The assumption that Blessing was analysing and evaluating the information recalled and retrieved was when she said the following words ‘Ummm’. This sound indicated that she was looking at something and evaluating whether the information found could answer the question. This marked the end of the analysis and evaluation stage. It appeared that time spent on simulating the information also determines how much the individual will recall. Tariro revealed that when individuals read or hear information they store it in their memory and then retrieve it when needed.

‘I heard about it....what can I say...Ummm... Can’t remember much...Ummm it was given during our last time... Difficult to capture everything.’ [Tariro]

Uncertain, students may hesitate due to a lack of confidence in their knowledge or alternatively, present all the information they know on the topic even if it does not relate to the focus on the question. Some students would also use devices such as humour, to deflect the situation. Miriam demonstrates her uncertainty in the following quote.

‘Kkkkk ... ICM core competence! Ummm, let me try maybe you have to be competent in admissions, examination of the pregnant woman during the antenatal period during the post-natal period ...Also, an initial examination of the new-born and have to do the episiotomies and.’ [Miriam]

Fourth stage: Presenting their knowledge status.

During the fourth stage, it was observed that ‘two forces’ competed; ‘the force of knowing’ and ‘the force of not knowing’. These forces determined the degree to which the retrieved information addressed the question posed by the inquirer. The degree of recall determines the information to be retrieved, and such behaviour appeared to reflect the dominating force at that particular moment. However, it has been observed that if the individual is
overwhelmed, the force of knowing is suppressed and the force of not knowing dominates. However, those who can quickly recover from stress and suppress the force of ‘not knowing’ will reflect the two responses concurrently, during which the first feeling to be expressed is that of uncertainty where the participant doubted their ability to provide the correct information. However, this feeling of ambivalence was short lived as the individual announced their final position of expressing what they thought they knew about ICM. As revealed by Mari in her following expression.

‘Represents midwives internationally…I think also assess training curriculum. If meet international midwifery standards as they conduct their duties...Aah! ICM aah! Have not heard about it.....However, I think....set standards for midwives ...... Maybe professionalism ...like ... Conducting daily duties as midwives .......maybe check ...Professional ethics, dress codes ... if... competent enough ... Enough information... Able to conduct your duties ... educate midwives, discipline and represent midwives. Enough information...Able to conduct your duties educates midwives, discipline and represents midwives...’ [Mari]

How individuals relate to themselves and to the subject of discussion may impact on how those around them will respond to them and the impact it has on subsequent relationships. As a result, the majority of participants expressed their knowledge status prior to their response. Those confident in their knowledge used phrases like ‘I know’; ‘What I know’ or ‘I understand. Those doubting their knowledge used the phrases like ‘I am not sure’ or ‘not really; sure’. Those who did not know the answer used phrases such as, ‘I think’ and ‘I do not know’. By using this technique the student could indicate their level of confidence in the answer they were about to give. It has been noted that an individual can present the same information in different facets, for example, Susan demonstrates her lack of confidence in her answer.

‘ICM... umm not really sure, but I think I know something about it ...an association at a global level which oversees midwifery associations in many countries and has to do with issues to do with midwives. The ICM oversees these associations and supports them in problems associated with midwifery, practice and training and disseminate midwifery related research. I do not know but is the one to do with midwifery oversees. ...all these associations either send their problems new research and... Receive solutions to these Problems ...to do with midwives...Moreover, ideas, which need attention... ’ [Susan]

Alternatively, Tatenda demonstrates initial definitive knowledge in her understanding of the ICM, but also a level of doubt in some aspects of her knowledge.

‘What I understand is that It’s an organisation of midwives world- wide ... but not really sure of the details ...yet to join the ICM group.... when I went back to work ... a lady ... was actually saying I should ... join... Had not actually got details
about it, Ok since it is an international organisation for midwives ... what I know is that we have been trained according to ICM standards...... Looks at the training of midwives .... and also set standard of training midwives... ’ [Tatenda]

Fifth stage: Addressing the question

During this stage, it was observed that the individual started by exercising confidence as they gave the inquirer information they believed to be correct in addressing the question and continue until they reach a point where information flow starts dwindling. In this, the individual often commences by presenting certain knowledge, then discusses the areas they are less confident about, concluding by declaring a lack of knowledge before keeping quiet. If they commenced their discussion by expressing uncertain knowledge, then they were likely to reach the end of their information giving earlier. If they declare ambivalence, the individual can move in between the levels of knowledge until they exhaust the knowledge they have. As revealed in the following statement from Mercy.

’I know... ICM...represents midwives internationally...I think also assess.... training curriculum. If meet international midwifery standards as they conduct their duties .....Aah! ICM aah! Have not heard about it.....However, I think....set standards for midwives ..... Maybe professionalism ...like ... Conducting daily duties as midwives ......maybe check ...Professional ethics, dress codes ... if... competent enough ... Enough information... Able to conduct your duties ... educate midwives, discipline and represent midwives enough information...Able to conduct your duties educates midwives, discipline and represents midwives...Ah! cant’ remember all’ [Mari]

This process of stages, as described above, relates to the student’s ability to recall and present previously learned information. In this case, the discussion focused on role of the ICM, on which some students had varying levels of knowledge. However, it is posited that students use the same methods in recalling, determining and presenting their knowledge in practice.

6.5.2.1.2 Phase 2: Transferring the skills phase

This phase consists of four stages (acclimatisation, transition, resolution and familiarisation) which involves correlating theory and practice.

Transferring of skills is a process which starts with imitation during the acclimatisation stage and continues to refinement, culminating with familiarisation of the skill. For the student to want to initiate the imitation process they need to be aware of the meaning of the process of skill acquisition and development. As revealed by Tatenda in her following quote.
‘Here in the clinical area that’s where, you transfer your knowledge into practice, you imitate others to master the skills…. Know that it’s not a one off thing you have to practice several times to perfect your skill and familiarise with skill … it is a process, it’s on-going.’ [Tatenda]

Role modelling in the clinical area helps in the acquisition of technical skills, allowing students to observe good practice. The preparation for skill acquisition could be either in the skills learning laboratory or ward.

‘We have got skills stations where most skills are practised, and there are a checklist and this skills stations are open to everyone since it is a competence-based education …to attend to neonatal or maternal resuscitation or conducting a breech delivery or vacuum extraction there. We also have a life-saving skills models before they even practice on patients for examples we have suture models we have other models for demonstrating a normal delivery…’. [TAT2]

The role of the facilitator at this stage is to help the students acquire the essential skills for safe practice; this being the benchmark for nursing and midwifery practice according to the rules and regulations in the training curriculum.

**Observational learning**

Role modelling is central to the development of the midwifery professional skills, as it is a powerful method used by students to learn from their mentors or facilitators. The method of observing a skilled individual and modelling behaviour based on this helped students to develop a range of skills. The process requires the learner to be exposed to the procedure; as learners observe what is modelled they create a mental picture of it. Through role modelling, the student learns communication skills and problem-solving skills, as well understanding the caring relationship between the carer and the patient. This practical aspect of caring is one from which the students could learn empathy and understanding of relationship development with patients. Students used particular strategies to acquire skills from their role models; to attain professional behaviours, professional identity and to understand care in clinical practice, through exposure and advancement which occurs in the clinical area as revealed by Blessing in his following quote.

‘Shown how to put the theory into practice ... Observing those who already have the experience on how to do it such as ward sisters and clinical instructors... Show you how to do a delivery ...You watch her doing the procedures learning will take place for example, how she will handle the mother. You will see how she communicates with patients ...And this is not clear in written form but seeing it makes the difference ...Touching patient’s heart that nonverbal communication...the eye language ...you actually see it but reading about it does not make sense...and some of this relationship can only be seen but not written.’ [Blessing]
The experienced clinical facilitators represent a positive role model for students as they work together. Being in the clinical area allows the student feel and see real midwifery practice. There are several methods of imparting these skills and students have their learning preferences; for example where those who learn from observing only and those who would learn through both observation and explanation. Newly qualified Mildred revealed that some student midwives prefer demonstrations where the facilitator both demonstrates and explains procedures.

‘I enjoyed watching those who explain their procedures as they do it making able to relate my theory to what they were doing and learning was actually faster unlike those who would work quietly.’ [Mildred]

It is through the role modelling processes that facilitators reveal clinical skills, and model and articulate expert thought processes, demonstrating obvious positive professional characteristics. As a result, students perceived modelling as a powerful educational strategy, which appeared particularly acceptable to participants. Positive role models are those who demonstrate high standards of clinical competence, good teaching ability and a set of personal attributes which students admired and were motivated to imitate.

‘We would copy, they were role modelling and would identify with the style of doing things which were more interesting and appealing to you. Like you would admire a midwife and would work the way they will do their procedures or manage complications or solve problems. Just tell yourself that I want to be like this one and you start imitating them.’[Gamaliza]

Some students rejected role modelling and disconnected themselves from it. The clear manifestation of the denunciation and inactive refusal of participation highlights the tendency of the student midwives to pick and choose selectively, to consider alternative models, and to view some of the clinical teachers as not realistic role models. In this study effective role modelling seems to be associated with the impact it has on the students’ experience of learning. The students felt that senior midwives are a reservoir of practical knowledge; acting as consultants in the clinical area as they show their expertise in the area of practice. Indeed, students would boycott demonstrations they felt would fail to enhance their knowledge, as highlighted by the newly qualified Susan.

‘Senior midwives, unlike the junior ones, show you the correct way, they have experience and the procedure has become part of them, its automatic; you really enjoy it and get motivated to be like her... They tell you that there is a way the school wants this procedure to be done..... Does the correct way ... pass your examinations...You usually dodge those demonstrations where you feel you are wasting time...I mean those not beneficial... ’ [Susan]
To be an effective role model, supervisors are required to evaluate their impact on their interaction with students. Of concern was that those considered poor role models would not be aware that students would turn down their offers of return demonstrations. Some acting clinical instructors complained that students were shunning them, as revealed in the following quote from CIWAI.

‘Some of them they can ... They show you arrogance that even if you ask ... them how can I help you, do you know what you are supposed to be doing ... So that I will show you what to do ... Others will tell you that I know what I am doing but when it comes to the practical things if you say tell me the stages or ... This procedure ... You will find out that the student doesn’t know anything.’ [CIWAI]

Another issue that could impact on role modelling was when a midwife was moved from one area to another as a result of the rotation policy. In this situation, although experienced, midwives may also be new to an area and are not necessarily familiar with the skills and procedures required in that setting.

There was evidence of discrepancy between roles, with clinical instructors being viewed as poor role models compared to ward supervisors who are regarded as experienced and clinically competent. Some students associated their success with the role modelling by ward supervisors. Hence, the quality of skills a newly qualified midwife displays is determined by those who role modelled for them.

‘Clinical instructors were not of much help ... If I can remember well, the clinical instructor only came once did a demonstration and she never came back... A return demonstration to check whether we are developing the right skills ... Senior midwives did a great job in developing the skills I have now …’ [Chelesi]

This may be due to the fact that ward supervisors practised daily in providing patient care and students felt they had competence, compared to clinical instructors who focussed only on development and assessment of particular skills in isolation.

**Role of reflection in observational learning**

Role modelling is made more powerful and more effective when coupled with guided reflection. Only by encouraging reflection on what has been modelled can one ensure the student has gained understanding. Watching the clinical teacher doing the procedure gives the student time to reflect on the relationship between their knowledge and patient care while they learn its meaning within practice. This reflection time is the ideal time for the student and the clinical teacher to engage in dialogue assisting the student to make sense of
the link between theory and practice. Hence, if the teacher fails to weave in the good student-teacher relationship during this student’s teachable moment, the role modelling might lose its impact. Not only does role modelling allow the student to see how things are being done, it allows self-reflection; hence, observation is a powerful and effective way of teaching clinical skills. Susan describes reflection and the impact on development of skills.

‘As you reflect on the relationship between theories after the watching someone else doing it give you time to see were the pieces fit together and actual see sense in it through witnessed deliveries.... as you do the procedures you continue to reflect, and this assists you to move on.’ [Susan]

Stage 2: Acclimatisation

Imitation involves students copying what they have seen being done by the facilitator or other students. Before the students imitate what they have been exposed to and observed happening they have to firstly understand the process. It is the role of the facilitator to check on whether the student has understood it.

‘As for the demonstration, I do them the way I will expect it in an assessment like ... then in ... Return demonstration...I take one or two people from the same group, and one does the procedure while I correct them... The more they understand the way the procedure is done, they will be able to imitate and do the correct thing as well as motivating and teaching others.’ (CIGC1)

Participants were often concerned about their ability to imitate the procedure they have watched despite being motivated to do so. Participation may not be immediate as students may not initially feel sufficiently confident in their skills. It appears that knowing the facilitator before engaging in partnership with them is crucial and a student would first scrutinise their facilitators at a distance before identifying with them. Peer motivation is also a critical component of the acclimatisation stage. Students waited for a more confident individual to start the process which then motivates others to follow suit.

‘I think my fear of initiating the imitation improved after seeing others doing the assessments ... Because prior to that you are afraid...You have never been in the situation you are not so sure what to expect or what the next person is going to say. You are not used to them you do not know them, you like watch them at a distance them and you start to identify the nicer ones and decide which one to approach.’ [Jani]

Watching the same skill being demonstrated several times was one of the effective strategies as a teaching method to motivate the student to engage in imitation. Furthermore, students benefited from peer support during difficult times hence peer support and
motivation were found crucial in imitation during the acclimatisation phase, as discussed by Mari.

‘I was motivated to join others you know, I myself why I am waiting for... inspired by others who were doing it competently, but not sure if I will be to do it and I continued to push myself and convincing myself I can also do it ....but kind of hesitant ... watched procedures several times until I mastered and reflected on my theory as I watched to see how they are related, then started to do procedures assisted by supervisors, clinical instructors repeating over and over again. My colleagues would assist initially...... was better to start the first one with the colleagues it was easier, were in the same level, free to ask without being shouted at or stressed Were friendly and tolerant.’ [Mari]

Peer support was an important aspect of acclimatisation and students appreciated this due to their mutual experiences as discussed by Susan.

‘You do realise ...You are being taught by someone with whom you are at the same level. Things makes more sens ... They know your fears because they have been there also. ... There is a mutual understanding when you are taught by colleagues.’ [Susan]

At this early stage of skill development, the student-supervisor relationship was important and students benefitted from supervisors who encouraged their progress. Kate revealed some of the concerns about the student-supervisor relationship during the acclimatisation stage. The type of interaction and the supervisors’ attitude and behaviour towards the student were found to be critical in the wellbeing of the student. However two types of supervisors were revealed the caring and the uncaring one.

‘You need help but with [a] supervisor who is patient and tolerant ... A senior will help you the first booking visit. If you manage to talk to them, but you kind of hesitate you do not know how to start with them. When ...you were instructed to work with one of the sisters who is doing the bookings that are times you get closer if she is nice, but if not, you are floating the whole day... She is kind of... don’t care, ignore you, making the day to appear long’ [Kate]

During this phase, students also gained an understanding of behaviour in the clinical environment. This included self-discipline and an understanding of the requirement to actively engage in the skill acquisition process. By observing others, students could learn to develop and moderate their behaviour accordingly. By demonstrating discipline in the clinical area, students were more likely to be treated favourably.

‘I think how one was treated depended on the discipline they displayed. If you lacked discipline, you would suffer as a student... think some student do not de- roll, you should be punctual in class if given a task do it exactly the way it should be. Some students do not do it, or they pass it on to the next student that is
disrespecting the one who gave you the duty. Some take longer than that is usually expected, the assignment was given. Will have been taught to them and depends on type of a return demonstration it take 2-3 days one night to prepare and if found not ready it will be disaster. ’ [Mari]

Stage 3: Transition

The transition stage is the bridge between acclimatisation and resolution where individuals have acquired the skills recognised to be registered as a qualified midwife. During this stage students continue to work through a process to develop skill mastery. This process includes supervision, guidance and learning from errors. The study findings indicate that during this time the students experience behaviour modification and reinforcement of skills. They also learn and adopt professional behaviours, such as ethics and practice behaviours, which are required standards for professional midwifery practice. This stage sees the student develop skills to a more proficient level, enabling the development of competence. Ward supervisors play a pivotal role in this development of the student and are aware of the impact of producing competent midwives on the future of the profession. One ward supervisor discusses the requirement for the student to become competent to teach others.

‘We do continuous assessments guide correct and support students ... to make sure that the student will be competent in future ... I have to teach the student the right things so that in future ... that same student will be the one in charge having students who need to have follow-up ... That same midwife should be competent and be able to mentor others in future’ [WSSICA]

Student perception towards their performance outcome and seeking help during this stage may interfere with the correct development of right skills, attitudes and values of the profession. However, it also a remedial period during which the student masters the basics of midwifery practice. Students are conscious of the changes which take place in their acquisition and mastery of the skill and Susan likens it to physical wellbeing.

‘You are now ... in transit going through the recovery phase where you can be allowed to recuperate from the injuries and then move to the phase of being ready to exit the course Knowing my problem; I had to repeat the procedure until capable. I asked other students to show me how to do it and asked the clinical instructors to help me. I realised I was now competent, it took me two weeks to correct the problem. I could see it my skill was improving with each practice. This time I practised whole-heartedly. Now I was able to give the BCG correctly though I still had a fear of failing, confidence developed after I passed.’ [Susan].

Self-evaluation of skill and competence development was important to students in meeting their goals. As discussed above, student would take steps to understand the issues they faced and seek help accordingly. Such self-assessment and motivation to improve appeared
to be a key motivator in the students’ progression to the next level. As well as self-evaluation against standards, students would also compare themselves against their peers.

‘During procedures colleagues would assist and comparing with each other to confirm what you have felt could actually motivate you to continue practising until you master the skill... You continue comparing with your colleagues. Confirm also with someone senior. If findings were the same you will be happy. You have got it and keeps you going’ [Kate]

Fear of failure appeared to affect most students, but this diminished with increased skill and confidence. This, in turn, motivated students to engage with the learning process. Although repetition of procedures was not universally liked, it was found to have positive returns in skill mastery, as revealed by Chelesi in his following statement.

‘We constantly did procedures with the qualified midwives when we continuously performed those procedures we were gaining a bit of confidence. With time at first, it was scary, you also realise your weaknesses and limitations as you carry out the procedures and ask someone to help you and give you confidence in yourself and keep you motivated to want to learn more challenging things as you get over your present problem.’ [Chelesi]

Peer support remained a key aspect in student development and support. Students who had mastered a skill would demonstrate and teach others in their peer group during the transition stage. Florence describes the benefits of this.

‘The colleague will tell you… Don’t worry this is how you do it ‘... They give you a tip... It actually makes more sense and [you] gain some bit of confidence before facing the ward sister … The transition phase is like a drill, in preparation for the resolution phase.’ [Florence]

In addition to providing support in clinical skills, students would also consider the general wellbeing of others, demonstrating a caring attitude within the group.

‘Maybe someone is doing a final labour ward assessment. The assessor would go for tea and also advise the student to go for tea. As a student, you would want to make sure that your house is in order…Your colleagues will run and buy you a drink and say … Relax … Breathe for 5 minutes...Whatever you need, colleagues will look for it and bring it for you’ [Kudzi]

As adult learners, students also had concerns outside of the workplace which could affect their leaning. The peer group were accepting and supportive of this; providing emotional, practical and financial support. Jani discussed the psychosocial support, the student midwives provided to each other to enable them to continue with their training.

‘Group members who have had a problem such as an illness or death ...We would give that member some form of assistance and a certain amount of money ... One student lost a father, one lost a husband... Students who had other forms of the
social problem... Assist them so that they could cope in class, go to their home for support... We could contribute some money and give it to the member for them to cover whatever she may think of.’ [Jani]

Stage 4: Resolution stage

At this level finalist, student midwives or newly qualified midwives have demonstrated baseline competences accepted for the profession. However, the students were aware that although they had achieved the level of competence required for qualification, they still needed to develop their skills post-qualification, as revealed by Jani the following quote.

‘These are ICM core competencies I suppose made to be acquired. I suppose, and you might not be able to acquire them all and after training you should be attached to those areas ... Trained for like an antenatal clinic, labour ward postnatal clinics, to keep on improving the skills of the job you are trained for.’ [Jani]

In the clinical setting, it is accepted that skills continue to develop. Expectations of newly qualified midwives are limited, taking into account their experience and their expected standard at point of qualification.

‘We are told that at qualification, the midwife should be at least able to identify what the emergencies in labour ward are and know when to call for help. Also, whether one can care for the patient during the first stage, the second stage of labour, the third stage of labour and examination of the newborn and will refine the skills with time after qualification.’ [Gamaliza]

Competence is measured by performance and outcome, to ensure the individual meets the standards set for a specific programme, such as midwifery. Participants noted that it was not possible for everyone to pass the summative evaluation at first attempt. Kumbirai had to say the following about her performance as she passed on the second attempt.

‘Yes, I managed to acquire the competencies ...labour ward, did about 70 deliveries makes someone competent... Practice makes perfect ...Looking at those procedures we were doing during the training I think we gained the required competencies ... Confidence needed of a midwife to practice.’ [Kumbirai]

Whilst the majority of students passed their assessment, a number did fail which had a profound effect on them. Susan discussed how distressed she felt at failure.

‘Because I had done the first assessment well, the second assessment well and all the blocks and it was the postnatal assessment where I failed (low voice)... I just got stuck and got back grouped ... I just got stuck (grieving) when I came back I did the same assessment got stuck again (silent for 2minutes), so it was really hard (weeping, comforts and asked if she wanted to continue and she did).’
[Susan].
In Susan’s case failure felt like a loss and resulted in her entering a grieving process as she encountered the stresses associated with the resolution stage in attempting to demonstrate competence.

Mari also failed some assessments, but felt repetition of procedures in skill development and extra time allowed was important for her to reach the required standard. The effort exerted by the student in the transition stage appears to have an impact in the resolution stage, with those who continue to refine their skills more likely to achieve competence at assessment. In Mari’s case failure at assessment had an impact on her self-esteem and sense of self, when she realises she has not met the expectations of becoming a professional.

‘You fail the first attempt, are given one or two weeks to practice …I only needed more time and practice I think in the transition phase we didn’t have enough time to grasp the skills, we did not repeat enough time and reach assessment time without mastering the skill …Myself I failed two assessments post-natal and labour ward assessments, to pass the second attempt. Another disappointment…It’s like [you] are expecting to achieve something ….You fail to … That feeling means I am a failure, not professional.’ [Mari]

Stage 5: Familiarisation stage

The familiarisation stage occurs where experience is gained and skills are refined to a higher moving from being competent to becoming an expert. The midwives in the institutions operated on a continuum of junior to intermediate to senior midwife. Senior midwives have considerable experience and can quickly identify problems; acting as a resource person for intermediate and junior midwives. Their experience differentiates them from intermediate and junior midwives who do not have this depth of proficiency. Although none of the participants in this study had this level of experience, they were aware of these differences and of the opportunities for learning from senior staff.

‘I feel that the junior midwives should call senior midwives who have nursed different women and by just giving a bit of information on a mother who has delivered they are able to make a right diagnosis because of the experience they have on nursing different types of women. Especially those who have worked in labour ward for a very long time, there is a difference of a midwife who have worked in labour ward for one year and the one who have worked in labour ward for2 years …, and seven years… ’[Tsitsi]

Not only is experience gained over time important in developing skills as an expert, midwives also advanced their practice through analysis of their handing of situations. Hence, the length of time since qualification is not be an indicator of expertise on its own.
Kate described some of the characteristics of midwives in the familiarisation stage, demonstrating her understanding that familiarisation is a necessary stage that occurs, as one becomes an expert.

‘You find there are those you can really tell you whether they are experts or not ... These, if you work with them and missed a case and they are corrected they will also tell you where she missed ,you learn together with them ...You find they get excited if they get it right ...You miss a patient with post-partum haemorrhage they will investigate why they missed and what was new on the case until you find out one day she is an expert and the other day she is not ....But working with them is better organised than the junior one, but not as the expert one ... This one is a bridge between qualifying and being an expert. ‘[Kate]

6.5.2.1.3 Phase 3: Actualisation phase
Stage 6: Naturalisation stage

The third phase of skill acquisition and development relates to actualisation. Maslow (1962) refers actualisation as the fulfilment of one’s full potential through innovation whilst revealing one’s uniqueness or individuality in the real world. Actualisation develops with experience and midwives who have actualised are proactive, identifying and averting problems before they occur. This differs from more junior staff who tend to manage problems once they occur. The midwives with vast experience act on instinct and tend to be the role models who are admired and preferred by students. The findings indicate that the most senior midwives protect the profession and both staff and patients from unnecessary stress and mismanagement respectively, by virtue of their pro-active approach. The participants were aware they were not at this level, but observed those around them who were and suggested a preference for working with these midwives.

‘I was happy with the older midwives ... Had a vast experience and able to impart skills to me in a way I could understand ... Afford me to imitate them ...We ’re being allocated... senior midwife ... Intermediate ... Newly qualified ...But Newly qualified midwives were also learning. Could not take more responsibility of teaching someone. The intermediate midwives were able to help you but would refer us to the senior midwives who were experts. I noticed working with those with vast experience. They would anticipate problems before they occur. We had less emergencies and stresses when working with senior midwives than the junior ones. It’s like living in two different worlds nursing the same patients.’ [Kumbirai]

Participants indicated that they had preferences and, as students, would choose individuals in the clinical area who facilitated their learning without stress. They also indicated a belief that the clinical instructors and tutors do not reach to expert level in patient care since they do not have enough exposure to patient care. This belief appeared to stem from the understanding that clinical care and skills were more important than theoretical learning.
This may relate to the practically focussed aspects of both the profession and the skills assessments required to prove competence for practice. The newly qualified midwives in this study revealed that those midwives who have reached the actualisation stage act on evidence collected over time through experience. Interestingly, this contrasted with clinical instructors who they believe act on a theory which is in the book, whilst they saw the clinical midwives as the ones promoting evidence-based care.

‘I preferred having sisters in the wards than clinical instructors or tutors. Tutors only teach most of their time more on theory, but sisters have experience and since they have stayed longer in their work areas and have seen and know what’s best for their clients ... They give evidence-based care.’ [Tariro]

The stage of naturalisation within this phase indicated the extent to which midwives expertise and exercise of skilled practice had become their second nature. Not only had individuals reached a considerable level of expertise, they were able to exercise this fully and effectively in the clinical environment.
6.5.3 Learners ‘perceptions towards learning processes

Participants could experience similar learning environments and opportunities in a
different way. For example, different individuals may experience the characters or
behaviours of others, such as clinical facilitators, differently. Newly qualified midwives in
Zimbabwe revealed that the same processes and individuals could have different impacts
on individual students’ abilities to develop competence and confidence. A dichotomy was
revealed with all the processes involved in competence and confidence development as in
the following quotes.

Students were aware of the differing expectations of their supervisors, which was often
dependent on their differing roles. Newly qualified midwife Tariro commented on
experiences with various facilitators and the difficulty around the distinct expectations of
the supervisor.

‘You do ...both because what the senior midwife wants [the] clinical instructor
wants, the tutor wants is different ... to meet their standard... as they see the same
thing differently’

The personality of the facilitator appears to impact on their motivation to teach, being
viewed as ‘good’ or ‘bad’ depending on their approach. This could be attributed to the
relationship between the student and their supervisor, along with the supervisor’s views
and expectations of the student. Newly qualified midwife Grace commented on the clinical
instructor’s willingness to teach.

‘Not all of them do the work ...but... depends with the character.....clinical
instructor.....ward sister...they are different ... Maybe ...You will find some sisters
will give you a hard time ...You find different kinds of people among them some are
bad some are good and willing to teach and some are not ... Some were
forthcoming they would ... Take their time even their lunch or tea time to teach
you... They will say I want to teach you ... First demonstrate to you what ... To be
done and ... Then give a return demonstration...' [Grace]

Communication was also an issue, with positive feedback and encouragement seen as an
element of good communication skills. Good communication could encourage the student
to engage in the process and work to improve their skills. Newly qualified midwife
Blessing remarked on all supervisors comments on communication skills.

‘The approach and the way the supervisor says the comments ... sometimes ... good
communication skills ... when communication is bad, it offends just say it nicely...
encouraging ... like that ‘well done but there are these areas which you need to
work hard ...but there is room for improvements’, [Blessing]
Some facilitators were clearly frustrated if students did not appear to learn as quickly as they would have liked. This particularly disadvantaged the students viewed a ‘slow’ learners. Newly qualified midwife Susan commented on differences in students’ abilities:

‘You come ... for a return demonstration and find that the student is confused and fails to exhibit the skill you need to know the students are learning ... some take time ... should be prepared to repeat several times .... Finding some doing worse than others ... if you don’t have patience others shout that’s why I say a supervisor needs patience.’ [Susan]

In addition, Mercy revealed that the student and teacher perceptions are different, revealing the association between the individual’s knowledge and their experience level.

‘Student does not see things from the same eye they see it ...you have not observed something ...because of her experiences notices it...You try to explain ... ’ [Mercy]

As well as perceiving supervisors to be display both positive and negative attributes in terms of facilitating learning, the supervisors themselves were aware of the students’ readiness to learn. This may to some extent explain their attitudes towards students. Junior ward supervisor Florence commented on student’s readiness to learn.

‘That one who is competent communicates really well with students but those who are bad they don’t even care (insensitivity) how the student performed and what would happen, they will just care when only be caring when you are there. And after the procedure nothing else unlike those who make a follow up of the corrections which they would have highlighted they will ask you did you do this did you do your procedures what's happening. Do you understand this they will really make sure that they will follow you up?’ [Florence]

It appears that whenever two or more people interact emotions are involved; these can be pleasant or unpleasant depending on what is happening. During midwifery training students and facilitators interact during activities, including assessments, where by students are evaluated against set criteria. Performance in assessments could be emotional despite the outcome that is either passing or failing; those who pass show happiness whilst those who fail go through anxiety, the grieving process and physical and emotional pain. Students also feel tension and boredom when they fail. These feelings have been revealed as associated with individual perceptions and interpretation and beliefs towards the assessment outcome. Some students perceive assessments as a formality hence think that everyone should automatically pass, only to get shocked when they fail these assessments. However, after expressing emotions and feelings the student is able to work and change for the better. Susan discussed her emotions of failing an assessment in the following quote.
‘Feelings and concerns...we have is different .....You will hear people say 'examination that no one should fail, not everyone will pass assessment’, someone will fail that assessment .....Will have to read and practice again for a second chance ....There is always that disappointment when one fails, like it’s heart breaking’ [Susan]

In summary, participants revealed that the composition of students enrolled in Zimbabwe constitute of varying ages and both genders, some from [Zimbabwe Republic Police (ZRP); Zimbabwe Defence Forces (ZDF) and some with experience of working either as sisters in charge or matrons, senior and junior State Registered General Nurses. Characteristics of these students demonstrated differences in rate of learning; there were fast and slow learners. In addition, student’s preferred learning style tended to be either one that incorporated either individual or group learning.

Together the student composition and the student characteristics revealed the biological, psychological and social traits of the individual which were associated with how they learnt and interacted during their clinical supervision. How students behaved and reacted towards colleagues and facilitators revealed the dualistic nature of the individuals. It also revealed that the student's dualism is associated with the interpretation of their learning experiences in the context of the wider environment and personal background.

6.5.4 Student’s Experiences with processes related to skill acquisition and development
Participants revealed how experiences could impact on the processes involved in skill acquisition and development. The processes which emerged were learning of procedural theory and learning midwifery skills support systems such relationship building, supervision, evaluation and feedback. Each of these processes are presented in the context of the experiences related to skill acquisition and development.

6.5.4.1 Student experience with supervision
Midwifery is a ‘hands-on’ profession, in which students need to acquire practical clinical skills. It is in the clinical setting, with the support of the mentors, that the students will apply their evidence-based knowledge, learn critical practical skills, and achieve the competence required for registration. Not only are mentors expected to work supporting students within their role, but they also have to care for patients. Patient care and patient safety are paramount, and students and education may not be a priority. However, the student needs to be encouraged in his or her learning, just as the mentor needs to be proactive in identifying learning opportunities that arise unplanned due to the nature of the caring environment
Supervision of students in the clinical area is carried out by senior midwives, clinical instructors, tutors and usually involves giving the student the support and guidance needed in the clinical area. It is expected that midwifery student receives teaching in the clinical area from the qualified midwives and obstetricians on duty, clinical instructors and tutors and each of these a distinct role in the student midwife’s skill acquisition and development trajectory. Initially students learn from them through observation of practice. Observation has been acknowledged as a powerful and efficient way of transmitting skills to the student. However, for the student to benefit from the process, they should be willing and motivated to participate in the process. The terms ‘facilitator’ or ‘mentor’ are used to describe these qualified midwives who adopt the supervisory role of the students. The aim of the mentor or the supervisor is to assist the student in acquiring the necessary skills to become a competent midwife.

Clinical instruction is the key component of the role of the clinical instructor who is seen as the custodian of practical skills in the placement area. The clinical instructor is expected to conduct prescribed student performance assessments, and the student relies on the clinical instructor for direction concerning the success of their tasks and choices and for activities on improving their performance improvement. Clinical instructor CIGCI explains her role.

‘As a clinical instructor, my role is to ensure that the student does the right thing ... using right resources....it will be the student doing the procedure and the clinical instructor correcting where the student is going wrong.’ [CIGCI]

Students appreciated the importance of the supervisor in their learning.

‘Working with supervisors ... Made me aware of the importance of the supervisor...As I realised they are my guiding hands ... Their presence made me feel supported ... Which boosted my self-esteem and boosted my confidence...’ [Blessing]

Supervision was felt by participants to be critical for professional development. This type of practical supervision enables the supervisor to understand and address the students learning needs, which was preferred by the participants. Supervision can either take place with a single student or with a group of students. Individual supervision was preferred by the students but could be difficult to obtain due to the workload of the supervisor.

‘Was very difficult to get the clinical instructor to come for you as an individual mostly they ... are always busy ... at times ....You ask them they...would come for group demonstrations and do it faster and you do not see or not learn anything or .... Supervising you as a group and do group return demonstrations only one person doing
the procedure whilst the rest are watching clinical instructors ... are not beneficial to students.' [Mari]

The learning of skills in the clinical area is an interactive process between the clinical instructor and the student. The relationship and communication between the supervisor and the student was paramount in developing a successful relationship for learning, as discussed by Stella.

‘If these two are communicating well learning will take place ... the student will be motivated to initiate follow-ups and ... be free to discuss issues pertaining to their weaknesses or ... their social problems with supervisors ... impacting negatively on their skill development.’ [Stella]

6.5.4.2 Student’s experience with relationship building

Perceptions and views about self and others differ between individuals. This was apparent from the differing views held by the clinical instructor and the students associated with support given and received. The clinical instructors in Zimbabwe feel that they are trying their best in supporting students achieve their goals in training while some students have mixed feelings towards the support and guidance they receive, as revealed by CIGCI.

‘Always try to do my best since 2010 when I started working as a clinical instructor ... Since then I have been assisting students to develop skills ... you will have a demonstration with students... you ....make things happen...’[CIGCI]

Some of the students are in agreement, citing some obstacles hindering some of the clinical instructors in fulfilling their roles, as noted by Claudia in her following statement.

‘Clinical instructors do not have enough time to practice with students ... but when clinical instructors come were able to come and identify and correct the wrong things ... and then continue repeating over until competent.’ [Claudia]

Some students felt they received little in terms of clinical facilitator support. The students seemed to measure the support and guidance in association with the number of encounters with the supervisor or mentor. The students expect the clinical instructors to provide frequent support visits for return demonstrations, hence the students felt disappointed and frustrated when they fail to do so. From the findings, it can be concluded that the presence of the clinical instructor in the clinical area is critical to students’ learning and development of skills. However, they were often compared to ward supervisors with some participants feeling that ward supervisors provided better mentorship.
‘Clinical instructors were not of much help ... If I can remember well, the clinical instructor only came once ... Did a demonstration and she never came back... A return demonstration to check whether we are developing the right skills ... Senior midwives did a great job in developing the skills I have now.’ [Chelesi]

From the findings it can be deduced that all facilitators have various strengths and their place in skill development, though they are appreciated by different students for different reasons. Newly qualified midwives in this study seem to believe that skill development in a student is a joint effort, as revealed by Claudia in her following statement.

‘I think they are all these supervisors are at par for their various reasons ... Each one have their part to play so wouldn’t compare ...I think you need a combination of all of these three for this to work out so even if you have a tutor and do not have the clinical instructors and the ward sisters I don’t think you will get the best outcome..... The three can’t work without each other ... It depends on each other for the best outcome of a competent practitioner. ’[Claudia]

Good support and guidance of students can be hindered by several factors impacting on their skill development. The clinical teachers were all aware of the fact that students were not getting enough support and guidance in the clinical area and this is an issue of concern for the two training instructions. A shortage of staff and time were identified as key issues, as discussed in the following three quotes from a tutor, a ward supervisor and a clinical instructor.

‘Ah!... sometimes it’s more of theory and students are not given time to practice or without someone showing them how to do the procedure.’ [TAT1]

‘Sometimes they don’t have someone to supervise them most of the time.’[WSJSB1]

‘So many factors attributed to that I will only mention a few ... What I have realised is that they would not learn the right thing ... three quarters of the time they would not have adequate follow-ups... Ward sisters and, from the school, the clinical instructors will not come to support them so often. They will be doing trial and error ... Then stick to what they think is right.’ [CIWCI]

A lack of adequate supervision and support of students in the clinical area may be associated with the quality of the graduate produced. High student-clinical instructor ratios were evident. The ratio of clinical instructor to student has is expected to be at 1: 10 for effective mentoring yet the clinical instructor; student ratio in Zimbabwe can be found to be as high as 1:50/60 as revealed in the following quote from Mari.

‘Supervising you as a group and do group return demonstrations only one person doing the procedure whilst the rest are watching clinical instructors are fewer than students with one clinical instructors demonstrating to 50 or 60 students these contacts are notbeneficial to students...the group is big for one person.’ [Mari]
6.5.4.2.1 Determinants of relationship building experience

6.5.4.2.1.1 Characteristics of supervisors versus students’ expectation

The characteristics of the teacher and student can also contribute to issues in supervision and support of students. The student does appreciate the role of the supervisor in assisting them to learn skills in the clinical setting, but the relationship can be affected by the inherent problems associated with social interactions. Many of these issues appeared to relate to communication and students were critical of supervisors’ communication skills. Students believed dialogue is the key to building positive student-teacher relationships, facilitating learning and the solution to learning associated problems. As revealed by the newly qualified midwives in Zimbabwe through Stella in her following statement.

‘Think the supervisors should be sent for workshops on how to communicate with students especially during assessments and follow-ups so that there is harmony between the supervisor and the student.’ [Stella]

Despite the fact that facilitators play an important role in clinical teaching to facilitate student learning, not all of them are appreciated by students. It is how these facilitators interact with students which determine their importance to the student’s learning. Depending on the characteristics these individuals portray when interacting with students they can either be labelled as approachable or not and these determine the student’s help-seeking behaviour. Students used approachability as one of the determinants of relationship building between the student and their mentor. Newly qualified midwives in Zimbabwe revealed that students preferred facilitators whom they could approach when they need help and interact with freely. Students were also happy with facilitators who offered student psychological support and reassurance when they needed it. Ward supervisors, as a facilitator in midwifery training, appeared to be the most appreciated among students in Zimbabwe for they would reflect the realities of clinical practice. Adverse events, such as failing an assessment, burden the student emotionally and they require psychological support from facilitators to enable them to recover. Ward based facilitators were believed to be appreciated for the psychological support they can offer students and motivate and encourage them to continue.

The participants appeared to have their ideal view of a facilitator and if this is not fulfilled the student-teacher relation is at risk (Knowles, 1980). Knowles (1980) suggests that adult learners require respect; having a wealth of experience and other roles and beliefs they bring with them into a learning programme. Facilitators need to acknowledge this important aspect and to engage them in learning they have to recognise and respect their
experience. The newly qualified midwives indicated that they respected the facilitators who had a sense of humour as they teach, tolerated mistakes, were approachable and respected them holistically, as Kudzi states.

‘Those who were nice ... Loved by students ... Were approachable ... Could go to them and say ma’am or sister can you repeat again on such and such ... if you did not get it ... she will do it ... During the procedure ... Will be joking and laughing ... These respected students ... We would feel very comfortable ... Ask questions ... They ... Tell you stories ... ’ [Kudzi]

Stella saw these individuals as role models, who supported them in spite of poor results in assessments.

‘We were actually lifted up ... by sisters in the wards actually were role models .... Because you will find out that ... after results come out you might fail both papers .... You be like mourning ... the sister ... will ... comfort you and tell you to keep on like they will say continue working hard I once failed and ... passed on the second time so don’t lose hope it’s part of the game work hard ... Keep focused...you will pass.’ [Stella]

Other determinants of the nature of the relations between the student and the supervisor were associated with the age and experience of both parties, which could lead to the issue of disrespect. This could come from either the supervisor or student. However, younger supervisors appeared to struggle most with older students and were more likely to react negatively. Some students believed that the disruptive behaviour of the supervisor was used to hide their own inadequacy and skill deficit. Newly qualified midwife Kudakwashe comments about the difference between older and younger supervisors.

‘The senior ones are good, who put on green dresses those, but junior, putting on the white .... There is that inferiority complex .... Usually say ‘you students you want to undermine me you don’t respect me...’ We always have conflict with younger supervisors ... Old supervisors were so nice ... Younger ones were shouting and disrespectful. Even at older people, even at me as old as I am.... Older ones would teach you nicely, don’t shout, they teach ... Young ones ... say why did you come to training when you were old ... Some laugh at you... Look down upon you...’ [Kudakwashe]

A ward supervisor described the difficulties associated with student disrespectfulness.

‘The student being disrespectful ... not wanting to respect you... even refusing to be sent sometimes or sometimes you sent them ... they send the next person ... you find they won’t be doing anything ... you feel it was disrespect... felt you are too junior to send them...it becomes difficult to teach them’ [WSJSC1]
The findings suggest student-facilitator relationships are critical in skill acquisition and promoting self-directedness in students. Indeed, the type of relationship developing between the facilitator and the student is born from the nature and direction of their communication. Hence, student midwives in Zimbabwe use communication as one of the benchmarks for measuring competence in the facilitator in their ability to be able to generate learning in students. The way the facilitator communicates with the students determines the outcome of the relationship. It appears as if adult learners see teachers as colleagues in learning and perceive that they should have a relationship which involves mutual friendship and understanding between the teacher and the student. If harmony prevails between the two then learning will take place smoothly.

6.5.4.2.1.2  Student commitment to learning, discipline and performance versus facilitator expectation

It appeared that students and facilitators each had expectations from learning encounters and when these expectations were not met they acted as source of conflict. Failure of the students to meet the facilitator expectations can provoke anger in the facilitator, so much that if the facilitators failed to control their emotions they would become verbally abusive. Tariro gives an example of the type of verbal abuse faced by students in her following statement.

‘You perform like a junior I did not expect this from you ... you do ... not know what to do ... at this your age .... someone trained before you... was a junior from general nurse training would be saying that to you...but as a student you are there to be directed because if you know what to do you would not do it wrongly... ’ [Tariro]

Student behaviour was associated with frustration in the supervisor leading to verbal abuse. Some of the supervisors justified their behaviour towards students who fail to meet their expectations.

‘Those students who are not forthcoming ... They are the dodging ones ... Now when you want them to do the proper thing ... They do not even know what to do ...and you lose control out of anger that human aspect ... ’ [CIGC1]

Participants felt that some of the facilitators’ attitudes and behaviours towards students interfered with learning and destroyed student-teacher learning relationships. The findings indicate both student and teacher expectations contribute towards the type of relationship they will share. It was noted that the students associate a harsh tone from the facilitator as conveying intolerance and anger. Student behaviour was also revealed to be a contributing factor of bad feeling between the facilitator and the student. Facilitators expected the students as adult learners to be self-directed and motivated to participate in their learning.
and it frustrated facilitators if the student did not live up to their expectations. Facilitators viewed such students as uncooperative and as disadvantaging the whole group. The facilitators were aware of their behaviour towards their students, as Kate explained in her following quote.

‘They will pass comments like you ‘see you did not prepare for this demonstration you wasted every body's time you needed to work hard’ …..You may feel insulted …..no you did not work hard. ‘No, no I cannot take this nonsense from you, Apologise to your colleagues who were expecting a fruitful input. Now look you have messed up the whole situation you were given enough time to prepare’. The clinical instructor will say this in a harsh tone and showed anger. ’ [Kate]

When facilitators believed their authority was not being respected they became offended and may verbally abuse the student. Such behaviour reflects the power imbalance between supervisor and student. Usually, students experiencing verbal abuse would feel powerless and not respond, instead suffering silently. Power dynamics was an essential factor determining the flow of supervision and subsequent support and guidance interactions among students. Some students felt forced into submission, as revealed by the following statement from Tariro.

‘Shows how people will treat you when you are a student, exercise their power and can say whatever they think about you …whether it hurts or not … As a student there is nothing you can do you, you know, we need to respect them.’ [Tariro]

Kumbirai suggests that students who do not conform or choose to argue may suffer future consequences.

‘I could not argue with the clinical instructor …. However, deep down, was hurting … If you start arguing you will be victimised at second attempt. The power to decide on your fate to fail or pass you and worse, be back grouped... Seniors fore warned us’ [Kumbirai]

Some students believed that a good supervisor relationship was also associated with mutual respect between the student and the facilitator. They believed that commitment to learning would bring harmony during the student facilitator interaction.

‘I also think to maintain the professional relationship and give respect and showing you were dedicated and working hard impressed the clinical instructors. Motivated them to give me the support and exposure more than others I benefited a lot ... I did not fail any assessment or denied help when I needed it.’ [Jani]

However, when relationships stalled the supervisor tended to get angry, lose tolerance and used a raised voice; this in turn would irritate the student and they would also become
angry. Anger made the student to lose focus, with subsequent failure to absorb further information.

Tanya discusses how tone of voice can impact on her learning.

‘You raise your voice it is shouting, it puts me off and instil fear in me.... Will not be able to understand what this person is trying to communicate... Become confused if you teach me shouting. I will not learn anything.’ [Tanya]

Students tried to mitigate supervisor anger and avoid conflict by their behaviour.

‘Reduce the confidence but eventually you end up used to it... When you a student you are there to learn and be corrected, Tolerate and let alone, respect those who... take you through the process ... Someone starts to criticise, [in] front of other students, other staff ... It becomes terrible ... As a student, there is nothing you can do, continue to talk to them nicely ... Just greet and respect them. You would need their help at some time, but relationship will be strained.’ [Kumbirai]

Others, such as Kudzi would appease their supervisor by apologising.

‘Usually, say I am sorry ma’am I do not know how I am supposed to carry on. ’ [Kudzi]

Reporting learning problems between the student and supervisor to someone else appeared to be perceived as undermining the integrity of the supervisor. Hence students remained quiet and suffered in silence for some time, only to raise the subject when they felt safe.

Based on the findings it can be deduced there is a lack of trust between the student and the facilitators which deprives students of their rights. However, supervisors suggested that students should report these issues.

‘We encourage the students to say out their problems as early as possible usually they report the things when this is too late ... Making it difficult to find out what and when this happens ... Even encourage them to choose people whom they are comfortable with to say out their problems . They can go and discuss it with a tutor if they feel they cannot discuss it with me’ [CIGCI]

Students did not always perceive that this was a realistic option.

‘We were encouraged to air our grievances if you have problem go to your mother tutor ... What but no student will go there for fearing of victimisation.’ [Kudzi]

Conflict was not present in every relationship and this may be related to particular student-supervisor characteristics. Mercy was aware that some students encountered issues with many supervisors.

‘I did not have any problem with any supervisor, whilst some will have with almost everyone.’ [Mercy]
Others identified that methods of teaching may be more suited to some students than others. Supervisors who used appropriate techniques could build competence and self-confidence in the student. Kudakwashe discusses the characteristics of such supervisors.

‘Someone from the ward said, please come let me show you how it’s done ...I will show you how to examine tears post-delivery ... A sister from the ward showed me nicely ... Found out that it was not that hard ... To my relief I said thank you sister ... Only needed a soft voice for me to be able to do it ... ‘Thank you, sister’, I could not even understand why I was not able to get it ... I was also able to teach others.’ [Kudakwashe]

The reasons for conflict are likely to be complex, with aspects such as age, gender, expectation, previous experience and motivation to learn being potential areas of tension.

6.5.4.2.1.3 Common teaching and learning relationships

The key facilitators in the clinical area supporting student skill acquisition and competence development were the tutors, clinical instructors, qualified midwives working in the clinical area and the students themselves. These formed the basis of the key relationships, which included: student–tutor, student-clinical instructor, student-ward supervisor, student-supervisor-patient and student-student. Each relationship is unique in its contribution to students’ skill mastery and development and can have either a positive or negative effect. Students were aware of the differences in roles and relationships, as revealed in the following quote by Jani.

‘Everyone did their part ... everyone had their place to cover ...the clinical instructor we benefited ... From the wards ... Tutors they gave us ... theory...guiding us on how to do things ...the senior midwives ... get practical knowledge ... as well as matrons, sisters in charge then the junior midwife theoretically... were good but for practice ... Clinical instructors and senior midwives ... Have got vast experiences’ [Jani]

Student-tutor relationships

A positive learning environment is that one which facilitates and supports learning, meeting the needs of the student (Maslow, 1956). Midwifery tutors were found to be able to provide that environment. The tutors provided instruction in midwifery and were based in the training school environment.

Kudzi and Tsitsi revealed what determined the nature of teaching and learning relationship with tutors in their quotes respectively.

‘I think the people I liked most during my midwifery training were tutors ... Did not have problems with any one of them ... They were nice ... Take most of their time to explain to you even in class .even the way they were doing it was ... Nice... ’ [Kudzi]
Adult learners are goal orientated and are motivated by facilitators who provide them with the skills to realise that goal. Newly qualified midwives revealed that if student midwives were given realistic goals, the learners would remain focused as they become custodians of their own learning, particularly when supported to do so by tutors. As revealed by Tsitsi in the following quote.

‘As well as from the tutors that were to say a big mentoring where they are just motivated by ... word of mouth to say it might be difficult now but by practice you will be able to make it I think that was also very important that they made it clear what it is and made it a realistic goal just by motivating us.’ [Tsitsi]

**Student-Clinical instructor relationships**

The clinical instructor in Zimbabwe is responsible for signing off practice proficiency for students on their final assessments in the clinical area. The clinical instructor plays a vital role in the education of midwives and assessment of midwifery students in the clinical environment, which is crucial to enhance skill development during students’ clinical attachment period. Aspects of the clinical instructor role appear to include both instilling student discipline and competence development. Susan suggests whilst being helpful, fear of failure in the face of the clinical instructor encouraged her to apply herself.

‘They were always encouraging... very good. ...would come .....For follow-ups... attached to the clinical area ...the way they would correct you...their positive criticism ....giving... praise ....that was very good ...it helped me...... You want to work harder you know ... the clinical instructors. I think the fear of failing, ...the fear of doing assessment with a clinical instructor just drives you to work harder ....you go that extra mile because ...you just have that fear of them even if they are not saying anything.' [Susan]

Clinical instructors instilled discipline in the clinical area and where students needed to be reprimanded clinical instructors may be called in to intervene.

‘There is a problem of coming late some of these students they come late ... Maybe when they go for tea, they do not come back ...The sisters in charge ... Always come back to you...And say to us you clinical instructors see what your students are doing ...You need to reprimand them something like’ [CIGA1]

Clinical instructors would also see themselves as guardians of professional standards. This may at times impact on the clinical relationship in order to maintain high standards of practice.

‘At times you have to be a little rough to let the student comply ...But let the student know that in nursing we do things this way we cannot afford short cuts... ‘...If you let students do things the way they want ...You are putting the life of the patient at
Kudzi revealed that uncertainty relating to the type of relationship between the student and the clinical instructor is associated with the outcome of the interaction. For example, it can be concluded that the relationship is unproductive where the student feels pressurised by the clinical instructor, inducing fear and anxiety.

‘Clinical instructor will create fear and loss of confidence in the student ... The student won’t be afraid of performing the delivery but being afraid of the assessor who has come ... Usually associate with bad outcome you... Automatically lose confidence, start shivering, sweating profusely you feel the heat on you face hands and feet you will actually afraid and confused...’ [Kudzi]

It appeared that the student-clinical instructor relationship is particularly powerful one, possibly due to the power the clinical instructor wields in terms of student assessment.

**Student-Ward supervisor relationship**

Qualified staff working in the clinical area were the facilitators who ensured students were afforded learning opportunities in the area of placement. They also worked closely for long periods with students in the clinical environment. This helped to promote the development of a supporting working relationship fostering increased confidence in skilled practice. The relationship with the ward supervisors in Zimbabwe has been revealed to be centred on working together for long periods, realisation of professional relationships and power dynamics and role modelling as revealed in the following statements from the students and ward supervisors.

‘Always ... Do these procedures together ... Had more experiences in handling and managing situations and by observing the way they were doing ... We would copy ...they were role modelling and ... Would identify with the style of doing things which was more interesting and appealing ... Like you would admire a midwife ... And ... Would work the way they will do their procedures or manage complications or solve problem... Just tell yourself that I want to be like this one and you start imitating them.' [Blessing]

The ward supervisors were powerful and power relations could lead to issues between the supervisor and the student during the student’s clinical attachment period. Susan states.

‘They want to be felt and they will make suffer and feel that they are important in your training.’ [Susan]

Clinical instructors were also aware of some of the issues occurring between ward supervisors and students.
‘They think they are on top of the situation I think they feel that they can do whatever they want with the student because they feel that they are in control.’ [CIWC1]

Clinical Instructor-Ward supervisor relationships

The clinical instructor-ward supervisor relationship hinges on quality of procedures performed in the clinical area, student performance assessments and student formative evaluation by ward supervisors. Evidence of integrated working demonstrated attempts to maintain consistent standards across the clinical areas.

‘Here at School C we have a procedure committee where we try to harmonise the procedures and source resources for so that we minimise the discrepancies found in the clinical area procedures and those of the school…. It constitutes of the school staff and the clinical area the head of school chairs the committee… we also discuss the evidence which would have come out of research and incorporated into the procedures …’ [WSSICPC]

It was evident that conflict between the groups existed and this could impact on students. Role conflict was an issue and there was an apparent implication that the clinical instructor’s role is senior. This is the case even where the ward supervisor is in a senior position herself.

‘It’s not nice professional looking down upon someone else …we have our weaknesses, and they can always be worked upon after all we are not teachers we just help students out of our own experience and what we think is right. ….Just communication I think the student midwife will not trust you and will blame you for their failure…It’s like the clinical instructor will accuse the clinical area midwife that you are more lenient to the student and … Signing for procedures that are not done and sometimes just signing …Even favouring the student during the assessment … The problem with clinical instructors is that they think that they are so special and that they know it all … ’ [WSSSC1]

One of the clinical instructors revealed the impact of conflict on the student support and guidance in skill acquisition, which may result in midwives in the clinical area withdrawing their teaching role towards students in a bid to protest against the clinical instructor's standards enforcement role.

‘Students will complain that the unit sisters are not eager to assist us because they say the clinical instructor will come and teach … something different and mark the unit sister down the unit sister does it whatever the way she does it the clinical instructor comes and nullify my procedures …’ [CIWC1]

Student-patient-facilitator relationship

As practice learning environments are an essential learning area for aspiring midwives, it is inevitable that the learning environments include patients. The patient becomes part of the
facilitator and student relationship triage in developing competence and confidence to nurse such a patient. However the patient adds another element which may impact on the student’s ability to demonstrate competence in her skills, as revealed in the following statement by a newly qualified midwife.

‘The patient is part of the equation... Because you can never predict how the patient is going to react in any situation ... The patient might actually make it difficult to actually demonstrate to show that you actually know ... Sometimes the mother is in labour ... You are trying to examine her, and she won’t let you do it ... She can’t be still and she is telling you she is in pain ... Which she is right because labour it’s a painful process.’ [Claudia]

In this situation the student feels she is unable to demonstrate the skills she has learnt as the patient is unable to tolerate examination. This in turn may impact on her assessment of competence and her own confidence in her ability to manage such situations.

Student-student relationship

Student-student relationships were important in the learning environment. One of the key aspects of this was that of peer support strategies. Students formed peer support groups to help members reach their potential. In particular, student midwives were able to differentiate between slow and fast learners among the group members and pledged peer support as a strategy to tackle the problem and facilitate learning. As such, they used peer support as an approach to encourage students to reach their goals of skill and confidence development. This helped to motivate individuals and the group and provided additional support to that which was available from supervisors.

‘As students, we advised each other, we would read information on the procedure itself together before doing the procedure. Then practising and continue practising ... Practice makes perfect ... As a group, we continue to support each other, and we were aware that others take longer to learn and others take shorter time, and we agreed that we should not discourage slow learners ... we assisted and corrected them.’ [Claudia]

Students were visibly focussed on helping each other achieve learning outcomes. However, they were less tolerant of students who they felt were not contributing to the learning process. This included individual orientated learners who did not contribute to the group and were seen as separate. Some students also appeared to be irritated with their peers who they perceived as not taking enough responsibility for their learning. This applied to those students who had worked in the maternity setting before and were therefore sometimes
seen a lazy as they believed they had already achieved the necessary skills. Jani describes her understanding of the actions of a clinical instructor.

‘Some of the practice by students leaves a lot to be desired it is below standard. You could see that even if you were the clinical instructor, you would get offended. After teaching, advising and showing the procedure you can see that the student was totally absent-minded.’ [Jani].

There were clear advantages to students being part of a peer group, particularly for those that required extra help in gaining skills and competence. The encouragement of such groups helped students to gain confidence as they tended to take a positive and encouraging stance, rather than a negative one. This may relate to the fact that students were contributing to each other’s success on a voluntary basis, rather than being in the role of assessor with the pressure of ensuring students met their competencies.

6.5.4.3 Student experience of evaluation and feedback

The participants in this study revealed that evaluation, support, relationship building and feedback are driving forces for learning and assessment of clinical competences. Indeed, the newly qualified midwives revealed that learning clinical skills is continuous and is enabled and directed by feedback. With support from others the learners themselves are expected to take their initiative; hence they have to be aware of their learning needs and seek appropriate help which facilitates their learning and meets their learning goals. As Jani said in his following quote

‘I think they all know me I was the best I would ask on almost every anything. I had no difficulties in approaching anyone to clarify issues during the everyday follow-ups. I would read and practice several times before the day, ask several questions from tutors and clinical instructors and get a variety of mentors, which gave me, confidence. If you get a go ahead from different assessors in the same area means you have mastered it to my pleasure I did not meet any resistance and I discovered that if you ask them they will not let you down.’ [Jani]

6.5.4.4. Student experience with evaluation of performance

Formative evaluation approaches monitor the student’s learning progression throughout their training. This evaluation allows for the supervisor to detect areas where learners are struggling so that mentors can modify their approach to teaching and students can adapt their learning strategies.

The capabilities of an individual in completing a specific task is associated with the attainment of knowledge, abilities and other specific attributes valued for the task and these are acquired through training. The job is characterised by one’s ability to do a task
accurately which might be equated to the performance of related tasks reflecting how competent the individual is in doing the job. As a result, competence is measured through the level of performance indicating the attitudes, knowledge, and skills necessary for a profession. For competence in skill mastery to be more realistic, the individual must demonstrate the conceptualisation of procedure theory and their ability to correlate it with practice to reflect a level of performance which is accepted or not when measured against criteria using professional standards. Therefore, based on the level of performance against set standards, it is possible to define the individual’s level of competence and label the individual competent or not competent. Learning midwifery skills includes communication, writing skills and practical skills, allowing the supervisor to complete a task analysis and identify the strengths and weaknesses of the student and highlight these to them. The student values the supervisor’s evaluation if it is constructive and includes the activities which contribute towards improving the student’s performance. Participants indicated that positive feedback motivates students to want to gain more skills.

'I was very happy with the comments from the ... supervisor would instil confidence in myself and make me want to practice again do better and impress then you feel like you don't want to disappoint them so you always put an extra effort...' [Florence]

The way in which feedback was given to the student and the inclusion of the student in the evaluation process was important to the participants.

'The supervisor (clinical instructor, tutor and ward supervisors) will evaluate you after end of procedure and tell you where you have done well and where you have missed, or where you still need a lot of practice which you actually appreciate when the supervisor highlights your short falls. The supervisor will also give you time to evaluate yourself on how you think you have performed at times you think you have mastered it all when you actually have missed. Write matron report and give report ... had to write the care plan...matron mark and correct.... this motivated us as we gain more skills in report writing.' [Tariro]

During the evaluation, the supervisor takes on a protective role for both the student and the patient, as revealed by the newly qualified midwife Kudzi in her following quote.

'But if it really a dangerous thing putting the patient's life at risk the qualified [midwife] will take over after like they say 'step aside you are not doing it properly let me show you or let me finish it seems as if you not yet mastered’.' [Kudzi]

Evaluation of learning seems to be attached to emotions and perceptions related to the outcome and have an impact on learner-teacher relationship as revealed by Nyasha in her following statement.
‘Someone would put an extra effort to practice …Whereby…. After doing it they are actually happy that it was very good … As opposed to some who are doing a return demonstration, but they did not put effort into preparing it. I think maintaining the professional relationship…give respect …..showing you were dedicated and working hard impress the clinical instructors…. Motivating…them to give me the support … exposure more than others, I benefited a lot.’ [Nyasha]

A summative evaluation is completed at the end of the course to determine whether the objectives have been met and if the student can demonstrate competence in a task. Such evaluations are timed and result in a pass or fail score. The student will pass if they meet the examination criteria, as revealed by Susan in her following narration.

‘The clinical instructors will come to check whether the students are ready for the final assessment assessments… looking at the comments in the student’s follow up booklets… if the assessment is timed …you fail because you missed it by some minutes ….assessments are timed because [they]are examinations.’ [Susan]

6.5.4.5 Student experience with feedback

The student receives both formative and summative feedback. Formative is diagnostic, and associated with changing behaviour whilst summative is evaluative and demonstrates student competence. In this study, feedback is tied to emotions and self-esteem, communication, perceptions and relationship of both the supervisor and the participant.

The timing of feedback varies and can be given after the assessment in privacy or given immediately during the procedure. Depending on content and the way feedback is structured, it can either be constructive or unhelpful. The performance of students is not the same and the way the facilitators respond and provide feedback varies. Students could perceive an imbalance of positive and negative feedback of on their performance activities which they found frustrating. Kudzi and Susan statements described the facilitators’ behaviour towards a student who is not performing well.

‘Then…if you are not doing well the supervisor will take over the task. Will then call you later in the duty room to say … what you were doing was not correct. Others will not take over they will leave you to finish as they comment even if you are doing it wrongly.’ [Kudzi]

‘Getting corrected from the beginning to end you know that I was wrong ....Know that I was supposed to be prepared to do this ….When you are here to learn, that embarrassment, fact that everyone is watching, it’s not nice to be corrected like a young one, makes you appear stupid, you become stressed.’ [Susan]

Negative feedback could have a profound emotional effect on the student, removing their confidence.

‘I feel like crying or go back home… quitting... had enough of this midwifery...I felt like crying ... I felt like beating that sister.’(Weepy and changed tone) [Tariro]
Again age appeared to be an issue and Kudakwashe discusses how age differences between the supervisor and student affect the way in which feedback is given and received.

‘Mean when you are this old... The younger person shouting at you is disrespecting of human dignity ... Any older adult the last thing I would want is being shouted at.’ [Kudakwashe]

In summary, the associated experiences of information processing, skill acquisition and development and relationship building revealed the psychosocial aspect of the student and the associated relationships which impact on their skill acquisition and development during their training. The most common relationships revealed were student-tutor, student-clinical instructor, student-ward supervisor, clinical instructor-ward supervisor, student–patient–facilitator the student-student relationship which impacted on the type of skill the student develops. The emotions and feelings associated with support, evaluation and feedback affect the psychological aspect of the individual. Hence it was revealed that social relations involve the interaction between the environment, the student and learning task.

6. 6 The Core category

The Core category ‘Being Interactive’ made up of three main categories: ‘being socialised in the midwifery profession’ ‘student typology’ and ‘finding a place in the midwifery profession’. The first category revealed the participants knowledge and perceptions towards ICM core competences whilst the second category of student typology revealed the students’ characteristics and learning preferences. Finally the third category ‘finding a place in the midwifery profession’ revealed how the activities the students engaged in during training made them qualified midwives. Finally these three main categories developed a theory grounded in the data of social processes facilitating and/hindering competence and confidence development: Being interactive (Figure 6.4).

6.7 Summary of emerged results on finding a place in the midwifery profession

In summary, the main category ‘Finding a place in the midwifery profession’ main category emerged with two subcategories ‘learning environment characteristics’ and ‘developing midwifery skills’. Learning environment characteristics includes identifying, acknowledging and finding strategies to mitigate the environmental issues which included, shortage of resources, institutional and training policies and training support systems. The second subcategory ‘developing midwifery skills’ revealed that the process of skill acquisition and development is made up of three phases; the skill acquisition stage, the transferring phase and the actualisation stage. Collectively these phases make up the six stages the midwife goes through for them to acquire, transfer and develop the skills and

6.8 Summary of main findings
In summary, the grounded theory of social processes impacting competence and confidence development in midwifery training emerged. The main category ‘being interactive’ composed of three main categories emerged ‘being socialised in the midwifery profession’; student typology and finding a place in the midwifery profession emerged.
Figure 6-4 The Grounded theory of social processes impacting competence and confidence development in midwifery training: Being interactive

- Awareness of the ICM as a professional association
- Being socialised into the profession
- Newly qualified midwives' perceptions associated with ICM competencies
- Contextualising learners
- Student's learning characteristics
- Learning environment characteristics
- Finding a place in the profession
- Being interactive
- Learning midwifery skills

Student typology
Chapter 7 Quantitative Study Results

7.1 Introduction
This chapter presents the results of the explanatory longitudinal correlational study of 360° assessed competence over time using data collected from the three midwifery schools. Section 7.2 presents results for recruitment, retention and attrition during the study by midwifery school, while Section 7.3 summarises characteristics of the students, also by midwifery school. Section 7.4 reports the results of a reliability analysis of the 360° competence assessment tool while Section 7.5 presents a drop-out analysis of participants over time. Section 7.6 compares 360° assessed competence scores from the ward supervisors/senior midwives; peers and clinical instructors and students' self-assessed confidence scores by midwifery school. Section 7.7 analyses the relationships between the competence scores and self-assessed confidence scores at and between different time points. Sections 7.8 and 7.9 explore the predictors of the student's self-assessed confidence score after 3 months of clinical practice. Finally, Section 7.10 presents a summary of the main quantitative findings.

7.2 Recruitment, retention and attrition by midwifery school
Table 7.1 summarises the number of students available at the start of data collection, the number recruited at time 1 (before the students sat their state final examination), and the numbers participating at time 2 (after the students had received the results of their state final examination) and time 3 (after 3 months of clinical practice), all by midwifery school. Recruitment rates at time 1 were highest at School C (69.7%) and School A (60.4%) but low at School B (17.5%), giving an overall recruitment rate of 85/158 (53.8%). All seven students recruited from School B dropped out after time 1, while attrition was moderate for School A (28.1% at time 2, 43.8% at time 3) and low for School B (8.7% at time 2, 13.0% at time 3). Across the three midwifery schools, 58/85 students completed the study, a retention rate of 68.2%.
Table 7.1 Recruitment, retention and attrition by midwifery school

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**Time 1**

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<tr>
<td>Number participating</td>
<td>23</td>
<td>0</td>
<td>42</td>
<td>65</td>
</tr>
<tr>
<td>Retention rate</td>
<td>71.9%</td>
<td>0.0%</td>
<td>91.3%</td>
<td>76.5%</td>
</tr>
<tr>
<td>95% CI</td>
<td>54.6% to 84.4%</td>
<td>0.0% to 35.4%</td>
<td>79.7% to 96.6%</td>
<td>66.45 to 84.2%</td>
</tr>
<tr>
<td>Attrition rate</td>
<td>28.1%</td>
<td>100.0%</td>
<td>8.7%</td>
<td>23.5%</td>
</tr>
<tr>
<td>95% CI</td>
<td>15.6% to 45.4%</td>
<td>64.6% to 100.0%</td>
<td>3.4% to 20.3%</td>
<td>15.8% to 33.6%</td>
</tr>
</tbody>
</table>

**Time 3**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number participating</td>
<td>18</td>
<td>0</td>
<td>40</td>
<td>58</td>
</tr>
<tr>
<td>Retention rate</td>
<td>56.3%</td>
<td>0.0%</td>
<td>87.0%</td>
<td>68.2%</td>
</tr>
<tr>
<td>95% CI</td>
<td>39.3% to 71.8%</td>
<td>0.0% to 35.4%</td>
<td>74.3% to 93.9%</td>
<td>57.7% to 77.2%</td>
</tr>
<tr>
<td>Attrition rate</td>
<td>43.8%</td>
<td>100.0%</td>
<td>13.0%</td>
<td>31.8%</td>
</tr>
<tr>
<td>95% CI</td>
<td>28.2% to 60.7%</td>
<td>64.6% to 100.0%</td>
<td>6.1% to 25.7%</td>
<td>22.8% to 42.3%</td>
</tr>
</tbody>
</table>

Note: time 1 was before the students sat their state final examination; time 2 was after they received the results of their state final examination; time 3 was after 3 months of clinical practice

7.3 Summary of students’ characteristics by midwifery school

Table 7.2 presents the distribution of participants according to gender, years of experience post Registered General Nurse qualification and marital status before midwifery training enrollment by midwifery school. The midwifery schools differed in their breakdown by gender, years of experience post Registered General Nurse qualification and marital status before midwifery training enrollment by midwifery school. The midwifery schools differed in their breakdown by
sex (p=0.033), with more male students attending School A (43.8%) than School B (14.3%) or School C (17.4%). In all three midwifery schools the percentage of females was higher than that of males. Most participants (83.5%) had 3-8 years of working experience, the percentage being highest at School A (90.6%) followed by School B (85.8%) and then School C (73.5%). The differences in years of working experience by midwifery school was significant (p=0.047). Most participants (80.0%) were married, with School A having the largest percentage (90.6%) compared to School B (71.4%) and School AC (73.9%), the difference between schools being significant (p=0.039).

Table 7.3 and Figure 7.1 and present the participants’ age distribution by midwifery school. Students at School B had the highest mean age (37.3 years) compared with School A (34.2) and School C (33.4). The median age was also highest for School B (36 years), and there were small numbers of relatively older students at each school. There was no significant difference in the distribution of age by midwifery school (p=0.119).

In summary, most midwifery students were females were married with a varied working experience between 2 and 30 years, and most were adults and assumed to have multiple roles, which might interfere with learning.
Table 7.2 Gender, years of experience and marital status of participant by midwifery school

<table>
<thead>
<tr>
<th>Gender</th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
<th>Total</th>
<th>( \chi^2 = 7.27, ) df=2, p=0.033</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>14 (43.8%)</td>
<td>1 (14.3%)</td>
<td>8 (17.4%)</td>
<td>23 (27.1%)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>18 (56.3%)</td>
<td>6 (85.7%)</td>
<td>38 (86.2%)</td>
<td>62 (72.9%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years of experience</th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
<th>Total</th>
<th>Fisher’s exact p=0.047</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>4 (8.7%)</td>
<td>4 (4.7%)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>6 (18.8%)</td>
<td>0 (0.0%)</td>
<td>3 (6.5%)</td>
<td>9 (10.6%)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>5 (15.6%)</td>
<td>0 (0.0%)</td>
<td>4 (8.7%)</td>
<td>9 (10.6%)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2 (6.3%)</td>
<td>2 (28.6%)</td>
<td>16 (34.8%)</td>
<td>20 (23.5%)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>6 (18.8%)</td>
<td>2 (28.6%)</td>
<td>3 (6.5%)</td>
<td>11 (12.9%)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>8 (25.0%)</td>
<td>1 (14.3%)</td>
<td>6 (13.0%)</td>
<td>15 (17.6%)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>2 (6.3%)</td>
<td>1 (14.3%)</td>
<td>4 (8.7%)</td>
<td>7 (8.2%)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>2 (6.3%)</td>
<td>0 (0.0%)</td>
<td>1 (2.2%)</td>
<td>3 (3.5%)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>0 (0.0%)</td>
<td>1 (14.3%)</td>
<td>2 (4.3%)</td>
<td>3 (3.5%)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>1 (2.2%)</td>
<td>1 (1.2%)</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>1 (3.1%)</td>
<td>0 (0.0%)</td>
<td>1 (2.2%)</td>
<td>2 (2.4%)</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>1 (2.2%)</td>
<td>1 (1.2%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marital status</th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
<th>Total</th>
<th>Fisher’s exact p=0.039</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>3 (9.4%)</td>
<td>1 (14.3%)</td>
<td>12 (26.1%)</td>
<td>16 (18.8%)</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>29 (90.6%)</td>
<td>5 (71.4%)</td>
<td>34 (73.9%)</td>
<td>68 (80.0%)</td>
<td></td>
</tr>
<tr>
<td>Widowed</td>
<td>0 (0.0%)</td>
<td>1 (14.3%)</td>
<td>0 (0.0%)</td>
<td>1 (1.2%)</td>
<td></td>
</tr>
</tbody>
</table>

| Total               | 32 (100.0%) | 7 (100.0%) | 46 (100.0%) | 85 (100.0%) |                        |
Table 7.3 Age of participant by midwifery school

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>32</td>
<td>7</td>
<td>46</td>
<td>85</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>34.2 (4.5)</td>
<td>37.3 (5.6)</td>
<td>33.4 (4.7)</td>
<td>34(4.8)</td>
</tr>
<tr>
<td>Median</td>
<td>33</td>
<td>36</td>
<td>32</td>
<td>33</td>
</tr>
<tr>
<td>Range</td>
<td>28 to 49</td>
<td>32 to 48</td>
<td>28 to 53</td>
<td>28 to 53</td>
</tr>
</tbody>
</table>

ANOVA
F = 2.18, df = 2 and 82, p = 0.119

Figure 7-1 Participants’ age distribution by school of midwifery
Table 7.4 compares place of residence of participants during training and responsibility previously held by midwifery school. Overall, half of the students stayed in the midwifery school training residence and half were non-resident, but the percentage who were resident differed significantly between school (p=0.024). School A had the highest percentage of residents (68.8%) compared to School B (57.1%), and School C had the lowest (37.0%). There was no difference between school in responsibility previously held (p=0.963), with most students having had no responsibility (83.5%), one in eight having been a sister in charge (12.9%) and only three students having been a matron.

Many students of midwifery work for a long period of time before coming to training and some may have been promoted to senior positions or have gained more experience than those training them. This may make it difficult for the students to adopt a student status and accord respect to a person they see as being junior to them or with less experience, which may cause conflict. However, relatively few students in this study had been in senior positions prior to midwifery training.

Table 7.4 Place of residence during training and responsibility previously held for participant by midwifery school

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place of residence</td>
<td></td>
<td></td>
<td></td>
<td>Fisher's exact,</td>
</tr>
<tr>
<td>Resident</td>
<td>22 (68.8%)</td>
<td>4 (57.1%)</td>
<td>17 (37.0%)</td>
<td>43 (50.6%)</td>
</tr>
<tr>
<td>Non-resident</td>
<td>10 (31.3%)</td>
<td>3 (42.9%)</td>
<td>29 (63.0%)</td>
<td>42 (49.4%)</td>
</tr>
<tr>
<td>Responsibility held</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sister in charge</td>
<td>5 (15.6%)</td>
<td>1 (14.3%)</td>
<td>5 (10.9%)</td>
<td>11 (12.9%)</td>
</tr>
<tr>
<td>Matron</td>
<td>1 (3.1%)</td>
<td>0 (0.0%)</td>
<td>2 (4.3%)</td>
<td>3 (3.5%)</td>
</tr>
<tr>
<td>Neither</td>
<td>26 (81.3%)</td>
<td>6 (85.7%)</td>
<td>39 (84.8%)</td>
<td>71 (83.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>32 (100.0%)</td>
<td>7 (100.0%)</td>
<td>46 (100.0%)</td>
<td>85 (100.0%)</td>
</tr>
</tbody>
</table>

Table 7.5 compares the percentages of participants who had worked in medical, surgical, paediatric and maternity wards before attending midwifery school. Overall, most students
had previously worked on medical wards (90.6%), three-quarters had worked on surgical wards (75.3%), and just over half had worked on paediatric wards (56.5%), yet only one in six had worked on maternity wards (17.6%). The only area that showed a difference between schools was paediatric wards (p=0.030), and this appeared to be largely due to all seven students from School B having previously worked in that area.

Almost all students enrolling for midwifery training would have covered the medical and surgical conditions in general, and it is assumed that it would be easier for them to transfer that knowledge into midwifery-specific medical, surgical and paediatric conditions. This should have helped them during their midwifery training.

Table 7.5 also presents the percentages of participants who had worked in different types of setting before attending midwifery school. Just over half of the students had previously worked in a central hospital (51.8%), but relatively few had worked in a rural health centre (7.1%) or and urban clinic (15.3%). Few had worked in a provincial hospital (8.2%). The only significant differences between midwifery schools were for urban clinic (p=0.028), with 28.1% of School A, 14.3% of School B and 6.5% of School C students having worked in urban clinics, and provincial hospital, where no School A students, 28.6% of School B students and 10.9% of School C students had worked in a provincial hospital.

Working in rural and urban clinics in Zimbabwe is associated with autonomy and decision making; hence such students should understand the concept of autonomy in midwifery and operate as an independent practitioner.
Table 7.5 Clinical area previously worked and type of health institution by midwifery school

<table>
<thead>
<tr>
<th>Clinical area worked</th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical wards</td>
<td>29 (90.6%)</td>
<td>7 (100.0%)</td>
<td>41 (89.1%)</td>
<td>77 (90.6%)</td>
</tr>
<tr>
<td>Surgical wards</td>
<td>25 (78.1%)</td>
<td>7 (100.0%)</td>
<td>32 (69.6%)</td>
<td>64 (75.3%)</td>
</tr>
<tr>
<td>Paediatric wards</td>
<td>19 (59.4%)</td>
<td>7 (100.0%)</td>
<td>22 (47.8%)</td>
<td>48 (56.5%)</td>
</tr>
<tr>
<td>Maternity wards</td>
<td>8 (25.0%)</td>
<td>1 (14.3%)</td>
<td>6 (13.0%)</td>
<td>15 (17.6%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of health institution</th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural health centre</td>
<td>4 (12.5%)</td>
<td>0 (0.0%)</td>
<td>2 (4.3%)</td>
<td>6 (7.1%)</td>
</tr>
<tr>
<td>Private clinic/hospital</td>
<td>1 (3.1%)</td>
<td>1 (14.3%)</td>
<td>7 (15.2%)</td>
<td>9 (10.6%)</td>
</tr>
<tr>
<td>Urban clinic</td>
<td>9 (28.1%)</td>
<td>1 (14.3%)</td>
<td>3 (6.5%)</td>
<td>13 (15.3%)</td>
</tr>
<tr>
<td>District hospital</td>
<td>11 (34.4%)</td>
<td>1 (14.3%)</td>
<td>12 (26.1%)</td>
<td>24 (28.2%)</td>
</tr>
<tr>
<td>Provincial hospital</td>
<td>0 (0.0%)</td>
<td>2 (28.6%)</td>
<td>5 (10.9%)</td>
<td>7 (8.2%)</td>
</tr>
<tr>
<td>Central hospital</td>
<td>16 (50.0%)</td>
<td>3 (42.9%)</td>
<td>25 (54.3%)</td>
<td>44 (51.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>32 (100.0%)</td>
<td>7 (100.0%)</td>
<td>46 (100.0%)</td>
<td>85 (100.0%)</td>
</tr>
</tbody>
</table>

7.4 Reliability analysis of 360° assessment tool

The 360° assessment tool used to measure the student's self-assessed confidence and the student's competence as assessed by the ward supervisor/senior midwife, a peer and the clinical instructor had not been previously used in research or clinical practice. A two-stage reliability analysis was therefore performed to assess whether the participants responded to all items and whether the subscales of the tool and the overall score showed internal consistency at each of the three time points used in the study.
7.4.1 Completeness of responses
The first stage in the reliability analysis of the 360° assessment tool involved whether the four assessors answered all items at each of the three time points. Tables 7.6, 7.7 and 7.8 show the numbers of responses and non-responses for each of the 20 items included in the tool for the four assessors at time points 1 (before the students sat their state final examination), 2 (after the students had received their results) and 3 (after three weeks of clinical practice).

Eighteen of the 20 items were routinely completed by almost all assessors. The exceptions were the items “I feel I can perform an episiotomy if needed” and “I feel I can resuscitate the new-born and document actions taken”. These were not assessed by all ward supervisors/senior midwives, peers or clinical instructors, presumably because the assessor in question had not experienced the student performing episiotomy or neonatal resuscitation.

For the 85 students participating at time 1, the numbers of ward supervisors/senior midwives, peers and clinical instructors not rating “I feel I can perform an episiotomy if needed” for the student were 35, 42 and 44 respectively. Interestingly 6 students could not give themselves a rating either. The numbers of other assessors not rating “I feel I can resuscitate the new-born and document actions taken” were higher at 49, 65 and 70 respectively, with 5 students not rating themselves on neonatal resuscitation. Seven students failed to give themselves a confidence rating for either performing an episiotomy or resuscitating a new born. Five of these (4 from School B and 1 from School A) did not have competence ratings given by a ward supervisor/senior midwife, peer or clinical instructor, suggesting that the five may not have had sufficient experience of performing an episiotomy or neonatal resuscitation at this point in their training.

The proportions with missing responses for these items were generally higher at time 2. For the 65 students participating, the numbers of ward supervisors/senior midwives, peers and clinical instructors not rating “I feel I can perform an episiotomy if needed” for the student were 33, 32 and 42 respectively; the numbers not rating “I feel I can resuscitate the new-born and document actions taken” were 34, 50 and 55 respectively. Only one student did not give themselves a confidence rating on performing an episiotomy and none failed to give themselves a confidence rating for neonatal resuscitation. Of the seven students not giving themselves a rating on either of the two items at time 1, the four from School B did
not subsequently participate, while the other three were from School A rated their confidence on both items at time 2.

At time 3, there were fewer missing values across all items, particularly the two problematical ones, although it should be noted that seven students had dropped out from the study since time 2. For the 58 students still participating, the numbers of ward supervisors/senior midwives, peers and clinical instructors not rating “I feel I can perform an episiotomy if needed” for the student reduced to 17, 17 and 21 respectively; the numbers not rating “I feel I can resuscitate the new-born and document actions taken” reduced to 8, 18 and 29 respectively.
Table 7.6 Available and missing responses to items on 360° assessment tool at time 1 (before students sat their state final examination) (cells show available/missing, maximum n=85)

<table>
<thead>
<tr>
<th>Item</th>
<th>Ward supervisor /Senior midwife</th>
<th>Peer</th>
<th>Clinical instructor</th>
<th>Student *</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antenatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel am able carrying out a booking history</td>
<td>84/1</td>
<td>85/0</td>
<td>84/1</td>
<td>82/3</td>
</tr>
<tr>
<td>I feel I can perform a physical examination</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
<td>82/3</td>
</tr>
<tr>
<td>I feel can perform an abdominal examination</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
<td>83/2</td>
</tr>
<tr>
<td>I feel can give client-centred health education</td>
<td>84/1</td>
<td>85/0</td>
<td>84/1</td>
<td>82/3</td>
</tr>
<tr>
<td><strong>First stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can admit a patient in labour</td>
<td>84/1</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can use a partograph to manage a patient in the first stage of labour</td>
<td>84/1</td>
<td>84/1</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can a perform a vaginal examination</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can perform a digital pelvic assessment</td>
<td>84/1</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td><strong>Second stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can perform an episiotomy if needed</td>
<td>50/35</td>
<td>43/42</td>
<td>41/44</td>
<td>79/6</td>
</tr>
<tr>
<td>I feel I can conduct a delivery</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can do an Apgar score rating of the newborn</td>
<td></td>
<td>84/1</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td><strong>Third stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can conduct an active management of the third stage of labour</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>83/2</td>
</tr>
<tr>
<td>I feel I can do a placenta examination</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can estimate and record blood loss</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td>I feel I can do post-delivery observations for mother and baby</td>
<td>83/2</td>
<td>85/0</td>
<td>85/0</td>
<td>84/1</td>
</tr>
<tr>
<td><strong>Postnatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can admit the mother and baby to the post-natal ward</td>
<td>85/0</td>
<td>84/1</td>
<td>84/1</td>
<td>83/2</td>
</tr>
<tr>
<td>I feel can assess the progress of mother and baby in the puerperal period</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>83/2</td>
</tr>
<tr>
<td><strong>Neonatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can resuscitate the new-born and document actions taken</td>
<td>36/49</td>
<td>20/65</td>
<td>15/70</td>
<td>80/5</td>
</tr>
<tr>
<td>I feel I can perform, record and report on the initial examination of the new-born</td>
<td>84/1</td>
<td>85/0</td>
<td>85/0</td>
<td>83/2</td>
</tr>
<tr>
<td>I feel I can perform, record and report on continuing care of the new-born</td>
<td>85/0</td>
<td>85/0</td>
<td>85/0</td>
<td>83/2</td>
</tr>
</tbody>
</table>

*One student did not complete the assessment tool at time 1 (but did so at times 2 and 3); the student’s ward supervisor/senior midwife, peer and clinical instructor completed the tool at time 1*
Table 7.7 Available and missing responses to items on 360° assessment tool at time 2 (after students had the results of their state final examination) (cells show available/missing, maximum n=65)

<table>
<thead>
<tr>
<th>Item</th>
<th>Ward supervisor / Senior midwife</th>
<th>Peer</th>
<th>Clinical instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antenatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel am able carrying out a booking history</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can perform a physical examination</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can perform an abdominal examination</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can give client-centred health education</td>
<td>65/0</td>
<td>63/2</td>
<td>65/0</td>
<td>64/1</td>
</tr>
<tr>
<td><strong>First stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can admit a patient in labour</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can use a partograph to manage a patient in the first stage of labour</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can a perform a vaginal examination</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can perform a digital pelvic assessment</td>
<td>64/1</td>
<td>64/1</td>
<td>65/0</td>
<td>64/1</td>
</tr>
<tr>
<td><strong>Second stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can perform an episiotomy if needed</td>
<td>32/33</td>
<td>33/32</td>
<td>23/42</td>
<td>64/1</td>
</tr>
<tr>
<td>I feel I can conduct a delivery</td>
<td>64/1</td>
<td>64/1</td>
<td>62/3</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can do an Apgar score rating of the newborn</td>
<td>63/2</td>
<td>62/3</td>
<td>64/1</td>
<td>65/0</td>
</tr>
<tr>
<td><strong>Third stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can conduct an active management of the third stage of labour</td>
<td>64/1</td>
<td>64/1</td>
<td>64/1</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can do a placenta examination</td>
<td>64/1</td>
<td>64/1</td>
<td>64/1</td>
<td>64/1</td>
</tr>
<tr>
<td>I feel I can estimate and record blood loss</td>
<td>64/1</td>
<td>64/1</td>
<td>64/1</td>
<td>64/1</td>
</tr>
<tr>
<td>I feel I can do post-delivery observations for mother and baby</td>
<td>63/2</td>
<td>64/1</td>
<td>61/4</td>
<td>65/0</td>
</tr>
<tr>
<td><strong>Postnatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can admit the mother and baby to the post-natal ward</td>
<td>64/1</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can assess the progress of mother and baby in the puerperal period</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
<tr>
<td><strong>Neonatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can resuscitate the new-born and document actions taken</td>
<td>31/34</td>
<td>15/50</td>
<td>10/55</td>
<td>65/0</td>
</tr>
<tr>
<td>I feel I can perform, record and report on the initial examination of the new-born</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>64/1</td>
</tr>
<tr>
<td>I feel I can perform, record and report on continuing care of the new-born</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
<td>65/0</td>
</tr>
</tbody>
</table>
Table 7-8 Available and missing responses to items on 360° assessment tool at time 3 (after students had been in clinical practice for 3 months) (cells show available/missing, maximum n=58)

<table>
<thead>
<tr>
<th>Item</th>
<th>Ward supervisor / Senior midwife</th>
<th>Peer</th>
<th>Clinical instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antenatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel am able carrying out a booking history</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can perform a physical examination</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel can perform an abdominal examination</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel can give client-centred health education</td>
<td>57/1</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td><strong>First stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can admit a patient in labour</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can use a partograph to manage a patient in the first stage of labour</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can a perform a vaginal examination</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can perform a digital pelvic assessment</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>57/1</td>
</tr>
<tr>
<td><strong>Second stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can perform an episiotomy if needed</td>
<td>41/17</td>
<td>41/17</td>
<td>37/21</td>
<td>57/1</td>
</tr>
<tr>
<td>I feel I can conduct a delivery</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>57/1</td>
</tr>
<tr>
<td>I feel I can do an Apgar score rating of the newborn</td>
<td>58/0</td>
<td>57/1</td>
<td>57/1</td>
<td>58/0</td>
</tr>
<tr>
<td><strong>Third stage of labour</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can conduct an active management of the third stage of labour</td>
<td>57/1</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can do a placenta examination</td>
<td>58/0</td>
<td>57/1</td>
<td>57/1</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can estimate and record blood loss</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can do post-delivery observations for mother and baby</td>
<td>58/0</td>
<td>57/1</td>
<td>56/2</td>
<td>56/2</td>
</tr>
<tr>
<td><strong>Postnatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can admit the mother and baby to the post-natal ward</td>
<td>57/1</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel can assess the progress of mother and baby in the puerperal period</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td><strong>Neonatal care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I can resuscitate the new-born and document actions taken</td>
<td>50/8</td>
<td>40/18</td>
<td>29/29</td>
<td>56/2</td>
</tr>
<tr>
<td>I feel I can perform, record and report on the initial examination of the new-born</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
<tr>
<td>I feel I can perform, record and report on continuing care of the new-born</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
<td>58/0</td>
</tr>
</tbody>
</table>
7.4.2 Internal consistency

The second stage of reliability analysis was to estimate Cronbach’s alpha coefficient of internal consistency for each subscale and the overall score for each assessor at each time point. Table 7.9 shows the values of Cronbach’s alpha at time 1, before the students sat their state final examination. Cronbach’s alpha can only be calculated when there are no missing values, and the number of complete responses from ward supervisors/senior midwives, peers and clinical instructors were reduced markedly due to the missing responses for the items “I feel I can perform an episiotomy if needed” and “I feel I can resuscitate the new-born and document actions taken”. In particular, the numbers of ward supervisors/senior midwives, peers and clinical instructors with complete data to calculate Cronbach’s alpha for the total score were only 25, 20 and 8 respectively. Using the interpretations of Ponterotto and Ruckdeschl (2007), which are adjusted for the number of items per subscale and sample size, all subscales and the overall scale of the 360° assessment tool showed an “excellent” internal consistency (≥0.75 for up to 6 items, ≥0.85 for 12 or more items).
Table 7.9 Internal consistency reliability (Cronbach’s alpha) of the 360° assessment tool at time 1 (before students sat their state final examination) (maximum n=85)

<table>
<thead>
<tr>
<th>Section</th>
<th>Number of items</th>
<th>Ward supervisor/Senior midwife</th>
<th>Peer</th>
<th>Clinical instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>alpha</td>
<td>N</td>
<td>alpha</td>
<td>N</td>
</tr>
<tr>
<td>Antenatal care</td>
<td>4</td>
<td>83</td>
<td>0.84</td>
<td>85</td>
<td>0.89</td>
</tr>
<tr>
<td>First stage of labour</td>
<td>4</td>
<td>83</td>
<td>0.88</td>
<td>84</td>
<td>0.90</td>
</tr>
<tr>
<td>Second stage of labour</td>
<td>3</td>
<td>48</td>
<td>0.86</td>
<td>42</td>
<td>0.89</td>
</tr>
<tr>
<td>Third stage of labour</td>
<td>4</td>
<td>83</td>
<td>0.90</td>
<td>85</td>
<td>0.92</td>
</tr>
<tr>
<td>Postnatal care</td>
<td>2</td>
<td>85</td>
<td>0.77</td>
<td>84</td>
<td>0.87</td>
</tr>
<tr>
<td>Neonatal care</td>
<td>3</td>
<td>36</td>
<td>0.89</td>
<td>20</td>
<td>0.86</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>25</td>
<td>0.96</td>
<td>20</td>
<td>0.98</td>
</tr>
</tbody>
</table>

Table 7.10 shows values of Cronbach’s alpha at time 2, after the students had received the results of their state final examination. Again, numbers were affected by missing responses to the two problematical items, and the numbers of ward supervisors/senior midwives, peers and clinical instructors with complete data for the total score were only 20, 8 and 5 respectively. From Ponterotto and Ruckdeschl (2007), most subscales and overall scales showed an “excellent” internal consistency. Exceptions were postnatal care for the ward supervisor/senior midwife (alpha = 0.71, interpreted as “good”), neonatal care for the peer (alpha = 0.66, interpreted as “moderate”), neonatal care for the clinical instructor (alpha = 0.74, interpreted as “good”), and the total score for the clinical instructor (alpha = 0.69, which would be interpreted as “unsatisfactory”). It should be noted that the latter was estimated over only 5 clinical instructors who responded to every item, and that three items had constant values and were excluded from the calculations.
Table 7-10 Internal consistency reliability (Cronbach’s alpha) of the 360° assessment tool at time 2 (after students had the results of their state final examination) (maximum n=65)

<table>
<thead>
<tr>
<th>Section</th>
<th>Number of items</th>
<th>Ward supervisor/ Senior midwife</th>
<th>Peer</th>
<th>Clinical instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>alpha</td>
<td>N</td>
<td>alpha</td>
</tr>
<tr>
<td>Antenatal care</td>
<td>4</td>
<td>65</td>
<td>0.97</td>
<td>63</td>
<td>0.94</td>
</tr>
<tr>
<td>First stage of labour</td>
<td>4</td>
<td>64</td>
<td>0.96</td>
<td>64</td>
<td>0.95</td>
</tr>
<tr>
<td>Second stage of labour</td>
<td>3</td>
<td>31</td>
<td>0.93</td>
<td>32</td>
<td>0.90</td>
</tr>
<tr>
<td>Third stage of labour</td>
<td>4</td>
<td>63</td>
<td>0.95</td>
<td>64</td>
<td>0.90</td>
</tr>
<tr>
<td>Postnatal care</td>
<td>2</td>
<td>64</td>
<td>0.71</td>
<td>65</td>
<td>0.84</td>
</tr>
<tr>
<td>Neonatal care</td>
<td>3</td>
<td>31</td>
<td>0.93</td>
<td>15</td>
<td>0.66</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>18</td>
<td>0.99</td>
<td>8</td>
<td>0.97</td>
</tr>
</tbody>
</table>

* 3 items were removed from the 20-item scale during the calculations for being constant over the 5 clinical instructors with no missing values.

Table 7.11 shows values of Cronbach’s alpha at time 3, after the students had been in clinical practice for three months. This time, numbers less affected by missing responses to the two problematical items, and the numbers of ward supervisors/senior midwives, peers and clinical instructors with complete data for the total score were 35, 29 and 21 respectively. From Ponterotto and Ruckdeschl (2007), most subscales and overall scales showed an “excellent” internal consistency. Exceptions were neonatal care for the peer (alpha = 0.71, interpreted as “good”), neonatal care for the clinical instructor (alpha = 0.68, interpreted as “moderate”), antenatal care for the student (alpha = 0.67, interpreted as “moderate”) and the second stage of labour for the student (alpha = 0.70, which would be interpreted as “good”). Apart from the third stage of labour where alpha increased from 0.87 to 0.92, students showed a drop in values of alpha from time 2 to time 3 in the other
subscales and the total scale, indicating that they were giving slightly more inconsistent answers after spending three months in practice.

**Table 7.11 Internal consistency reliability (Cronbach’s alpha) of the 360° assessment tool at time 3 (after students had been in clinical practice for 3 months) (maximum n=58)**

<table>
<thead>
<tr>
<th>Section</th>
<th>Number of items</th>
<th>Ward supervisor/ Senior midwife</th>
<th>Peer</th>
<th>Clinical instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>alpha</td>
<td>N</td>
<td>alpha</td>
<td>N</td>
</tr>
<tr>
<td>Antenatal care</td>
<td>4</td>
<td>57</td>
<td>0.96</td>
<td>58</td>
<td>0.96</td>
</tr>
<tr>
<td>First stage of labour</td>
<td>4</td>
<td>58</td>
<td>0.96</td>
<td>58</td>
<td>0.96</td>
</tr>
<tr>
<td>Second stage of labour</td>
<td>3</td>
<td>41</td>
<td>0.93</td>
<td>40</td>
<td>0.93</td>
</tr>
<tr>
<td>Third stage of labour</td>
<td>4</td>
<td>57</td>
<td>0.95</td>
<td>56</td>
<td>0.93</td>
</tr>
<tr>
<td>Postnatal care</td>
<td>2</td>
<td>57</td>
<td>0.92</td>
<td>58</td>
<td>0.91</td>
</tr>
<tr>
<td>Neonatal care</td>
<td>3</td>
<td>50</td>
<td>0.95</td>
<td>40</td>
<td>0.71</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>35</td>
<td>0.99</td>
<td>29</td>
<td>0.98</td>
</tr>
</tbody>
</table>
7.4.3 Conclusions

Responses from students across the 20 items in the 360° assessment tool were almost complete at each of the three time points, although 7 of the 85 students did not give confidence ratings on the items “I feel I can perform an episiotomy if needed” and “I feel I can resuscitate the new-born and document actions taken” at time 1, possibly due to lack of experience with the activities. Students' responses showed excellent levels of internal consistency for the overall scale at each time point and all subscales at the first two time points, but showed a reduction in internal consistency at time point 3, after three months in practice, particularly for antenatal care and for the second stage of labour.

Responses from ward supervisors/senior midwives, peers and clinical instructors were almost complete for 18/20 items at the three time points but many were unable to rate the students' competence on “I feel I can perform an episiotomy if needed” and “I feel I can resuscitate the new-born and document actions taken” at the three time points, assumedly because they had not observed the student undertake episiotomy or neonatal resuscitation. While their responses showed generally excellent levels of internal consistency, the numbers included in the analyses for the subscales for the second stage of labour and neonatal care and the overall scale were reduced due to missing responses for the items on episiotomy and neonatal resuscitation, markedly so for the overall scale. However, it should be noted that the missing responses did not affect the running of the analyses of confidence and competence scores in Sections 7.6-7.10. While estimation of Cronbach's alpha requires that all values be present, scores on subscales were calculated allowing for one missing value per subscale. If, for example, a clinical instructor did not enter a response for conducting an episiotomy, they would still have a score for the subscale representing the second stage of labour providing they entered responses for the three other items. The score replacing the missing value was proportional to the valid responses for the subscale items (see Section 5.8.1 of Chapter 5).

7.5 Drop-out analysis

7.5.1 Drop-out analysis over all three schools of midwifery

Table 7.12 compares the distributions of the categorical variables school of midwifery and gender by whether the student dropped out from the study. Amongst the group who dropped out, just over half were from School A (51.9%), a quarter were from School B (25.9% including all seven students from that school) and just under a quarter were from School C (22.2%). Most students who completed the study were from School C (69.0%),
and the association between school and dropout was significant (p<0.001). By contrast, there was no association between gender and dropout (p=0.716).

**Table 7.12 School of midwifery and gender by whether student dropped out from study**

<table>
<thead>
<tr>
<th></th>
<th>Remained</th>
<th>Dropped out</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School of midwifery</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School A</td>
<td>18 (31.0%)</td>
<td>14 (51.9%)</td>
<td>Fisher’s exact test, p&lt;0.001</td>
</tr>
<tr>
<td>School B</td>
<td>0 (0.0%)</td>
<td>7 (25.9%)</td>
<td></td>
</tr>
<tr>
<td>School C</td>
<td>40 (69.0%)</td>
<td>6 (22.2%)</td>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>15 (25.9%)</td>
<td>8 (29.6%)</td>
<td>χ²=0.13, df=1, p=0.716</td>
</tr>
<tr>
<td>Female</td>
<td>43 (74.1%)</td>
<td>19 (70.4%)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>48 (100.0%)</td>
<td>27 (100.0%)</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.13 compares the distributions of the continuous variables age, years of experience post RGN qualification, and competence and confidence scores at time 1 by whether the student dropped out from the study. There was no association between age (p=0.144), years of experience (p=0.685) or the student’s self-confidence score at time 1 (p=0.515) and whether the student dropped out. However, dropout was associated with other assessors' competence scores. Those dropping out had lower competence scores given by the ward supervisor/senior midwife (p=0.016), peer (p<0.001) and clinical instructor (p=0.022).
Table 7.13 Age, years of experience and competence and confidence scores at time 1 by whether student dropped out from study

<table>
<thead>
<tr>
<th></th>
<th>Remained</th>
<th>Dropped out</th>
<th>Mann-Whitney Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
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</tr>
<tr>
<td>Mean</td>
<td>33.3</td>
<td>35.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>4.08</td>
<td>5.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>33</td>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>28 to 53</td>
<td>28 to 49</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Years of experience post RGN qualification</strong></td>
<td></td>
<td></td>
<td>Mann-Whitney Z=-0.41,</td>
<td>p=0.685</td>
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<td>58</td>
<td>27</td>
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<td></td>
</tr>
<tr>
<td>Mean</td>
<td>6.2</td>
<td>6.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>3.8</td>
<td>3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>5.5</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>2 to 30</td>
<td>2 to 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Competence score for Ward supervisor/senior midwife at time 1</strong></td>
<td></td>
<td></td>
<td>Mann-Whitney Z=-2.41,</td>
<td>p=0.016</td>
</tr>
<tr>
<td>N</td>
<td>57</td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>162.8</td>
<td>153.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>16.3</td>
<td>17.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>168</td>
<td>154</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>126 to 194</td>
<td>115.5 to 183.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Competence score for peer at time 1</strong></td>
<td></td>
<td></td>
<td>Mann-Whitney Z=-4.08,</td>
<td>p&lt;0.001</td>
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<td>N</td>
<td>58</td>
<td>27</td>
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<td></td>
</tr>
<tr>
<td>Mean</td>
<td>163.6</td>
<td>142.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>19.6</td>
<td>21.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>17.8</td>
<td>142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>99 to 189</td>
<td>93 to 176</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Competence score for Clinical Instructor at time 1</strong></td>
<td></td>
<td></td>
<td>Mann-Whitney Z=-3.08,</td>
<td>p=0.002</td>
</tr>
<tr>
<td>N</td>
<td>58</td>
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<td></td>
</tr>
<tr>
<td>Mean</td>
<td>159</td>
<td>141.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>23.3</td>
<td>22.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>166</td>
<td>145</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>102 to 203</td>
<td>100.5 to 181</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Confidence score for student at time 1</strong></td>
<td></td>
<td></td>
<td>Mann-Whitney Z=-0.65,</td>
<td>p=0.515</td>
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<td>N</td>
<td>57</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>167</td>
<td>165.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>27.7</td>
<td>23.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>177</td>
<td>164</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>101 to 200</td>
<td>121.5 to 200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7.5.2 Drop-out analysis including School A and School C only

Because only seven students from School B participated and all dropped out after time 1, the previous analyses were repeated excluding these seven students (Table 7.14 and Table 7.15). Excluding the School B students did not change the results of the analyses; in particular, significantly more students dropped out from School A than School C (p=0.002).

Table 7.14 School of midwifery and gender by whether student dropped out from study excluding School B

<table>
<thead>
<tr>
<th>School of midwifery</th>
<th>Remained</th>
<th>Dropped out</th>
<th>( \chi^2 )</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>School A</td>
<td>18 (31.0%)</td>
<td>14 (70.0%)</td>
<td>9.33</td>
<td>1</td>
<td>0.002</td>
</tr>
<tr>
<td>School B</td>
<td>40 (69.0%)</td>
<td>6 (30.0%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Remained</th>
<th>Dropped out</th>
<th>( \chi^2 )</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>15 (25.9%)</td>
<td>7 (35.0%)</td>
<td>0.61</td>
<td>1</td>
<td>0.434</td>
</tr>
<tr>
<td>Female</td>
<td>43 (74.1%)</td>
<td>13 (65.0%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Total                | 48 (100.0%) | 20 (100.0%) |          |    |       |
Table 7.15 Age, years of experience and competence and confidence scores at time 1 by whether student dropped out from study excluding School B

<table>
<thead>
<tr>
<th></th>
<th>Remained</th>
<th>Dropped out</th>
<th>Mann-Whitney Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>58</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>33.3</td>
<td>34.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>4.08</td>
<td>5.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>33</td>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>28 to 53</td>
<td>28 to 49</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Years of experience post RGN qualification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>58</td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>33.3</td>
<td>6.22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>4.1</td>
<td>5.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>33</td>
<td>5.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>2 to 30</td>
<td>2 to 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Competence score for Ward supervisor/senior midwife at time 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>57</td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>162.8</td>
<td>151.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>16.3</td>
<td>15.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>168</td>
<td>153.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>126 to 194</td>
<td>115.5 to 183.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Competence score for peer at time 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>58</td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>163.6</td>
<td>147.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>19.6</td>
<td>20.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>171.8</td>
<td>142.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>99 to 189</td>
<td>114 to 176</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Competence score for Clinical Instructor at time 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>58</td>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>159</td>
<td>143.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>23.3</td>
<td>23.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>166</td>
<td>149</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>102 to 203</td>
<td>100.5 to 181</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Confidence score for student at time 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>57</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>167</td>
<td>170.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>27.7</td>
<td>23.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>177</td>
<td>172</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>101 to 200</td>
<td>138 to 200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7.5.3 Summary of results of drop-out analysis
Of the 85 students participating at the start of the study, time 1, before the students sat their state final examinations, only 58 provided data at the end of the study, time 3, after three months of clinical practice. Drop-out was associated with midwifery school, with all School B students and relatively more School A students dropping out compared with School A students. Drop-out was also related to the competence scores given at time 1 by the ward supervisor/senior midwife, peer and clinical instructor, students with lower scores being more likely to drop out. Drop-out was not associated with gender, age, years of experience post RGN qualification or the student’s confidence score at time 1.

Analysis of findings at times 2 and 3 may therefore be biased towards students from School C or students with higher competence scores given by the other assessors at time 1.

7.6 Comparison of assessors’ competence scores and student’s self-assessed confidence scores by midwifery school
7.6.1 Comparison of scores by school at time 1
Table 7.16 gives a breakdown of the 360° assessed competence score as assessed by the ward supervisor/senior midwife, the clinical instructor and a peer and the student’s self-assessed confidence scores by midwifery school at time 1, before the student midwives sat their state final examination. Distributions of competence scores for the ward supervisor, clinical instructor and peer differed significantly by school (all p<0.001), with means and medians for School C being considerably higher. By contrast, there was no significant difference between schools in the student's confidence score (p=0.152), although mean and median scores for School A were again the highest.

Ward supervisors/senior midwives, peers and clinical instructors at School C rated their own students as more competent than assessors at School A and School B at time 1. This could be because the students were more competent or the assessors were more lenient and over-rated the students’ competence. However, mean scores for the three different assessors at School C agreed with each other, including peers who acted as a non-institutional control. Therefore it seems likely that the School C students were indeed more competent. Their own self-confidence matched their assessors' perceptions of their competence. Students at School C showed almost the same level of confidence at time 1 as School C students, but this overestimated the assessments of their competence by ward supervisors/senior midwives, peers and clinical instructors.
Table 7.16 Assessors’ competence scores and student’s self-assessed confidence score by school of midwifery at time 1

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
<th>Total</th>
<th>Comparison of School A v School C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward supervisor/ Senior midwife</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>31</td>
<td>7</td>
<td>46</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>149.7</td>
<td>160.1</td>
<td>166.5</td>
<td>159.8</td>
<td>Mann-Whitney Z=-4.48, p&lt;0.001</td>
</tr>
<tr>
<td>SD</td>
<td>15.4</td>
<td>20.6</td>
<td>14.4</td>
<td>17.1</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>152.5</td>
<td>169</td>
<td>169.75</td>
<td>163</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>66.5 to 182</td>
<td>126 to 178.5</td>
<td>126 to 194</td>
<td>78.5 to 194</td>
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<tr>
<td>Peer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>32</td>
<td>7</td>
<td>46</td>
<td>85</td>
<td>Mann-Whitney Z=-6.94, p&lt;0.001</td>
</tr>
<tr>
<td>Mean</td>
<td>139.6</td>
<td>128.2</td>
<td>173.2</td>
<td>156.8</td>
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</tr>
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<td>SD</td>
<td>15.1</td>
<td>21.1</td>
<td>10.8</td>
<td>22.5</td>
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</tr>
<tr>
<td>Median</td>
<td>142</td>
<td>131</td>
<td>172.25</td>
<td>163</td>
<td></td>
</tr>
<tr>
<td>Range</td>
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<td>93 to 150</td>
<td>129 to 189</td>
<td>93 to 189</td>
<td></td>
</tr>
<tr>
<td>Clinical Instructor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>31</td>
<td>7</td>
<td>46</td>
<td>84</td>
<td>Mann-Whitney Z=-6.63, p&lt;0.001</td>
</tr>
<tr>
<td>Mean</td>
<td>133.2</td>
<td>137.4</td>
<td>170.0</td>
<td>153.7</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>18.2</td>
<td>16.5</td>
<td>14.7</td>
<td>24.2</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>135.5</td>
<td>134</td>
<td>172.75</td>
<td>156.5</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>100.5 to 164</td>
<td>117 to 156.5</td>
<td>116 to 203</td>
<td>100.5 to 203</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>30</td>
<td>6</td>
<td>46</td>
<td>82</td>
<td>Mann-Whitney Z=-1.43, p=0.152</td>
</tr>
<tr>
<td>Mean</td>
<td>164.1</td>
<td>149.3</td>
<td>170.3</td>
<td>166.5</td>
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<tr>
<td>SD</td>
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<td>17.4</td>
<td>27.6</td>
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<tr>
<td>Median</td>
<td>168.5</td>
<td>157.5</td>
<td>179</td>
<td>175.5</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>117 to 200</td>
<td>121.5 to 164</td>
<td>101 to 200</td>
<td>101 to 200</td>
<td></td>
</tr>
</tbody>
</table>
7.6.2 Comparison of scores by school at time 2

Table 7.17 presents a breakdown of the 360° assessed competence score as assessed by the ward supervisor/senior midwife, the clinical instructor and a peer and the student’s self-assessed confidence score by school at time 2, after the participants had received the results of their state final examination. There were no responses from School B students at time 2. As will be seen in Section 7.5, students who had dropped out by time 2 tended to have lower competence scores at time 1 than those who remained in the study. This means that competence scores reported at time 2 may possibly overestimate those for all students who could have participated at time 2. Students' confidence scores, however, did not appear to show any attrition bias.

Assessments of competence or self-confidence at time 2 showed a similar behaviour by school as at time 1. Mean and median scores for competence were higher for School C than for School A (p<0.001) but scores for the students' self-confidence were again similar (p=0.492) at time 2. Compared with scores at time 1, the four assessment scores at School C were consistently higher at time 2; scores for the ward supervisor/senior midwife, the clinical instructor and the student were higher at School A at time 2 but the peer’s score had changed little. After the students had received their state final results, their ratings of self-confidence were much higher than their assessors' ratings of competence at both schools.
Table 7.17 Assessors’ competence scores and student’s self-assessed confidence score by school of midwifery at time 2

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th>School C</th>
<th>Total</th>
<th>Mann-Whitney</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward supervisor/Senior</td>
<td>N</td>
<td>22</td>
<td>42</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>140.95</td>
<td>186.1</td>
<td>170.6</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>17.5</td>
<td>14.8</td>
<td>26.7</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>140</td>
<td>192</td>
<td>179.75</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>116 to 187</td>
<td>139.5 to 200</td>
<td>116 to 200</td>
</tr>
<tr>
<td>Peer</td>
<td>N</td>
<td>22</td>
<td>41</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>139.4</td>
<td>184.3</td>
<td>168.6</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>11.6</td>
<td>8.6</td>
<td>23.6</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>138.5</td>
<td>183.5</td>
<td>179</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>122 to 166</td>
<td>157.5 to 198</td>
<td>122 to 198</td>
</tr>
<tr>
<td>Clinical Instructor</td>
<td>N</td>
<td>21</td>
<td>42</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>144.7</td>
<td>187.9</td>
<td>173.5</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>10.4</td>
<td>11.1</td>
<td>23.2</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>143</td>
<td>190.25</td>
<td>185</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>131 to 170.5</td>
<td>141.5 to 200</td>
<td>131 to 200</td>
</tr>
<tr>
<td>Student</td>
<td>N</td>
<td>23</td>
<td>42</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>187.5</td>
<td>189.5</td>
<td>188.8</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>14.3</td>
<td>16.3</td>
<td>15.5</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>189</td>
<td>197</td>
<td>195</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>153 to 200</td>
<td>131 to 200</td>
<td>131 to 200</td>
</tr>
</tbody>
</table>
7.6.3 Comparison of scores by school at time 3

Table 7.18 presents a breakdown of the 360° assessed competence score as assessed by the ward supervisor/senior midwife, the clinical instructor and a peer and the student’s self-assessed confidence mean score by school at time 3, after three months of clinical practice. As at time 2, there were no responses from School B students at time 3. Otherwise, of the 65 students who took part at time 2, only 7 failed to take part at time 3, so scores at time 3 were from largely the same group of students who participated at time 2.

The distribution of all four scores differed between School A and School C, with means and medians being higher and standard deviations lower for School C, suggesting a concentration of scores at the upper end of the range. There was little difference in mean and median scores at time 3 compared with time 2, the only notable difference being an increase in competence scores given by ward supervisors/senior midwives. At time 3, students from School A continued to rate their self-confidence higher than the other assessors rated their competence, whereas the four scores showed agreement in means and medians at School C.
Table 7.18 Assessors’ competence scores and student’s self-assessed confidence score by school of midwifery at time 3

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th>School C</th>
<th>Total</th>
<th>Mann-Whitney</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ward supervisor/Senior</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>18</td>
<td>40</td>
<td>58</td>
<td>Mann-Whitney</td>
</tr>
<tr>
<td>Mean</td>
<td>150.1</td>
<td>191.2</td>
<td>178.4</td>
<td>Z=-5.72, p&lt;0.001</td>
</tr>
<tr>
<td>SD</td>
<td>17.4</td>
<td>12.2</td>
<td>23.6</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>154.3</td>
<td>194.3</td>
<td>190</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>119.5 to 186</td>
<td>124 to 200</td>
<td>119.5 to 200</td>
<td></td>
</tr>
<tr>
<td><strong>Peer</strong></td>
<td></td>
<td></td>
<td></td>
<td>Mann-Whitney</td>
</tr>
<tr>
<td>N</td>
<td>18</td>
<td>40</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>145.6</td>
<td>187.8</td>
<td>174.7</td>
<td>Z=-5.79, p&lt;0.001</td>
</tr>
<tr>
<td>SD</td>
<td>17.1</td>
<td>10.9</td>
<td>23.6</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>152.25</td>
<td>189</td>
<td>187.25</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>100 to 164</td>
<td>125 to 197</td>
<td>100 to 197</td>
<td></td>
</tr>
<tr>
<td><strong>Clinical Instructor</strong></td>
<td></td>
<td></td>
<td></td>
<td>Mann-Whitney</td>
</tr>
<tr>
<td>N</td>
<td>18</td>
<td>40</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>147.7</td>
<td>192.1</td>
<td>178.3</td>
<td>Z=-5.67, p&lt;0.001</td>
</tr>
<tr>
<td>SD</td>
<td>15.7</td>
<td>10.6</td>
<td>24.1</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>144.3</td>
<td>193.5</td>
<td>190.75</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>113.5 to 190</td>
<td>135.5 to 200</td>
<td>113.5 to 200</td>
<td></td>
</tr>
<tr>
<td><strong>Student</strong></td>
<td></td>
<td></td>
<td></td>
<td>Mann-Whitney</td>
</tr>
<tr>
<td>N</td>
<td>18</td>
<td>40</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>181.6</td>
<td>193.6</td>
<td>189.9</td>
<td>Z=-2.69, p=0.007</td>
</tr>
<tr>
<td>SD</td>
<td>19.9</td>
<td>7.1</td>
<td>13.5</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>190</td>
<td>195.5</td>
<td>193.5</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>130 to 200</td>
<td>176 to 200</td>
<td>130 to 200</td>
<td></td>
</tr>
</tbody>
</table>
7.7 Relationships between assessors’ competence scores and student’s self-assessed confidence scores

7.7.1 Relationships between scores at time 1

Table 7.19 shows Kendall’s correlations between 360^0 assessed competence scores as assessed by the ward supervisor/senior midwife, peer and clinical instructor and the student’s self-assessed confidence scores at time 1, before the student midwives sat their state final examination. The three competence scores were highly correlated (all correlation coefficients ≥0.46 and all p<0.001), particularly those given by the peer and clinical instructor. Correlations between these and the student's confidence score were moderate but still significant (correlations of 0.19 to 0.24, p≤0.013).

Table 7.19 Kendall’s correlations between assessors’ competence scores and student’s self-assessed confidence score at time 1

<table>
<thead>
<tr>
<th></th>
<th>Ward supervisor/ Senior midwife</th>
<th>Peer</th>
<th>Clinical Instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward supervisor/ Senior midwife</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer</td>
<td>0.46 (p&lt;0.001, n=84)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Instructor</td>
<td>0.47 (p&lt;0.001, n=83)</td>
<td>0.68 (p&lt;0.001, n=84)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>0.24 (p=0.002, n=81)</td>
<td>0.19 (p=0.013, n=82)</td>
<td>0.20 (p=0.009, n=82)</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.20 shows Wilcoxon matched-paired signed-rank test results comparing the competence scores with the student's confidence scores at time 1. For each combination, it was more common for the student to rate their own confidence higher than the other assessor rated their competence (p≤0.010).
Table 7.20 Paired comparison of assessors’ competence scores against student’s self-assessed confidence score at time 1

<table>
<thead>
<tr>
<th>Assessor</th>
<th>Student &lt; assessor</th>
<th>Student = assessor</th>
<th>Student &gt; Assessor</th>
<th>WMPSR Z=</th>
<th>p=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward supervisor/ Senior midwife</td>
<td>30</td>
<td>2</td>
<td>49</td>
<td>WMPSR Z= -2.56, p=0.010</td>
<td></td>
</tr>
<tr>
<td>Peer</td>
<td>27</td>
<td>1</td>
<td>54</td>
<td>WMPSR Z=-2.98, p=0.003</td>
<td></td>
</tr>
<tr>
<td>Clinical Instructor</td>
<td>25</td>
<td>0</td>
<td>57</td>
<td>WMPSR Z=-3.29, p=0.001</td>
<td></td>
</tr>
</tbody>
</table>

WMPSR = Wilcoxon matched-pairs signed-ranks

The relationship between the student's confidence score and the competence scores of the other assessors can be understood more clearly in graphical form. Figure 7.2 shows a scatter plot of the student's confidence score against the competence score as assessed by the ward supervisor/senior midwife at time 1. In this and later figures, the three medical schools are identified using different marker symbols. Over the three midwifery schools, the points appeared to show a low positive relationship, and most were above the diagonal line where confidence and competence scores were equal, confirming the numerical results in Tables 7.19 and 7.20.

Ward supervisors/senior midwives at School C tended to give their students higher scores for competence, while those at School A gave their students lower scores. Most of the School C points were clustered towards the top right, with many students having higher confidence scores than competence scores, points being above the diagonal line of equality in the scatter plot. There were also two small clusters of School C students below the diagonal line where the ward supervisors/senior midwife had given the student a high or a low score where the student had a lower confidence score. Points for students from School A were scattered but most lay above the diagonal line, with higher confidence scores than competence scores. There were scores for only six students from School B, and their points were slightly below the diagonal line with competence scores slightly lower than confidence scores.
Figure 7.2 Student's confidence score v ward supervisor/senior midwife's competence score at time 1

Note: Diagonal line is where the two scores agree

Figure 7.3 shows a scatter plot of the student's confidence score against the competence score as assessed by a peer by school at time 1. Points for most School C students were to the right of those for students from other schools as their peers rated their competence as high or very high in all but two cases. While points for many School C students clustered at the top right corner again, those with lower confidence scores were mostly rated highly by their peers for competence towards the bottom right. Scores for School A students showed the same pattern as in Figure 7.2 – well-scattered with most students above the diagonal line, having a higher confidence score than peer-rated competence score. There was a difference in the six School B students in Figure 7.3 compared with Figure 7.2: for three of the six, the student's confidence score was appreciably higher than their peer's competence score, while for one, the peer's score was appreciably higher.
Figure 7.3 Student's confidence score v peer's competence score at time 1

Note: Diagonal line is where the two scores agree

Figure 7.4 shows a scatter plot of the student's confidence score against the competence score as assessed by the clinical instructor by school at time 1. The plot showed similarities to Figure 7.2 and Figure 7.3. Points for most School C students were again mostly to the right of points for students from other schools. Points for many School C students clustered at the top right corner again, while those with lower confidence scores were moderate to high by their clinical instructors towards the bottom. Unlike students from the other two schools, several School C students had lower confidence scores than clinical instructor-rated competence scores. Scores for School A students were again well scattered, mostly towards the top left, where students had a higher confidence score than clinical instructor-rated competence score. The scatter for the six School B students in Figure 7.3 was repeated in Figure 7.4, with two students having appreciably higher confidence scores and one an appreciably higher competence score.
Figure 7.4 Student's confidence score v clinical instructor's competence score at time 1

Note: Diagonal line is where the two scores agree

7.7.2 Relationships between scores at time 2

Table 7.21 shows Kendall's correlations between 360° assessed competence scores as assessed by the ward supervisor/senior midwife, peer and clinical instructor and self-assessed confidence scores of the student at time 2, after the students had received the results of their state final examination. There were no responses from School B students at time 2.

The three competence scores were highly correlated (Kendall's correlations were at least 0.64, all p<0.001). Unlike at time 1, correlations between these and the student's confidence score were small and not statistically significant at time 2. Before the students sat their state final examination, their self-assessed confidence was moderately correlated with their competence as rated by their assessors; after they had received their results, there was no correlation between their confidence and their competence as rated by their assessors.
Table 7.21 Kendall's correlations between assessors’ competence scores and student’s self-assessed confidence score at time 2

<table>
<thead>
<tr>
<th></th>
<th>Ward supervisor/ Senior midwife</th>
<th>Peer</th>
<th>Clinical Instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward supervisor/ Senior midwife</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer</td>
<td>0.64 (p&lt;0.001, n=63)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Instructor</td>
<td>0.70 (p&lt;0.001, n=63)</td>
<td>0.67 (p&lt;0.001, n=62)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>0.11 (p=0.230, n=64)</td>
<td>0.01 (p=0.879, n=63)</td>
<td>0.11 (p=0.249, n=63)</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.22 shows Wilcoxon matched-paired signed-rank test results comparing the competence scores with the student's confidence scores at time 2. For each combination, it was far more common for the student to rate their own confidence higher than the other assessor rated their competence than the other way round (p<0.001). The difference was more marked at time 2 compared with time 1. So after they had received the results of their state final examination, they rated their confidence more highly than their assessors rated their competence, although the scatter was such that confidence and competence were not correlated.

Table 7.22 Paired comparison of assessors' competence scores against student’s self-assessed confidence score at time 2

<table>
<thead>
<tr>
<th>Assessor</th>
<th>Student &lt; assessor</th>
<th>Student = assessor</th>
<th>Student &gt; Assessor</th>
<th>WMPSR Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward supervisor/ Senior midwife</td>
<td>14</td>
<td>0</td>
<td>50</td>
<td>-4.65</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Peer</td>
<td>12</td>
<td>1</td>
<td>50</td>
<td>-5.13</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Clinical Instructor</td>
<td>13</td>
<td>1</td>
<td>49</td>
<td>-4.61</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

WMPSR = Wilcoxon matched-pairs signed-ranks
Figure 7.5 shows the plot of the student's confidence score against the competence score as assessed by the ward supervisor/senior midwife at time 2. There was a wide scatter of points, indicative of the low correlation shown in Table 7.21 and most were above the diagonal line, confirming the paired comparison in Table 7.22.

As at time 1, ward supervisors/senior midwives at School C tended to give their students higher competence scores than those at School A, although it is clear from Figure 7.5 that the students at the two schools had similar distributions of confidence scores. Many students from both schools gave themselves the top mark of 200 for confidence, although for all of the School A students concerned and some of the School C students, this did not reflect the competence score of their ward supervisor/senior midwife. Again, most of the School C points were clustered near the top right where the students had high confidence and competence scores, although there was a scattering of points where students had lower confidence or lower competence, with only one student low in both confidence and competence. Points for students from School A were again scattered, with all but two well above the diagonal line, with higher confidence scores than competence scores. Only one student from School A had a score close to that of their ward supervisor/senior midwife compared to several from School C.
Figure 7.5 Student's confidence score vs ward supervisor/senior midwife's competence score at time 2.

![Graph showing student's confidence score vs ward supervisor/senior midwife's competence score at time 2.]

Note: Diagonal line is where the two scores agree.

Figure 7.6 shows the plot of the student's confidence score against the competence score as assessed by their peer at time 2. As at time 1, there was a clear separation between the two schools, with the peers at School C giving the students higher competence scores than those at School A. For School A, all students except one rated their confidence higher than their peer rated their competence. For School C, there were three students where the peer's score was appreciably higher than the student's score. There was more agreement in scores for School C, but the tendency was for the student to outscore their peer at both schools.
Figure 7.6 Student's confidence score v peer's competence score at time 2

Note: Diagonal line is where the two scores agree
Figure 7.7 shows the plot of the student's confidence score against the competence score as assessed by their clinical instructor at time 2. This showed a similar pattern to that in Figure 7.6 for the student against their peer at time 2, with all of the School A rating their confidence higher than the clinical instructor rated their competence.

**Figure 7.7 Student's confidence score v clinical instructor's competence score at time 2**

Note: Diagonal line is where the two scores agree
### 7.7.3 Relationships between scores at time 3

Table 7.23 shows Kendall's correlations results between 360\textsuperscript{0} assessed competence scores as assessed by the ward supervisor/senior midwife, peer and clinical instructor and the self-assessed confidence scores of the student at time 3, after three months of clinical practice. There were again no responses from School B students at time 3. The three competence scores were highly correlated (correlations were all ≥0.49, all \( p<0.001 \)). Correlations of the competence scores with the student's confidence scores at time 3 were similar to those at time 1: they were moderate and statistically significant (correlations of 0.24 to 0.26, \( p\leq0.011 \)), unlike the non-significant findings at time 2. After 3 months of clinical practice, the correlations between confidence scores and competence scores reverted to what they were before the students sat their state final examination.

<table>
<thead>
<tr>
<th></th>
<th>Ward supervisor/ Senior midwife</th>
<th>Peer</th>
<th>Clinical Instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward supervisor/ Senior midwife</td>
<td>0.49 ( (p&lt;0.001, n=58) )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer</td>
<td>0.70 ( (p&lt;0.001, n=58) )</td>
<td>0.50 ( (p&lt;0.001, n=58) )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Instructor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>0.26 ( (p=0.005, n=58) )</td>
<td>0.24 ( (p=0.011, n=58) )</td>
<td>0.24 ( (p=0.013, n=58) )</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.24 shows Wilcoxon matched-paired signed-rank test results comparing the competence scores with the student's confidence scores at time 3. For each combination, it was again far more common for the student to rate their own confidence higher than the other assessor rated their competence than the other way round (\( p\leq0.002 \)). The difference was less marked at time 3 after 3 months in clinical practice compared with time 2 but more marked than at time 1.
Table 7.24 Paired comparison of assessors’ competence scores against student’s self-assessed confidence score at time 3

<table>
<thead>
<tr>
<th>Assessor</th>
<th>Student &lt; assessor</th>
<th>Student = assessor</th>
<th>Student &gt; assessor</th>
<th>WMPSR Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward supervisor/ Senior midwife</td>
<td>16</td>
<td>0</td>
<td>42</td>
<td>WMPSR Z=-3.39</td>
<td>p=0.001</td>
</tr>
<tr>
<td>Peer</td>
<td>11</td>
<td>1</td>
<td>46</td>
<td>WMPSR Z=-4.69</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Clinical Instructor</td>
<td>16</td>
<td>4</td>
<td>38</td>
<td>WMPSR Z=-3.05</td>
<td>p=0.002</td>
</tr>
</tbody>
</table>

WMPSR = Wilcoxon matched-pairs signed-ranks

Figure 7.8 shows the plot of the student’s confidence score against the competence score as assessed by the ward supervisor/senior midwife at time 3. There does appear to be a positive relationship between the two scores in the figure, with most points above the diagonal line, confirming the numerical findings in Tables 7.23 and 7.24.

As at time 1 and time 2, ward supervisors/senior midwives at School C tended to give their students higher competence scores than those at C School A. At time 3, for the students still participating, only one School C student was given a low competence score, with most School C points concentrated in the top right of the plot where competence and confidence scores were both high, clustered around the line of agreement. School A data points were more scattered, with most students rating their confidence higher than the ward supervisor/senior midwife rated their competence. Three School A students were rated relatively highly by their ward supervisor/senior midwife but had low confidence scores.
Figure 7.8 Student's confidence score vs ward supervisor/senior midwife's competence score at time 3

Note: Diagonal line is where the two scores agree.
Figure 7.9 shows the plot of the student's confidence score against the competence score as assessed by their peer at time 3. This showed the same pattern as Figure 7.8, with only one School A student having a much lower level of confidence than their peer's rating of the competence. Again, there was more agreement in scores for School C, with School A students tending to outscore their peer.

**Figure 7.9 Student's confidence score v peer's competence score at time 3**

Note: Diagonal line is where the two scores agree
Figure 7.10 shows the plot of the student's confidence score against the competence score as assessed by their clinical instructor at time 3. This showed a similar pattern to that in Figure 7.8 for the student against the ward supervisor/senior midwife at time 3. All but one of the School C students were clustered at the top right; School A students were well scattered, mostly with higher confidence than competence scores, with only three with lower confidence scores than competence scores.

**Figure 7.10 Student's confidence score v clinical instructor's competence score at time 3**

Note: Diagonal line is where the two scores agree

After the student had been in practice for 3 months, all students from School C had high or very high confidence scores and all except one had high competence scores given by their ward supervisor/senior midwife, peer or clinical instructor. This resulted in the data points for School C clustering at the top right of the scatter plots around the diagonal line of equal confidence and competence. Data points for students from School A were well scattered in all three plots by comparison, although most showed higher confidence scores than competence scores.
7.7.4 Relationships between student’s scores over time

Table 7.25 shows Kendall's correlations between 360° self-assessed confidence scores as assessed by the student at times 1, 2 and 3. Each correlation coefficient was estimated separately for all students responding at the two time points in question. The student’s confidence at time 2 (after they had received the results of their state final examination) with their confidence at time 1 (after writing the state final examination but before receiving those examination results) was low-to-moderate (0.18) and just failed to be statistically significant (p=0.055). There was no correlation between the student’s confidence at time 3 (after they had been in clinical practice for 3 months) and their confidence at time 1 (p=0.702). The correlation between their confidence at time 3 and at time 2 was low-to-moderate (0.22) and statistically significant (p=0.026).

Table 7.25 Kendall's correlations of student’s confidence score over time

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2</td>
<td>0.18 (p=0.055, n=63)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 3</td>
<td>0.04 (p=0.702, n=57)</td>
<td>0.22 (p=0.026, n=56)</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.26 shows Wilcoxon matched-paired signed-rank test results comparing student’s confidence scores at the three time points. Most students gained in confidence from time 1 to time 3 and from time 2 to time 3 (both comparisons p<0.001), but the change from time 2 to time 3 was not significant (p = 0.576). Of the 56 students responding at the latter two time points, 28 had a lower confidence score 3 months after clinical practice than they had after receiving their state final examination results, 8 had an unchanged confidence score and 20 had an increased confidence score.
Table 7.26 Paired comparisons of assessors’ competence scores against student’s confidence scores at different time points.

<table>
<thead>
<tr>
<th></th>
<th>Later score &lt; earlier score</th>
<th>Later score = earlier score</th>
<th>Later score &gt; earlier score</th>
<th>WMPSR Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1 v Time 2</td>
<td>9</td>
<td>4</td>
<td>50</td>
<td>-5.08</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Time 1 v Time 3</td>
<td>8</td>
<td>4</td>
<td>45</td>
<td>-5.22</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Time 2 v Time 3</td>
<td>28</td>
<td>8</td>
<td>20</td>
<td>-0.56</td>
<td>0.576</td>
</tr>
</tbody>
</table>

WMPSR = Wilcoxon matched-pairs signed-ranks

The gains in confidence score from after sitting for the examination but before the students receive those results to after they obtained their results or after 3 months in clinical practice were too diverse to be detected as significant correlations. However, the non-significant changes from after they obtained their results to after 3 months in clinical practice were small enough to be detected as a significant correlation. Even though more changes were negative, the correlation was positive.

Figures 7.11 and 7.12 show the student’s confidence scores at time 2 v time 1 and time 3 v time 1 respectively. In Figure 7.11, many more students had higher confidence scores at time 2 than at time 1, with a small number of School C students showing the largest improvements. Two School C students at the bottom right showed a marked reduction in confidence. Figure 7.12 also showed more students with higher confidence scores at time 3 compared with time 1. Many of these were students scoring less than 160 at time 1 but 180 or over at time 3. Proportionately more of the School A students showed a drop in confidence score.
Figure 7.11 Student's confidence score at time 2 v student’s confidence score at time 1

Note: Diagonal line is where the two scores agree
Figure 7.12 Student’s confidence score at time 3 v student’s confidence score at time 1

Note: Diagonal line is where the two scores agree

Figure 7.13 shows the student’s confidence scores at times 3 v time 2. Most data points were clustered at the top right of the plot where confidence and competence scores were high. This may explain why the correlation in Table 7.25 was positive, even though many of the data points lay below the diagonal line, corresponding to a drop in confidence score from time 2 to time 3. For most students, their confidence changed little after 3 months in practice, but there were marked changes for a few students, which was not picked up by the descriptive statistics or tests. Students showing the largest improvements in confidence were from School C; students showing the largest reductions in confidence were from School A.
Figures 7.11, 7.12 and 7.13 suggested a difference between the two midwifery schools in the way their students’ confidence scores behaved over time. The Kendall correlation analysis was therefore repeated for School A and School C separately (Table 7.27). The two schools agreed on a lack of correlation between confidence at time 1 and at time 3, but disagreed on the other two comparisons. For School A, the correlation between confidence at time 1 and at time 2 was moderate-to-high (0.40) and significant (p=0.017) while that between confidence at time 2 and at time 3 was moderate (0.32) but marginally failed to be significant (p=0.079), probably due to the small sample size (18). Both correlations were small and non-significant for School C. The Wilcoxon matched-pairs signed-ranks test was also repeated for School A and School C separately (Table 7.28. The two schools agreed on the significance of the three comparisons, but in terms of changes over time, proportionately more students from School C improved in confidence from time 1 to time 3 than students from School A (34/40 = 85.0% v 11/17 = 64.7%), while more from School C improved from time 2 to time 3 than from School A (15/38 = 39.5% v 5/18 = 27.8%).
Table 7.27 Kendall's correlations of student’s confidence score over time for School A and School C separately

<table>
<thead>
<tr>
<th>Time</th>
<th>School A</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2</td>
<td>0.40 (p=0.017, n=21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 3</td>
<td>0.03 (p=0.867, n=17)</td>
<td>0.32 (p=0.079, n=18)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>School C</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2</td>
<td>0.07 (p=0.555, n=42)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 3</td>
<td>0.01 (p=0.934, n=40)</td>
<td>0.08 (p=0.536, n=38)</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.28 Paired comparisons of assessors’ competence scores and student’s confidence scores at different time points for School A and School C separately

<table>
<thead>
<tr>
<th>Time</th>
<th>School A</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1 v Time 2</td>
<td>3</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Time 1 v Time 3</td>
<td>4</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Time 2 v Time 3</td>
<td>9</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>School C</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1 v Time 2</td>
<td>6</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>Time 1 v Time 3</td>
<td>4</td>
<td>2</td>
<td>34</td>
</tr>
<tr>
<td>Time 2 v Time 3</td>
<td>19</td>
<td>4</td>
<td>15</td>
</tr>
</tbody>
</table>

WMPSR = Wilcoxon matched-pairs signed-ranks
7.8 Main predictors of student’s self-assessed confidence score at time 3
The following predictors of the student's self-assessed confidence score at time 3 (after three months of clinical practice) were considered on theoretical grounds: the student's gender and age, their years of experience post-RGN qualification, the student's self-assessed confidence total at times 1 and 2 (after writing the state final examination and before receiving those results and after receiving those state final examination results), and the 3600 assessed competence scores of the ward supervisor/senior midwife, peer and clinical instructor at time 3. Only 55 of the initial 85 students had complete data across all of these variables, and the results of analyses should be interpreted with caution as they are based on data from students more likely to be from School C or have higher competence scores at time 1.

7.8.1 Unadjusted associations with student’s confidence score at time 3
Associations with student's self-assessed confidence score at time 3 unadjusted for other variables were examined using descriptive statistics and Mann-Whitney U tests for gender and school of midwifery. Kendall’s correlation was used for associations with student's self-assessed confidence score at times 1 and 2, age, years of experience post-RGN qualification, and the competence scores of the ward supervisor/senior midwife, peer and clinical instructor at time 3. These analyses show associations between the student’s confidence score at time 3 in isolation from other variables that may contribute towards the competence score.

Table 7.29 shows a breakdown of student's self-assessed confidence score at time 3 by gender and by school of midwifery. Female students had a higher mean and median score (191.2 and 195) respectively compared with male students (186.1, 188). School C students also had a higher mean and median score (193.6, 195.5) than School A students (181.6, 190). Females had a wider range (130 to 200) of scores than males (167 to 200) while School C had a smaller range (176 to 200) of scores than School A (130 to 200). Distributions of confidence scores at time 3 differed by gender (p=0.001) and school (p=0.007).
Table 7.29 Student’s self-assessed confidence score at time 3 by gender and school of midwifery

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Mann-Whitney Z=-2.86, p=0.004</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>15</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>186.1</td>
<td>191.2</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>9.2</td>
<td>14.6</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>188</td>
<td>195</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>167 to 200</td>
<td>130 to 200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School of midwifery</th>
<th>School A</th>
<th>School C</th>
<th>Mann-Whitney Z=-2.69, p=0.007</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>18</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>181.6</td>
<td>193.6</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>19.9</td>
<td>7.1</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>190</td>
<td>195.5</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>130 to 200</td>
<td>176 to 200</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.30 shows Kendall's correlations of the students’ self-assessed confidence score at time 3 with their confidence scores at times 1 and 2, age, years of experience post-RGN qualification and competence scores of the ward supervisor/senior midwife, peer and clinical instructor at time 3.

There were significant medium strength positive correlations between the student’s confidence score at time 3 and their score at time 2 (Kendall’s correlation=0.22, p=0.026), the ward supervisor/senior midwife’s score at time 3 (Kendall’s correlation=0.26, p=0.005), the peer’s score at time 3 (Kendall’s correlation=0.24, p=0.011), and the clinical instructor’s score at time 3 (Kendall’s correlation=0.24, p=0.013). Correlations between the confidence score at time 3 and age and years of experience post-RGN qualification were negative but low and non-significant.
Table 7.30 Kendall’s correlations of student’s self-assessed confidence score at time 3 with other numerical variables

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>p</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student’s confidence score at time 1</td>
<td>0.04</td>
<td>0.702</td>
<td>57</td>
</tr>
<tr>
<td>Student’s confidence score at time 2</td>
<td>0.22</td>
<td>0.026</td>
<td>56</td>
</tr>
<tr>
<td>Age</td>
<td>-0.13</td>
<td>0.189</td>
<td>58</td>
</tr>
<tr>
<td>Years of experience post-RGN qualification</td>
<td>-0.12</td>
<td>0.225</td>
<td>58</td>
</tr>
<tr>
<td>Ward supervisor/senior midwife’s competence score at time 3</td>
<td>0.26</td>
<td>0.005</td>
<td>58</td>
</tr>
<tr>
<td>Peer’s competence score at time 3</td>
<td>0.24</td>
<td>0.011</td>
<td>58</td>
</tr>
<tr>
<td>Clinical instructor’s competence score at time 3</td>
<td>0.24</td>
<td>0.013</td>
<td>58</td>
</tr>
</tbody>
</table>

In summary, when the main predictor variables were considered on their own, the student’s confidence score at time 3, after 3 months of clinical practice, was significantly associated with the following predictors:

- Gender, with female students having a higher median score than male students (195 v 188, p=0.004); females students also had a wider range of scores (130 to 200 v 167 to 200)
- School of midwifery, with students from School C having a higher median score than students from School A (195.5 v 190, p=0.007); students from School C also had a narrower range of scores (176 to 200 v 130 to 200)
- Student’s confidence score at time 2, after receiving the results of their state final examination (a positive correlation of 0.22, p=0.026)
- Ward supervisor/senior midwife’s competence score at time 3 (a positive correlation of 0.26, p=0.005)
- Peer’s competence score at time 3 (a positive correlation of 0.24, p=0.011)
- Clinical instructors score at time 3 (a positive correlation of 0.24, p=0.012)

7.8.2 Adjusted associations with student’s confidence score at time 3
It was not possible to fit a model with all independent variables considered in Table 7.30 and Table 7.31: strong correlations between total scores for the ward supervisor/senior midwife, peer and clinical instructor at time 3 introduced multicollinearity. A multiple regression model was fitted to predict the student’s confidence score at time 3 from the
student’s scores at time 1 and time 2, school of midwifery, gender, age and years post RGN qualification without the scores from the other assessors at time 3 (Table 7.32). The results of the model should be interpreted with caution as the sample size of 55 was small for linear regression models. Tabachnick and Fidell (2001) give rules of thumb for sample sizes for multiple regression that depend on the number of predictors. To test the overall significance of a model, a sample size of at least 58 is needed (with only 1 predictor); to test the significance of individual predictors, a sample size of at least 105 is needed (also for 1 predictor).

**Table 7.31 Multiple regression of student’s self-assessed confidence score at time 3 (n=55)**

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>95% CI</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>118.41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student’s confidence score at time 1</td>
<td>0.01</td>
<td>-0.10 to 0.13</td>
<td>0.23</td>
<td>0.817</td>
</tr>
<tr>
<td>Student’s confidence score at time 2</td>
<td>0.32</td>
<td>0.12 to 0.51</td>
<td>3.19</td>
<td>0.002</td>
</tr>
<tr>
<td>School C</td>
<td>8.24</td>
<td>1.04 to 13.43</td>
<td>2.30</td>
<td>0.026</td>
</tr>
<tr>
<td>Female</td>
<td>3.02</td>
<td>-4.66 to 10.69</td>
<td>0.79</td>
<td>0.433</td>
</tr>
<tr>
<td>Age</td>
<td>0.14</td>
<td>-0.92 to 1.19</td>
<td>0.26</td>
<td>0.793</td>
</tr>
<tr>
<td>Years of experience post-RGN qualification</td>
<td>-0.35</td>
<td>-1.49 to 0.79</td>
<td>-0.61</td>
<td>0.544</td>
</tr>
</tbody>
</table>

Adjusted $R^2=0.211$, ANOVA $F=3.41$, df=6 and 48, $p=0.007$

The regression model was significant (ANOVA $p=0.007$) but only explained 21.1% of the variance in the student’s confidence score at time 3. Adjusted for other variables, only the student’s confidence score at time 2 ($p=0.002$) and whether they were from School C ($p=0.026$) were associated with the student’s confidence score at time 3. An increase of 1 in the total score at time 2 resulted in an average increase in the confidence score at time 3 of 0.32, adjusted for other variables. Also adjusted for other variables, the mean confidence score at time 3 was 8.24 higher for School C than for School A.

There were relatively more female students at School C, and it was higher scores from School C students that contributed to significantly higher unadjusted scores for female students in Table 7.32 (an unadjusted difference in means of 5.1, $p=0.004$); once the comparison was adjusted for school and other variables, female students still had a higher
mean score than male students (an adjusted difference in means of 3.02), which was no longer significant (p=0.433).

In summary, when the predictor variables were considered together and adjusting for one another, the student’s confidence score at time 3, after 3 months of clinical practice, was significantly associated with the following predictors:

- School of midwifery, with students from School C having a higher mean score than students from School A (an adjusted difference of 8.24, p=0.026)
- Student’s confidence score at time 2, after receiving the results of their state final examination (an increase in score of 1 at time 2 corresponding to an adjusted increase in score of 0.32 at time 3, p=0.002)

Although the regression model was significant, it only explained 21.1% of the variance in student’s confidence score at time 2. The remaining variance would be explained by other factors not captured in the study.

7.8.3 Assessing underlying assumptions of regression model

The underlying assumptions of the regression model in Table 7.29 were assessed. Partial regression plots of the student's self-assessed confidence score at time 3 against their scores at time 1 (Figure 7.14) or time 2 (Figure 7.15), age (Figure 7.16) or years of experience post-RGN qualification (Figure 7.17) showed no evidence of a non-linear relationship.
Figure 7.14 Partial regression plot for student's self-assessed confidence score at time 3 v student's self-assessed confidence score at time 1

![Partial Regression Plot](image1)

Figure 7.15 Partial regression plot for students' self-assessed confidence score at time 3 v student's self-assessed confidence score at time 2

![Partial Regression Plot](image2)
A histogram of residuals suggested a reasonable fit to a Normal curve with one outlier with a large negative residual (Figure 7.18), where the predicted score for the student was considerably less than their actual score.
Figure 7.18 Histogram of residuals for multiple regressions of students’ self-assessed confidence score at time 3

A residuals plot of the Studentised residuals against standardised predicted value (Figure 7.19) showed a decrease in variance of the residuals as the predicted value increased. There was a greater difference between actual and predicted scores when the predicted scores were lower. This might be expected when many of the students’ confidence scores at time 3 are towards the upper end of the scale of values and there is more score for variation when scores are lower.
None of the tolerances for the independent variables were less than 0.10, so there was no evidence of multicollinearity (Table 7.32).

**Table 7.32 Tolerance values for multiple regression of students’ self-assessed confidence score at time 3**

<table>
<thead>
<tr>
<th></th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student’s confidence score at time 1</td>
<td>0.90</td>
</tr>
<tr>
<td>Student’s confidence score at time 2</td>
<td>0.96</td>
</tr>
<tr>
<td>School C</td>
<td>0.84</td>
</tr>
<tr>
<td>Female</td>
<td>0.79</td>
</tr>
<tr>
<td>Age</td>
<td>0.50</td>
</tr>
<tr>
<td>Years of experience post-RGN qualification</td>
<td>0.50</td>
</tr>
</tbody>
</table>

In summary, there was no evidence that the assumptions of multiple linear regressions were being violated except for homogeneity of variance, where there was evidence of higher differences between actual and predicted scores when the predicted scores were lower. This is a further reason for interpreting the regression results with caution.

**7.8.4 Exploring the addition of assessors’ scores at time 3**

It was not possible to include the competence scores given by the ward supervisor/senior midwife, peer and clinical instructor together in the main regression model due to
multicollinearity introduced by their closely related scores. The regression model was first extended to include the ward supervisor/senior midwife’s competence score at time 3 (Table 7.33).

Table 7.33 Multiple regression of student’s self-assessed confidence score at time 3 adding ward supervisor/senior midwife’s competence score at time 3 (n=55)

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>95% CI</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>158.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student’s confidence score at time 1</td>
<td>0.02</td>
<td>-0.10 to 0.13</td>
<td>0.29</td>
<td>0.773</td>
</tr>
<tr>
<td>Student’s confidence score at time 2</td>
<td>0.28</td>
<td>0.09 to 0.48</td>
<td>2.90</td>
<td>0.006</td>
</tr>
<tr>
<td>School C</td>
<td>16.31</td>
<td>4.86 to 27.77</td>
<td>2.87</td>
<td>0.006</td>
</tr>
<tr>
<td>Female</td>
<td>3.97</td>
<td>-3.62 to 11.55</td>
<td>1.05</td>
<td>0.298</td>
</tr>
<tr>
<td>Age</td>
<td>0.14</td>
<td>-1.05 to 1.04</td>
<td>-0.01</td>
<td>0.989</td>
</tr>
<tr>
<td>Years of experience post-RGN qualification</td>
<td>-0.34</td>
<td>-1.46 to 0.77</td>
<td>-0.62</td>
<td>0.538</td>
</tr>
<tr>
<td>Ward supervisor/Senior midwife’s competence score at time 3</td>
<td>-0.20</td>
<td>-0.43 to 0.02</td>
<td>-1.80</td>
<td>0.079</td>
</tr>
</tbody>
</table>

Adjusted R²=0.246, ANOVA F=3.52, df=7 and 47, p=0.004

When the competence score for the ward supervisor/senior midwife at time 3 was added to the regression model, the regression model was again significant (ANOVA p=0.004) and explained 24.6% of the variance in the student’s confidence score at time 3. The significance of the independent variables was not affected; adjusted for other variables, the mean confidence score for the student at time 3 was now 16.31 higher for School C than for School A (compared with 8.24 without the ward supervisor/senior midwife’s score at time 3). The competence score for the ward supervisor/senior midwife at time 3 itself marginally failed to be significant (0.079).

The regression model was changed to include the peer’s competence score instead of the ward supervisor/senior midwife’s competence score at time 3 (Table 7.34).
Table 7.34 Multiple regression of students’ self-assessed confidence score at time 3 adding peer’s competence score at time 3 (n=55)

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>95% CI</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>130.78</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student’s confidence score at time 1</td>
<td>0.02</td>
<td>-0.10 to 0.14</td>
<td>0.32</td>
<td>0.747</td>
</tr>
<tr>
<td>Student’s confidence score at time 2</td>
<td>0.31</td>
<td>0.12 to 0.52</td>
<td>3.20</td>
<td>0.002</td>
</tr>
<tr>
<td>School C</td>
<td>12.26</td>
<td>-0.09 to 24.62</td>
<td>2.00</td>
<td>0.052</td>
</tr>
<tr>
<td>Female</td>
<td>3.43</td>
<td>-4.35 to 11.21</td>
<td>0.89</td>
<td>0.379</td>
</tr>
<tr>
<td>Age</td>
<td>0.16</td>
<td>-0.90 to 1.22</td>
<td>0.31</td>
<td>0.760</td>
</tr>
<tr>
<td>Years of experience post-RGN</td>
<td>-0.44</td>
<td>-1.60 to 0.73</td>
<td>-0.76</td>
<td>0.454</td>
</tr>
<tr>
<td>qualification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer’s competence score at time 3</td>
<td>-0.10</td>
<td>-0.34 to 0.15</td>
<td>-0.81</td>
<td>0.424</td>
</tr>
</tbody>
</table>

Adjusted $R^2=0.205$, ANOVA $F=2.99$, df=7 and 47, p=0.011

When the competence score for peer at time 3 was included in the regression model instead, the regression model remained significant (ANOVA $p=0.011$) and explained 20.5% of the variance in the student’s confidence score at time 3. The significance of the independent variables was affected, with School C marginally losing its significance (0.052); adjusted for other variables, the mean confidence score for the student at time 3 was 12.26 higher for School C than for School A (compared with 8.24 before the peer’s competence score at time 3 was added). The competence scores for the peer at time 3 was not itself significant (0.424).

Finally, the regression model was changed to include the clinical instructor’s competence score at time 3 (Table 7.35)
Table 7.35 Multiple regression of student’s self-assessed confidence score at time 3 adding clinical instructor’s competence score at time 3 (n=55)

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>95% CI</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>139.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student’s confidence score at time 1</td>
<td>0.01</td>
<td>-0.10 to 0.13</td>
<td>0.22</td>
<td>0.824</td>
</tr>
<tr>
<td>Student’s confidence score at time 2</td>
<td>0.30</td>
<td>0.09 to 0.50</td>
<td>2.93</td>
<td>0.005</td>
</tr>
<tr>
<td>School A</td>
<td>13.63</td>
<td>-0.06 to 27.33</td>
<td>2.00</td>
<td>0.051</td>
</tr>
<tr>
<td>Female</td>
<td>3.44</td>
<td>-4.30 to 11.19</td>
<td>0.89</td>
<td>0.376</td>
</tr>
<tr>
<td>Age</td>
<td>0.15</td>
<td>-0.91 to 1.21</td>
<td>0.28</td>
<td>0.777</td>
</tr>
<tr>
<td>Years of experience post-RGN qualification</td>
<td>-0.39</td>
<td>-1.53 to 0.76</td>
<td>-0.68</td>
<td>0.498</td>
</tr>
<tr>
<td>Clinical instructor’s competence score at time 3</td>
<td>-0.12</td>
<td>-0.38 to 0.13</td>
<td>-0.93</td>
<td>0.356</td>
</tr>
</tbody>
</table>

Adjusted $R^2=0.209$, ANOVA $F=3.04$, df=7 and 47, p=0.010

Similar results were found when the competence score for the clinical instructor at time 3 was added to the regression model instead. The regression model remained significant (ANOVA p=0.010) and explained 20.9% of the variance in the student’s confidence score at time 3. School C again marginally lost its significance (0.051); adjusted for other variables, the mean confidence score for the student at time 3 was 13.63 higher for School C than for School A (compared with 8.24 before the clinical instructor’s competence score at time 3 was added). The competence scores for the clinical instructor at time 3 was not itself significant (0.356).

In summary, while it was not possible to include competence scores at time 3 from all three other assessors in the same regression model, similar results to those of the main model were found when they were included one at a time. The main impact was on the regression coefficient for School C, but none of the competence scores from the other assessor were significantly associated with the student’s confidence score at time 3 when adjusted for other variables. The adjusted difference in mean between score between School C and School A was appreciable ($\geq 12.26$), but it was not always statistically significant, which may have been due to the relatively small sample size.
7.8.5 Summary of results for main predictors of student’s confidence score at time 3
Analyses were based on 55-58 of the 85 students who were recruited at time 1, before the students before the students sat their state final examination, who provided data at time 3, after 3 months of clinical practice. As noted in Section 7.5.3, the findings may be biased towards students from School C midwifery school and those who were given higher competence scores at time 1 by the ward supervisor/senior midwife, peer or clinical instructor. The reliability of the regression analyses were limited by the small sample size and the regression results should be interpreted with caution.

The only significant predictors of the student’s self-assessed confidence score at time 3 were midwifery school and the student’s self-assessed confidence score at time 2. Although being female appeared to predict a higher confidence score at time 3 when the variable was considered in isolation, its significance disappeared when adjusted, particularly for midwifery school. The competence score at time 3 given by the ward supervisor/senior midwife, peer or clinical instructor was also significantly associated with the student’s confidence score at time 3, but this significance also disappeared when adjusted for other variables.

These analyses were repeated to find predictors of other assessors’ competence scores at time 3. The results are given in (Appendix 38). There were problems fitting regression models due to the small sample size and high correlations, but bivariable analysis showed that the competence scores at time were similarly significantly associated with the gender of the student and midwifery school, and positively correlated with scores at times 1 and 2.

7.9 Other predictors of student’s self-assessed confidence score at time 3
A number of other potential predictors of the student’s self-assessed confidence scores at time 3 were also considered. Table 7.36 shows a breakdown by place of residence during training and by whether the student had prior responsibility as a sister-in-charge or a midwife. There was no difference between residents and non-residents in their confidence scores at time 3. Students who had previously been sisters-in-charge or matrons had a slightly higher median score than those who had not had this prior responsibility (194 v 190) and also a wider range of scores (130 to 200 v 167 to 200), the difference between the two groups just failing to be significant (p=0.062).
Table 7.36 Student’s self-assessed confidence score at time 3 by place of residence and prior responsibility

<table>
<thead>
<tr>
<th>Place of residence during training</th>
<th>Resident</th>
<th>Non-resident</th>
<th>Mann-Whitney Z= -0.04, p=0.968</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>22</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>188.6</td>
<td>190.7</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>16.1</td>
<td>11.9</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>192</td>
<td>194</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>130 to 200</td>
<td>149 to 200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prior responsibility as a sister-in-charge or matron</th>
<th>Yes</th>
<th>No</th>
<th>Mann-Whitney Z= -1.87, p=0.062</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>11</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>190.5</td>
<td>187.5</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>14.4</td>
<td>9.3</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>194</td>
<td>190</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>130 to 200</td>
<td>167 to 200</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.37 shows a breakdown of the student's self-assessed confidence scores at time 3 by the clinical area in which they had previously worked, while Table 7.38 shows a breakdown by the type of health institution in which they had previously worked. Confidence scores at time 3 tended to be lower for students who had previously worked in any of the medical, surgical, paediatric or maternity areas, although the difference was significant only for the 44 who had previously worked in surgery (mean 187.6, median 192, range 130 to 200) compared with the 14 who had not (mean 197.0, median 198, range 192 to 200). Having previously worked in maternity did not have a significant impact on confidence (p=0.609). Relatively few students had previously worked in a rural health centre, a private clinic/hospital, an urban clinic or a provincial hospital, and differences there were not significant. The only type of health institution that showed a significant impact on confidence at time 3 was having previously worked in a central hospital: those
who had worked there had a lower mean and median (187.0 and 192) than those who had
not (193.7 and 195), as well as a wider range of scores (130 to 200 v 167 to 200).

Table 7.37 Student’s self-assessed confidence score at time 3 by clinical area prior to
midwifery training

<table>
<thead>
<tr>
<th>Previously worked in medical area</th>
<th>Yes</th>
<th>No</th>
<th>Mann-Whitney Z=-1.26, p=0.220</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>53</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>189.4</td>
<td>195.0</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>13.9</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>193</td>
<td>199</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>130 to 200</td>
<td>180 to 200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previously worked in surgical area</th>
<th>Yes</th>
<th>No</th>
<th>Mann-Whitney Z=-3.03, p=0.002</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>44</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>187.6</td>
<td>197.0</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>14.8</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>192</td>
<td>198</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>130 to 200</td>
<td>192 to 200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previously worked in paediatric area</th>
<th>Yes</th>
<th>No</th>
<th>Mann-Whitney Z=-1.75, p=0.080</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>27</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>186.6</td>
<td>192.8</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>16.4</td>
<td>9.8</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>192</td>
<td>194</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>130 to 200</td>
<td>152 to 200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previously worked in maternity area</th>
<th>Yes</th>
<th>No</th>
<th>Mann-Whitney Z=-0.51, p=0.609</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>8</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>183.9</td>
<td>190.9</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>23.2</td>
<td>11.4</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>193</td>
<td>193.5</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>130 to 200</td>
<td>149 to 200</td>
<td></td>
</tr>
</tbody>
</table>
Table 7.38 Student’s self-assessed confidence score at time 3 by type of health institution prior to midwifery training (part 1)

<table>
<thead>
<tr>
<th>Previously worked in rural health centre</th>
<th>Yes</th>
<th>No</th>
<th>Mann-Whitney Z=-1.38, p=0.169</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>2</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>179.5</td>
<td>190.3</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>17.7</td>
<td>13.4</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>179.5</td>
<td>194</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>167 to 192</td>
<td>130 to 200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previously worked in private clinic/hospital</th>
<th>Yes</th>
<th>No</th>
<th>Mann-Whitney Z=-1.23, p=0.217</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>6</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>196.2</td>
<td>189.2</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>3.6</td>
<td>14.1</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>196</td>
<td>193</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>192 to 200</td>
<td>130 to 200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previously worked in urban clinic</th>
<th>Yes</th>
<th>No</th>
<th>Mann-Whitney Z=-1.20, p=0.229</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>7</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>181.7</td>
<td>191.0</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>24.2</td>
<td>11.3</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>192</td>
<td>194</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>130 to 200</td>
<td>149 to 200</td>
<td></td>
</tr>
</tbody>
</table>
Table 7.39 Student’s self-assessed confidence score at time 3 by type of health institution prior to midwifery training (part 2)

<table>
<thead>
<tr>
<th>Previously worked in district hospital</th>
<th>Yes</th>
<th>No</th>
<th>Mann-Whitney Z=-1.22, p=0.223</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>14</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>191.0</td>
<td>189.6</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>14.3</td>
<td>13.4</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>195.5</td>
<td>193</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>152 to 200</td>
<td>130 to 200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previously worked in provincial hospital</th>
<th>Yes</th>
<th>No</th>
<th>Mann-Whitney Z=-0.09, p=0.932</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>2</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>190.0</td>
<td>189.9</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>14.1</td>
<td>13.7</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>190</td>
<td>193.5</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>180 to 200</td>
<td>130 to 200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Previously worked in central hospital</th>
<th>Yes</th>
<th>No</th>
<th>Mann-Whitney Z=-1.96, p=0.050</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>33</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>187.0</td>
<td>193.7</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>16.0</td>
<td>8.1</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>192</td>
<td>195</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>130 to 200</td>
<td>167 to 200</td>
<td></td>
</tr>
</tbody>
</table>

7.10 Summary of main findings

Recruitment rates varied by midwifery school but the overall rate was just over 50% (53.8%), so there may be some response bias in the collected sample. Of the 85 midwifery students participating at time 1, before they received the results of their state final examination, only 58 completed the study, and these were more likely to come from School C and have higher competence scores at time 1. The number completing the study...
limited the reliability of multivariable analysis. No students from School C provided data after time 1 and the main analyses focused on students from School A and School C. Reliability of the 360° assessment tool was demonstrated for students, although there was some attrition over time and it is possible that students giving less complete or less consistent responses dropped out over time. Interestingly, there was a drop in internal consistency after the students had been in clinical practice for 3 months. However, reliability for the other assessors is uncertain because of missing responses to episiotomy and neonatal resuscitation, which they may not have observed the student perform.

Assessors’ competence scores were highly correlated at all three time points during the study. Those at School C rated student's competence higher than those at School A at all three time points. Students at School C rated their self-assessed confidence higher than those at School A only at time 3, after 3 months in clinical practice. Students’ confidence scores were always higher than their assessors’ competence scores. Confidence scores correlated with competence scores at times 1 and 3 but not at time 2, after students received the results of their state final examination.

Correlations between student’s confidence scores between time points was relatively low; at School C, there was no significant correlation; at School A, scores were correlated for time 1 v time 2 and time 2 v time 3 but not time 1 v time 3. Significantly more students had higher scores at time 2 or time 3 compared with time 1, but comparing time 2 with time 3, slightly more students decreased from time 2 to time 3 than increased (but not significantly). There was an increase in confidence after the results of the state final examination, but slightly (but not significantly) more student’s confidence fell after they had been in practice for 3 months.

Plots of student's confidence v assessors’ competence showed a different pattern at the two schools over time. From time 1 to time 3, data points for School C students steadily moved towards a cluster at the top right of the plot where confidence and competence were both high. For School A, the pattern was more diverse with points very well scattered at each time point mostly in the region where the student's score exceeded the assessor's score.

Predictors of the student's confidence score at time 3 unadjusted for other variables included gender (female students’ confidence scores were higher), school (School C students’ scores were higher), the student's confidence score at time 2 (a positive correlation) but not at time 1, and each assessor's competence score at time 3 (also positive correlation).
correlations). After adjustment for other variables using multiple regressions, the predictors reduced to school and the student’s confidence score at time 2. Other factors were associated with the student's confidence score at time 3 but were not thought to be important enough to be included in the regression analysis. Students who had previously worked in the medical area, the surgical area, the paediatric area, rural health centres, urban clinics or central hospitals tended to have lower confidence scores, while those who had previously worked in a private clinic or hospital tended to have higher scores. However, the differences were only significant for the surgical area and central hospitals.

It was not possible to obtain reliable adjusted results for predictors of assessors' competence scores at time 3 (please see Appendix 38 but unadjusted for other variables, these were associated with gender (female students’ competence scores were higher), school (School C students’ scores were higher), and competence scores at times 1 and 2 (both of which were positively correlated with the scores at time 3).
Chapter 8 Integration of Findings

8.1 Introduction

This chapter integrates the important converging and diverging findings of the qualitative and the quantitative studies related to the study objectives. Since they were difficult to separate, converging and diverging findings are discussed concurrently throughout the presentation. The study objectives were:

- 1) To identify the characteristics of midwifery students in Zimbabwe.
- 2) To explore the knowledge, practices and views of student midwives in Zimbabwe towards ICM essential competencies
- 3) To develop an instrument to measure confidence in midwifery students as assessed by themselves and their 360° competence as assessed by others.
- 4) To assess the relationship between levels of self-evaluated confidence and the 360° assessed competence as assessed by others over time.
- 5) To explore factors related to self-evaluated confidence and 360° assessed competence.
- 6) To develop a theory grounded in the social processes affecting competence and confidence development

It was not possible to address the first five objectives independently because they informed each other, and the presentation is guided by factors which appeared to affect competence and confidence development. Section 8.2 gives an overview of factors found to be related to competence and confidence development. Section 8.3 focuses on what turned out to be the most important factor, the midwifery training school, while Section 8.4 integrates findings for other factors associated with competence and confidence development. Section 8.5 develops a theoretical model that describes how biological characteristics, psychological characteristics, the learning environment and social interactions come together in a dualistic setting to influence competence and confidence development. Finally, Section 8.6 presents a summary of the integrated results.
8.2 Overview of factors related to competence and confident development

In the quantitative study, the dominant factor associated with 360° assessed competence scores 3 months into clinical practice was the school of midwifery (School A v School C). Multiple regression models for scores given by the student, the ward supervisor/senior midwife, a peer and the clinical supervisor were all statistically significant (Sections 7.7 and 7.9 of Chapter 7). For the last three, school was the only statistically significant predictor; for the student’s self-assessed confidence score 3 months into clinical practice, their score after their state final examination was also a significant predictor. Other factors including gender, age and years of experience post-RGN qualification were not significant predictors after being adjusted for other variables included in the regression models, but the regression modelling was limited by the relatively small sample size (n=55) and strong correlations between competence scores from different assessors. Only 21.1% of the variance of the student’s self-assessed confidence score was being explained by the regression model (corresponding percentages for the ward supervisor/senior midwife, a peer and the clinical supervisor were 69.3%, 67.1% and 71.3%), so it is clear that other predictive factors not included in the models or perhaps not captured in the quantitative study were present.

However, the qualitative study found factors such as age, experience, positions held before enrolling into training, relationship dynamics, the training school, and knowledge and perceptions of midwives towards the ICM core competences to be related to competence development. Relationship dynamics and student midwives’ knowledge and perceptions were not captured by the quantitative study, which shows the value of having a mixed-method approach.

8.3 The impact of midwifery school on competence and confidence development

While the quantitative study found that the midwifery school was significantly related to 360° assessed competence scores 3 months into clinical practice, it could not explain what it was about the school that was having an impact. However, the qualitative study could explain why there was a difference between School A and School C (the seven participants from School B dropped out from the quantitative study before their state final examinations) in terms of the training environment. There is evidence to support the present study findings that the placement environment is critical for the development of quality graduates fit for practice (Saarikoski and Leino-Kilpi, 2002, Papp, 2003, Papathanasiou et al., 2014, Papastavrou et al., 2010, O'Mara et al., 2014b, Oermann, 2015, Newton et al., 2012, Nepal et al., 2016, Melrose and Perry, 2017, McIntosh et al., 2013, 286
The qualitative study revealed the dual nature of the learning environment with an academic and a clinical part. These two types of environments are made up of a variety of elements, all of which affect students’ learning (Benjamin, 1966). The clinical environment includes everything that surrounds the student midwives during their practical training, including the clinical settings, the staff, the equipment, peers, the patients, the facilitator and the tutor. The present study showed that the student interacts and builds relationships within his/her environment during learning, yielding different experiences, emotions and feelings associated the individual’s learning outcomes (Papp et al., 2003). Whilst the classroom is associated with teaching theory and use of correct teaching methods, study findings resonated with the learning style theory of Riechmann and Grasha (1974) in specifically ascribing the learning style in the classroom to student characteristics. The authors used a personality approach to describe a student’s preferred learning style.

In the present qualitative study, the learning environment included the beliefs of the mentors and students, policies, complexities of care and student-supervisor relationships between the student and school and clinical area staff. These findings concurred with the results of other studies (Papastavrou et al., 2010, Panaou et al., 2012, Oermann, 2015, Chuan and Barnett, 2012). Environmental policies and a shortage of both human and material resources had an impact on competence, confidence and relationship building among students and their facilitators, also agreeing with other studies (Papastavrou et al., 2010, Panaou et al., 2012, Chuan and Barnett, 2012, Ben Natan and Ehrenfeld, 2011).

It was not unique for the qualitative study to find that two different institutions conducting the same training programme had students with different experiences because of the nature of forces operating within their training environment (Andrews et al., 2006, Papp et al., 2003). Other studies (Henderson et al., 2012, Johansson et al., 2010) revealed that organisational cultures and institutional factors influence students’ learning experiences, student behaviours and professional socialisation. In the present study, School C and School A training environments were diverse as will be discussed in the following sections.

8.3.1 School C policies and organisation of learning and competence development
School C had apparently harsher clinical instructors and ward supervisors who were less tolerant of students taking longer to master skills or students who appeared not to be serious about learning the prerequisite competencies. The perceived abuse from both the clinical instructor and the ward supervisor appeared to be associated with specific student behaviours, such as being directed towards students whom they felt were showing disrespect. Students complained about this in the qualitative interviews. In addition, the harshness and hardness of the clinical instructors were associated with what students perceived as rigidity and wanting to follow the rules, which at times proved to be very difficult in the job environment as there were major differences between the ideal placement environment and what students found happening in the clinical area, as found in other studies (Brown et al., 2011, Biemans et al., 2009). Such factors which can hinder the success of a programme can produce professionals who are too theoretical and fail to fit in the practice environment when students follow rigid protocols disregarding what is really happening on the ground. Biemans et al. (2009) called it ‘pitfalls of a Competence Based Education Programme’ (CBE).

The shortage of human and material resources interfered with implementation of training programme standards in the current study, and this was also found by Kibwana et al. (2017). For example, students are expected to be supervised and be guided each time they did their procedures, but clinical instructors would occasionally find them doing procedures alone when the ward supervisors were attending to other duties due to the multiple roles they had to fulfil during their span of duty (Papastavrou et al., 2010). This made ward supervisors unable to fully function as student supervisors since they also needed to fulfil their patient care and ward management roles (Saarikoski and Leino-Kilpi, 2002). When clinical instructors go by the rule that students must have a supervisor each time they do a procedure no matter what the circumstances, the students label them rigid. This can cause problems between a student, the clinical instructor and the ward supervisor, and the student perceives that the clinical instructor is asking for too much from the student. The situation on the ground does not allow promote continuous supervision of the student when the supervisor can be called to attend to other duties beyond student supervision. Alternatively the student is left guarded by a colleague who is equally unsure of the correct procedure and may pass on the wrong skills that are hard to unlearn. Such a scenario could explain some of the reasons why midwives in Zimbabwe may qualify without acquiring the basic skills needed for practice.
In the current study, student midwives spent a long time working with ward supervisors and an emotional attachment developed between them. The ward supervisors felt for the student when they went through the pain of failing and were involved in helping the students through difficult moments. Examples of this included giving the students signatures which they did not deserve or giving them prompts during summative evaluations. This resonates with Duffy (2003), who found that the closeness with which the student and facilitator work together can become an emotional burden. While Brunstad and Hjälmhult (2014) found that closeness facilitated the positive teacher-learner relationship and was needed for the student to access learning, Duffy (2003) associated student-teacher closeness as a reason for failing to fail inadequate students, allowing practitioners who had not demonstrated adequate skills for the programme to graduate. Some of the clinical instructors in both hospitals raised student-teacher closeness as one of the causes of failing to fail under-performing students. The reasons for closeness between students and clinical instructors or ward supervisors were different. The closeness with the clinical instructor happened during the buying and selling transactions, prompting clinical instructors to favour those students who bought their items. In addition the clinical instructors would favour those students who quickly accepted their tuition and grasp the skills with less effort. On the other hand, the close relationship among students and ward supervisors were facilitated by working together for longer periods in the wards and developing affection for each other. This could explain why some clinical instructors kept their interaction with students strictly business-like to avoid that type of emotional relationship occurring. Newly qualified School C-trained midwives said that avoiding close relationships and maintaining a professional relationship between themselves and the facilitators motivated them to work hard and achieve standards. Indeed, students who kept their relationship at a professional distance were able to see their progress in skill mastery and development although they felt they lacked confidence. They worked hard for their diploma and said that they started to gain confidence when they passed their summative evaluation at the second attempt, as almost everyone failed the first attempt. Both the quantitative study and the qualitative study showed that School C students were improving on their competence and confidence over time.

From the qualitative study, there was a 24-hour signature policy at School C that guided the facilitators on how to handle student follow-ups and signing of the procedures which the student either observed or performed. According to the policy, which was facilitated by the clinical instructors, the facilitators were supposed to give feedback and sign for the
procedure that students had carried out within 24 hours. The clinical instructors would call randomly for the students’ procedure booklets to be collected by the group representative and sent to school for checking. Alternatively, the clinical instructors would go to the wards and carry out a random check of the booklets in the clinical area where the students presented their procedure booklets (synonymous to log books) and become answerable for any misdemeanours, a procedure the students described as mental torture. The clinical instructor at School C, unlike those at School A, would nullify all procedures not signed for within 24 hours or those signed but suspicious. The nullifying of procedures not signed for within 24 hours and those with illegible signatures made the students feel offended since it appeared as if they were not to be trusted. They thought it was a form of abuse as some of the signatures were difficult to secure within 24 hours. At times, the students were forced to scratch off entered cases as the ward facilitators might postpone signing off the student’s procedures until after the 24 hours had elapsed. Some students did not face any problems in securing signatures from their facilitators while others found it more difficult. The ease with which a student at School C obtained a signature from the facilitator who supervised them was associated with the type of relationship between the student and the supervisor.

The School C students were mostly failing postnatal assessments for failing to administer BCG vaccinations and failing to bath the baby correctly. Some failed labour ward assessments for not measuring the fetal heart rate, not measuring the cervical dilation correctly on vaginal examination, or not finishing the assessment within the stipulated time for all three assessments (antenatal, labour ward and postnatal). School C students were concerned that their school was the only one failing students at assessments. They complained that the student voice at School C was suppressed for fear of victimisation at assessments, or failing to get ward supervisors willing to take them for follow-ups if they complained about feeling being mistreated. Students complained that if they had had problems with one ward supervisor or clinical instructor, the others would all team up against the student. The fallout included failing to get someone to support and guide them during procedures, hence failing to meet the prerequisite for being promoted to the senior block, doing assessments and registering for state final examinations. However, they were happy at the end of the training as they saw the importance of maintaining standards as newly qualified midwives. They forgot any bitterness towards the clinical instructors and became proud as they saw themselves fit for practice and gained confidence in their job day by day.
Assessments at School C were task-focused, and students were supposed to meet specific requirements. If they failed an assessment, students would report to the clinical matron and the principal tutor. The assessors concerned and the student wrote an incident report and submitted it to the principal tutor. The latter would then analyse incidence reports from both the assessors and the students in order to understand the reasons behind the students’ failure to rule out any student victimisation and ensure that the students received fair treatment. The qualitative study revealed that the principal tutor acted as a bridge between the student and the facilitators and as a student advocate resolving conflicts between the two parties.

8.3.2 School A policies and organisation of learning and competence development

School A had an entirely different training atmosphere, and experiences for students were more relaxed than those for School C. The supervisors of students, the clinical instructors and ward supervisors commented that there was an unwritten directive that ‘no student should fail assessment’ at the institution. When a student failed an assessment, assessors converted it to a pass mark, either to 50% or slightly above it. Hence they may end up failing to fail students who do not meet the professional standards who then find their way into the profession (Duffy, 2003). Such a directive appears to have paved the way for student rudeness towards supervisors. Students may become difficult to control and may not take follow-ups seriously and only do procedures and homework when they want to because they lacked an understanding of the meaning of standards.

The qualitative study revealed that at School A, as at School C, the administrative policy of rotating nurses within the clinical area also contributed to a shortage of experienced midwives. The maternity department was left to operate with less experienced midwives who also needed to be mentored just like the students and the newly qualified midwives. The experience of these midwives during rotation appeared to be defined by the number of years post-qualification and not by hands-on experience, and as a result, more experienced midwives were called back to help out. Students felt that those midwives who were rotated to new areas were just like the newly qualified midwives and could not assume the mentorship roles themselves, yet these were the most experienced midwives on hand. (Benner, 1984) argued that if an expert is moved out of the area of their expertise, they assume a novice role and need to draw resources to cope in the new situation. This was observed to leave some of the clinical areas being manned by a few senior midwives and many intermediate and junior midwives who became overwhelmed and failed to cope with the workload, leaving students unattended.
As at School C, there was a 24-hour signature policy in place at School A that guided the facilitators on how to handle student follow-ups and the signing of the procedures. However, it was observed with concern that the 24-hour signature policy was being implemented differently at School A.

Despite the policy, School A clinical instructors did not adopt a time limit for follow-up or procedure verification. Neither the tutors nor the clinical instructors were concerned with the status of the signatures or knowing who was signing for the student follow-ups. The clinical instructors suspected that students could approach any qualified midwife in the ward for a signature whether on duty or not, though they had no proof of it. Hence, it was easier for students to get anyone to sign for them, despite the 24-hour policy stating that only those qualified midwives who were senior by one year or more to the students should sign the students’ follow-up booklets.

It was concerning that at both School C and School A; students could get signatures for procedures they did not work for but for different reasons depending on the training institution. At School A, the junior sisters were being paid up to USD100 for the signatures, unlike at School C where the qualified midwives sisters would give the signatures out of sympathy for the students. The School A students could even get a signature three weeks later, even though the clinical instructors were concerned the signature policy was not strictly enforced for various reasons including a lack of respect for training standards and a lack of discipline and respect for the clinical instructors amongst the students.

Summative evaluations were practical examinations which were supposed to be timed. School A assessors booked students for the assessment while School C students were not booked on advance but were randomly selected on the day of the assessment, which they called ‘spotting’. The School C summative evaluation assessments were strictly timed unlike those at School A. Both students and supervisors at School A revealed that the assessors would go beyond the regulated time. The assessors sometimes went for two days or more without finishing the assessment; by comparison, School C assessors might only go beyond the stipulated time by a few minutes and then for a few favoured students.
8.3.3 Competence and confidence of School A and School C trained midwives

From Tables 7.6, 7.7 and 7.8 of Chapter 7, the median self-assessed confidence score of School C midwives was slightly higher than that of the competence score assessed by the ward supervisor/senior midwife, peer or clinical instructor at each of the three time points before sitting their state final examination, after getting the results of their examination and after three months in clinical practice. The median confidence score of School A midwives was slightly lower than that of their School C counterparts at each time point, but they were much higher than the median scores given by their School A assessors at each time point, particularly at the second and third time points. Interestingly, there was good agreement between the School A ward supervisors/senior midwives, peers and clinical instructors at the second and third time points, the lowest scores being given by the clinical instructors at the final time point; it was the students’ own self-assessed scores that were at odds with the other assessors’ scores. Figure 7.13 of Chapter 7 shows a scatter plot of the student’s confidence score after three months in clinical practice against their score after getting the results of their examination. The three points nearest the top left corner, whose confidence had increased most, were female students from School A; the three points nearest the bottom right corner, whose confidence had decreased most, were from School A (the two lowest scores were female students; two of the three students (one male, one female) had a self-assessed maximum score of 200 after getting the results of their examination but their confidence had dropped to relatively low levels after three months in practice).

The qualitative study revealed similar differences between School A-trained, and School C-trained graduates and the role the training school played in the critical reasoning of their graduates. The differences in the perceptions of School A assessors and students self-perceived confidence was confirmed as the students said that they were not happy with the clinical instructors giving them low marks after working so hard. However, as mentioned earlier, the School A clinical instructors explained the unwritten standing order that no student should fail if they did not put much effort into their work. Though the assessors raised this as a concern in failing to fail those not meeting standards, it may have given the students false impressions about their abilities. The ‘no student should fail rule’ forced the assessors to pass every student for fear of perceived victimisation and embarrassment when the authorities ruled in favour of the student who failed. After three months in clinical practice, slightly more students showed a fall rather than a rise in confidence scores, and this was particularly so among School A students. Differences were not, however,
statistically significant. In the qualitative study, School C students felt that they had acquired the skills and they were able to practice to expectation while School A graduates complained about deficiencies in characteristics of their training environment.

As a result, School A graduates called for the standards to be reduced to accommodate their deficiencies instead of advocating for the school to raise the standards and meet international standards as defined by the ICM. There is a cause for concern when graduates lack insight into the meaning of standards. Some School A -trained graduates appeared to be attempting to manipulate standards to suit their nature. For the same reason, School A graduates called for the ICM to revise the definition of ‘midwifery competency’ to cover for student skill deficits at qualification. The School A graduates gave definitions of competence which were associated with self-perception and beliefs, unlike the School C graduates who gave definitions of competence which were performance and standards related. One would have to worry about the future of the midwifery profession in Zimbabwe if it is going to be managed by myopic leaders who resent their selfish agendas not being addressed instead of looking at the global picture. They should be working towards improving the situation and acquainting themselves with global thinking instead of trying to reverse the benefits of the evidenced-based standards which the ICM and other midwifery stakeholders have tirelessly worked for over the years.

From the quantitative and the qualitative results, School A students had lower confidence and competence compared to School C students. School A students could complete their training without being adequately prepared for practice by not finishing all of the procedures cited as being ideal for the programme participants to develop basic skills for midwifery practice competences, a finding which resonates with Fauveau et al. (2008b). However, it is known by both the clinical instructors and the tutors at School A that students may not be completing everything before qualifying. Yet they know that skill mastery is determined by repeating the same procedure for a specified number of times and the required numbers of procedures for registration have been stipulated nationally (http://internationalmidwives.org/what-we-do/education-coredocuments/global-standards, 2017, Papp et al., 2003). This raises the question ‘who will guard the midwifery profession in Zimbabwe if the custodians of the programmes cannot be trusted?’

In several studies, student behaviours, the beliefs and attitudes students portray and their learning outcomes are reflective of their training environment policies and the way the way their learning is organised (Lewin, 2007, Hart and Rotem, 1995, Frazer et al., 2014,
Franklin, 2013, Ebert et al., 2016, Doyle et al., 2017, Chuan and Barnett, 2012). These studies give an explanation of student behaviours and attitudes towards standards. The same authors revealed that student characteristics are important determinants of competence and confidence development. Hence, collectively the student characteristics, attitudes and behaviours have an effect on the development of required skills. Indeed a lack of seriousness in student supervision and mentoring has a negative impact on the students’ competence and confidence development as revealed in the present study results. Mostly the comments from students about not feeling fit for practice were found among females while males generally felt they were competent. Many School A-trained female midwives felt they were not adequately prepared for practice and faced more challenges. It was different among School C graduates, where both the males and the female midwives’ confidence scores remained high as they felt that the environment in which they trained valued standards. In Figure 7.13, most of the confidence scores of School C students remained very high after three months in clinical practice, while scores for several School A students were relatively low. Indeed School C trained midwives had to practice religiously for them to refine their skill.

8.3.4 Training environmental challenges and mitigation strategies vs competence development

8.3.4.1 Procedure discrepancies among school and clinical area staff and competence development

The quantitative study did not collect information on the way the school staff (clinical instructors and tutors) or clinical area staff (senior midwives and ward supervisor) at the two schools performed their work. There were significant differences between schools in the 360° assessments given by the ward supervisor/senior midwives and clinical instructors. Within the quantitative study, it could not be determined how much of this was due to differences between the institutions or settings and how much was due to differences in the competence of the students themselves. As mentioned earlier in Sections 8.3.1 and 8.3.2, the qualitative study revealed that the ways in which the school and clinical area staff carried out their procedures were different. These were attributed to the fact that the clinical instructors and the tutors valued procedural standards and quality of student follow-ups more than the ward supervisors and the senior midwives. The ward supervisors and senior midwives were oriented towards getting the work out of the way, not how the work was done, and hence attached different meanings to the essence of student follow-ups. However, both schools had discrepancies between the clinical area and the school in doing procedures but School C, unlike School A, had a procedure committee
chaired by the school head which was set up to look into how best these two could best work together.

At School C, clinical instructors and ward supervisors, and other school and clinical area staff held frequent meetings to discuss issues affecting student learning in the clinical area, while School A had no such meetings. School C had a procedure committee which would frequently review how a procedure was being carried out and this procedure committee had a task to ensure students got a standard procedure pack almost every day, although they were also facing challenges here and there due to economic hardship challenges. However despite the procedure committee being chaired by the head of school, there were still problems because the clinical area is task-oriented while the school is procedure-oriented (Benner, 2010). The clinical instructors and ward supervisors at both schools were often in conflict though this was reduced at School C because of the procedure committee. In addition, the head of school at School C would hold frequent meetings with the clinical area staff to iron out issues related to student learning, and this had positive implications, as stated by tutors, clinical instructors, ward supervisors and students. For example, students reported a problem with their supervision in the postnatal area which they thought was contributing to the high failure rate associated with giving BCG vaccinations during the summative evaluation.

8.3.4.2 Shortages of human resources and unsupervised procedures and competence development

The qualitative study found a critical shortage of qualified and experienced midwives to give support to students in the clinical area in both schools, a finding resonating with other studies on nursing staff (Murray et al., 2010; Nelson et al., 2004; Roche et al., 2004) and midwives (UNFPA, 2011a). Adequate numbers of qualified and experienced staff should be part of the ideal clinical area (Lamont et al., 2015) to assist students in correlating theory and practice and obtain the competences necessary for satisfactory practice (Henderson et al., 2007).

As a consequence of the shortage, it was common for ward supervisors to get on with other duties and leave students to do unguided and unsupported procedures. Other studies have revealed that a shortage of experienced qualified staff in the clinical area undermines the benefit of student clinical placement (Maginnis and Croxon, 2007, Nolan, 1998). Yet the purpose of placing the students in the clinical area is to develop skills which will make them fit for practice (Brown et al., 2011) which they cannot achieve on their own, as revealed in this qualitative study. From the qualitative results, the clinical learning
environment shows a duality where one side represents the school and the other side represents the clinical area and they have a complementary function (Bloom, 1965).

Though the school was giving the required theory, theory alone cannot develop a practitioner (Sundler et al., 2014, Saarikoski and Leino-Kilpi, 2002, Papathanasiou et al., 2014, Papastavrou et al., 2010, Doyle et al., 2017, Chuan and Barnett, 2012). In Zimbabwe, Midwifery is a clinical course and running for 52 weeks with 37 weeks spent in the clinical area, yet students spend this critical period without proper guidance and support. There is evidence that the theory-practice gap is closed through supervision by the qualified practitioners in the ward (Sundler et al., 2014; Saarikoski and Leino-Kilpi, 2002; Papathanasiou et al., 2014; Papastavrou et al., 2010; Doyle et al., 2017; Chuan and Barnett, 2012), and the quality of these staff determines the quality of graduate who is produced for the profession (Carlson and Idvall, 2014) Yet some of the qualified midwives in Zimbabwe seem to endorse unsupervised procedures, allowing students to proceed with deficits in their learning and not be fit for practice.

The present qualitative study revealed that leaving students who are not adequately supported to mentor each other may have facilitated learning the wrong skills. Peer support was found to be crucial in skill acquisition and development among the midwifery students, resonating with findings from other studies (Sundler et al., 2014, D'Souza et al., 2015, Doyle et al., 2017, Chuan and Barnett, 2012). Peer support is fruitful where the clinical environment support is ideal but the students assisted each other and were failing to meet expected standards at summative evaluation. The students in this study indicated that it was more common for them to practice as students alone without guidance. ‘The quality of care of mothers and their babies’ is directly related to the quality of graduate produced (WHO, 2011a). A skilled birth attendant is critical in reducing infant and maternal mortality and such an individual is produced through quality training (WHO, 2006, ICM, 2010) and will be able to ensure optimum quality health is given to the recipients of such care (UNFPA, 2010). In addition to producing such a cadre, the training programme should be able to meet the set standards relating to trainers and the environment such as those given by the Human Resources for Health report (WHO, 2006). Zimbabwe as a country pledged to align its midwifery training with those guidelines but it is failing to create a conducive training environment for its midwives to honour the pledged commitment. Moreover, running a quality midwifery training programme is on the agenda of the country’s commitment of providing quality healthcare to the nation, yet the quality of midwives produced in the country seem be short of the basic skills of midwives,
resonating with Fauveau et al. (2008). Midwives constitute the largest health workforce in Zimbabwe and they work in almost every health facility in the country. If the country is to achieve to provide optimum healthcare for its citizens and contribute towards achieving the SDG 3 of reducing neonatal and maternal mortality to acceptable levels (UN, 2015), the government has to pay an allegiance to Human Resources for Health guidelines (WHO, 2006).

A supervisor in the current study could abandon a student in the middle of the procedure when more pressing issues cropped up and leave them unsupported or under the care of a peer or senior colleague who is not sure of what to do. This has been found in other studies where clinical staff failed to give full support to the students attached to the clinical area due to workload related to other duties such as patient care (Papastavrou et al., 2010, Brown et al., 2011). Work overload for clinical ward staff has always been cited as a problem in affording students an ideal clinical learning environment (Papathanasiou et al., 2014, Papastavrou et al., 2010, Brown et al., 2011). In the present study, work overload was affecting the facilitators from both the school and the clinical area. However, a study in Cyprus (Papastavrou et al., 2010) found that the problem of workload for teaching staff who had a dual role of being both a classroom and clinical teacher was alleviated by creating mentor roles in the clinical area, which improved the supervision of students in the clinical area (Lambert and Glacken, 2004). This benefit which was still enjoyed 20 years down the line (Papastavrou et al., 2010). The set-up of having a clinical teacher and mentors is the same in Zimbabwe but the student in the clinical attachment area had different experiences of failing to be adequately supported by both the clinical staff and the school stuff due to high numbers of students unlike in the Cyprus study. The student: clinical instructor ratio in Zimbabwe was as high as 1:50/60, far higher than the 1:10 advocated by the WHO as an ideal ratio for an ideal student: mentor ratio in the clinical learning environment (WHO, 2006). Nursing education in Cyprus and midwifery education in Zimbabwe share one thing in common: both are the responsibility of the Ministry of Health. However, Zimbabwe is a low resource income country contrary to the Cyprus which is a high resource income country. This might explain the apparent differences in the benefits of having a clinical teacher and classroom teacher collectively supporting the student in the clinical area. The Cyprus model of supervision seemed to be operating better than that of the Zimbabwe model since the clinical teacher was always with the student in the clinical area. In Zimbabwe, the clinical instructor is allocated other
duties by the school, making it very difficult to support and guide the student in the clinical area.

The students in the Cyprus study were more satisfied with their clinical teacher support compared to support from ward supervisors (Papastavrou et al., 2010). The school-based supervisors were mostly appreciated for transferring correct skills to students, while facilitators from the clinical area were appreciated for their experience in patient care and evidence-based practice and role modelling in patient care. This was contrary to the findings in the present qualitative study results. In addition in the current study, participants were optimistic that if staff that supported student learning had their clinical tasks reduced, it would make a difference in facilitating the students’ development into independent practitioners fit for practice. This resonated with the findings of Öhrling and Hallberg (2001). However, in an environment like Zimbabwe where there is a chronic shortage and which is manned by a skeleton staff, it would be very difficult to think of a solution in both the short-term and long-term, similar to findings from the Nursing and Midwifery Council (NMC) (2006).

8.3.4.3 Peer support strategy and competence and confidence development

In the qualitative study, when the government or the school failed to solve their problems, students would create strategies to cope with the learning environment to create what they thought was an ideal learning environment. No other study indicated that students would try to manipulate the environment to carry on training; in the studies by Henderson et al. (2006) and Monterosso (2008b), the students quit their programme.

The midwifery training programme in Zimbabwe follows the adult education framework, and learners in this programme showed some of the related characteristics cited by Knowles (1980), such as self-directedness in their own learning to facilitate progress if they know their goal and how to get there. In the qualitative study, when the participants at both School A and School C Midwifery training schools found out that there were factors impeding their achievement of skill acquisition in the clinical area, they took the initiative to create peer support groups. or join qualified midwives on night duty. Such problems of failure to support students in the clinical area and finding solutions were not unique to Zimbabwe. Cyprus had at one point experienced that same problem and it was solved at government level with long lasting benefits for the students in clinical placement. Unlike in the study by Papastavrou et al. (2010), the students in Zimbabwe created their coping
strategies at the local level, such as going on night duty at School C to access learning and creating support groups at both schools to give each other peer support.

**8.3.4.4 Mitigating shortages of human resources**

Qualitative results revealed a mismatch between what is taught in the classroom and in the clinical area (Chuan and Barnett, 2012). The students observed that due to a shortage of resources such as time or the availability of ward supervisors, they could end up doing their procedures wrongly, contrary to what they had been taught in the school. In order to mitigate challenges of doing procedures wrongly, the midwifery students created peer support groups to assist one another in competence development since there were no qualified staff to turn to due to a chronic shortage or busy environment, leaving the students unsupervised. These were after working hours and the students perceived them to be remedial. The pressure of students competing for limited support was more common during the day, so some students at School C joined qualified midwives on night duty. The qualified midwives were capable of offering the necessary support for skill mastery and development. No compensation was given for night time working since the midwifery programme in Zimbabwe has no provision for students to go on night duty during training. This did not happen at School A as students could get their procedures and follow-ups signed off more easily. School C students, on the other hand, had to maximise their practice time with more experienced staff since their passing of the summative evaluation was dependent on meeting standards.

Peer support in skill mastering was a critical aspect among students at both School A and School C, perhaps more so at School C, as they networked and shared information, teaching each other skills. The School C support group was multifunctional. Firstly, its purpose was to try and make students get used to doing the correct procedures, as those who had mastered the skills better would show their peers how to do the procedures using their notes as checklists. Every student would practice the same procedure over and over again until they were confident and perceived to be competent by their colleagues. Secondly, it acted as emotional support strategy as it created a platform for tolerance for each other as well as for creating a conducive learning environment, buffering stress even if it was taking longer for the colleague to master the skills. The colleagues would take turns to coach the each other although students who took longer to master the skills commented that it ‘was hard work’ for both their colleagues and themselves.
Students liked the tone of their support group environment as their colleagues would not shout at them, unlike the ward supervisors and clinical instructors who became impatient with them as they continued to make a similar mistake over and over again. Both the clinical instructors and the ward supervisors commented that working with slow learners was hard work. The clinical instructor and ward supervisors, especially the younger ones, would mock older students who were slow learners. Such behaviour would provoke negative feelings in students, who would then either get angry or stressed. Most slow learners appreciated their peers’ effort and they commented that had it not been for their peer support, they would not have mastered the skill. This demonstrated that student peer relationships were very critical for learning skills and confidence development in the clinical area (Lamont, 2013).

Thirdly, the support groups assisted those who failed their first attempts in the summative evaluation to recover from the shock of failing, accept the failure and move on to work on the identified deficits, particular at School C. Also, the support group was used to share both happy and distressing moments as well as sharing their experiences with supervisors. Peer support sharing experiences and jokes kept the students going even during hard times. The present study found that joking with peers relieves stress and motivated the student to continue with the programme during hard times; to knowledge of the researcher, this has not been reported in other studies.

The student midwives’ strategies to solve problems with competence development seemed not to have worked as effectively as anticipated since at times they were at times passing the wrong skills to one other. Based on the observation that the students were reaching their summative evaluation without being ready for the clinical examinations, it could be concluded that student-initiated solutions at a local level may fail to resolve problems faced by the training programme, unlike tackling the problem at a national level and finding a lasting solution as in the Cyprus study by Papastavrou et al. (2010). Comparing the differences in the economic status of the two countries, it may be concluded that political commitment may only be possible in a sound economic environment.

Fourthly the support groups at both School C and School A were used to take care of the biopsychosocial, physical and spiritual needs of group members. Though peer support has been found to be critical in assisting individual group members in competence development (Hogan et al., 2017). The present study revealed that the peer support groups
would work as family and providing family function roles such as financial, material and emotional support, tolerance, and praying and fasting for each other.

It is not unusual to find a negative impact of shortage of resources on the development of skills and competence of nursing and midwifery in low resource countries. There is evidence that LMIC professionals fall short in skill development due to a lack of necessary resources both human and material (SoWMy, 2011, 2014). However, the critical shortage of both material and human resources affecting Zimbabwe and its low economic status are hitting the midwifery training programme hard. School C managed to produce midwives who showed confidence to practice in the clinical area three months post-qualification unlike those from School A whose confidence dropped when they discovered that the experiences and conditions they were exposed to during training did not adequately prepare them for practice. This is similar to other studies which concluded that an ideal clinical learning environment should be able to develop the professional skill and confidence and promote a smooth transition from training to practice (Lewin, 2007, Hart and Rotem, 1995, Frazer et al., 2014, Franklin, 2013, Ebert et al., 2016, Doyle et al., 2017, Chuan and Barnett, 2012).

8.3.4.5 Mitigating shortages of material resources

The present qualitative study found that a shortage of material resources interfered with competence and confidence development, as in found by Kibwana et al. (2017), although that study had not pointed out how a procedure pack without all the items affected confidence and competence development. The students in the current study complained that a pack without all of the required items due to ongoing shortages was not conducive for teaching or practising skills as the missing items can make the student miss the skill associated with manipulating or using those items. Students trying to compensate for any deficiencies in the pack would usually try to gather all the needed items and practice one at a time with the help of peers to seek to mitigate the challenges. Of note, the student midwives in this study felt that those items missing from the procedure packs were related to differences in the ways their facilitators performed the procedure. Hence students felt that they should have experience with several facilitators at different levels to make up for the perceived skill deficiencies of their facilitators. This could be the reason why some clinical instructors became angry when students asked questions during procedures as if the students were comparing the present facilitator with others. As a result, when the students sought clarification of these noted differences from the role modeller, it caused
conflict as the facilitators thought the students were too critical and were disparaging their abilities. Additionally, this could also explain why clinical instructors had refined skills since they always used a procedure pack containing all of the items as they prepared for their demonstrations. This did not reflect the reality of the clinical area and this stressed both the students and the ward sisters hence both groups felt that the clinical instructor's expectations were beyond reach and artificial.

8.4 Other factors associated with competence and confidence development

8.4.1 Student characteristics
In the quantitative study, the dominant factor associated with 360° assessed competence scores was the midwifery school; associations with other factors disappeared when adjusted for school, although the quantitative findings may have been affected by the relatively small sample size. However, in the qualitative study, other factors did appear to be related to competence. Characteristics of the student determined the nature of relationships which developed between them and their supervisor in the process of learning. Previous working experience why determined why the student was in midwifery and how they perceived training and behaved in the manner in which they did. Several studies in support of the present study findings revealed that student characteristics are described within the context of determinant of environmental factors (Carlson and Idvall, 2014, Kibwana et al., 2017, Melrose and Perry, 2017, O'Mara et al., 2014b, Panaou et al., 2012, Yates et al., 2002).

8.4.2 Gender
In the quantitative study, female students appeared to have higher confidence and competence scores than male students, but this was because more School C students were female, School C students generally having higher scores. A small number of female students at School A had low confidence scores after 3 months of clinical practice.

Gender may be related to the way students interact with their supervisors (Hui et al., 1988). There were gender issues found in the qualitative study that the quantitative study could not pick up. For example, students who had previously worked in the police or army and had been in positions of authority were more likely to be male. As will be discussed later, those coming from a previous position of authority found it hard to accept the role of student and had problems showing respect towards supervisors who were younger.

8.4.3 Age and working experience
In the quantitative study, the student’s age and years of experience post-RGN qualification were not associated with confidence or competence scores after three months of clinical practice. However, they did appear to be related to competence and confidence development in the qualitative study. Like gender, age may be associated with the way in which students interact with their supervisors (Hui et al., 1988). Age itself may not be associated with competence development but may be related to bad experiences in relationship building (Koch et al., 2015). Competence development does not depend on age but what may be needed for adult learners is individualised and adequate support (Brunstad and Hjälmhult, 2014; Won and Choi, 2017).

In the qualitative study, the age range of supervisors who were interviewed was 28-52 years, and that of interviewed students was 29-53 years (in the quantitative study, ages ranged from 28 to 53). Students were often of the same age and sometimes older than their supervisors. This can cause a problem since within the culture of Zimbabwe, respect is paid to the eldest of the interacting individuals (Campo, 2017). Within the Zimbabwean culture, age is associated with wisdom and having younger ones bossing around those older to them is unacceptable and it makes the older adult feel disrespected with their ego threatened (Campo, 2017). It is considered a taboo to reprimand an elderly person, let alone say anything negative about them.

From the learning point of view, evaluation and feedback should be independent of age or experience as they are about measuring performance against standards, identifying and telling individuals about both their strengths and weaknesses, and advising the individual how to correct any identified weaknesses. The older students managed to build positive working relationships with the older supervisors but there were problems when older students felt less respected by younger supervisors. This stalled the teacher-learner relationship, which is a crucial factor in competence and confidence development (Oermann, 2015). This was more apparent at School C, as problems at School A were more often related to students’ experience and positions held before enrolling into midwifery training.

In the qualitative and quantitative studies, midwifery students had a wide range of working experience, spanning 2-30 years; they were adult learners in the midwifery schools. Experience is one of the characteristics of adult learners which represents the richest resource for learning (Knowles, 1984), and it defines their identity and their self-esteem (Bandura and McClelland, 1977).
In this study, different age groups had their unique problems and coping strategies in competence and confidence development, resonating with Koch et al. (2015). Younger students were found to be more resilient to the clinical and environmental problems. In Koch et al. (2015), the students having problems decided to quit, but in the present study they suffered emotional pain but persevered to the end. A difference between the two studies is that in Koch et al. (2015), participants were new to the profession, while the present participants were in a post-basic programme. Despite having bad experiences with supervisors and being more sensitive to negative comments, the older students developed resilience over time since they were determined to become midwives. Indeed, in adult learners resilience is related to their goal-oriented approach to learning (Knowles, 1980).

The midwifery training facilitators appeared to perceive students below 30 years as irresponsible, lazy and not caring; they felt such students seemed not to participate in what was going on in the wards unless it was contributing towards their training prerequisites. The supervisors were worried about such an attitude since they believed that it reduced students’ exposure to procedures necessary to develop skills for the area and delayed skill development. If supervisors saw such behaviours in students over 30, they associated it with genuine problems which needed attention, usually social problems such as illness in one of the members of the family. This also resonates with Koch et al. (2015), who found that adult students who come to nursing may have parental and/or carer problems that interfere with their learning in the clinical area.

In the current study, however, ward supervisors revealed that they would not offer the same support to students who either took time to learn or to those whom they perceived to be lazy or demotivated. Because they were too busy, they would move on with the group which made less work for them. Alternatively, if they complied with the student’s request, they would just be present without facilitating the learning and would refuse to sign for the procedures indirectly. Otherwise the facilitator could act busy as a way of avoiding the student if they did not want to give the student the needed help. The current study findings resonate with other studies which examined the impact of supervisor attitudes on the development of competences and confidence. Qualified staff are trusted to have the right attitudes and approach in supervising the students in the clinical area to facilitate their development successfully (Papastavrou et al., 2010, Papanastasiou et al., 2014). The students in turn would trust the commitment of qualified staff to guide and support them in their competence development endeavor (Annemarie and Johanna de, 2015, Nettleton and Bray, 2008, Won and Choi, 2017).
Since adult learning is dependent on previous knowledge, experience and age (Knowles, 1984), it is critical for facilitators of adult learners to understand that this experience can be both negative and positive. The teacher should know this and adjust, according to the individual student’s learning styles to maximise opportunities for learning (Ivanic, 2006). Nonetheless, it appeared that the facilitators of the midwifery training in Zimbabwe appeared not to adequately understand or failed to apply the principles of adult learning, causing problems associated with the students’ adult status. Students thought that the facilitators appeared to apply pedagogical teaching principles most of the time that stripped them of their adulthood.

8.4.4. Positions and responsibilities held before midwifery training
Participants in the quantitative study were only asked if they had been a matron or sister in charge before midwifery training, and most students had been neither of these. The few that had such experience had marginally higher confidence scores after 3 months of clinical practice, a difference that just failed to be statistically significant. In the qualitative study, previous positions and responsibilities were important in the type of relationships developing with facilitators, ultimately impacting on competence and confidence development. It was found that there were three distinct types of students, each with its unique characteristics. The first group included those with a nursing background working in other government institutions like the police and the military. They had managed clinics and hospitals but were no longer practising due to attaining senior positions which were neither a matron nor a sister in charge. The second group included those who had worked in the state-run, privately-run or local authority-run health institutions who had been promoted to senior positions such as a matron or sister in charge. Lastly, the third group was a mixture of the first two groups with less experience and who had not held any positions of authority.

According to Knowles (1980), adults often enrol in a learning programme to gain skills to be able to solve real-life problems, and hence they need skills for immediate application (Tusting and Barton, 2006). However, in the present study, most male nurses who previously worked for the police and the military enrolled in the midwifery programmes to enhance their job status but not to work as midwives. Since most would not be practising but doing administrative jobs or training juniors, they found it difficult to do the clinical procedures. Midwifery training is a clinical course which needs mainly hands-on practice (ICM, 2010, 2013). Those who had enrolled onto the course and were not used to hands-on practice found the course frustrating and ended up avoiding doing procedures and would
only engage into a task when pushed into doing so by the supervisors. These pushes from the supervisors exposed students' deficits which the supervisor was not expecting; this irritated the supervisors who in-turn verbally abused the students. This distressed the students who felt they needed to be respected as adults and not shouted at but to be guided and assisted on how to do the procedures. This caused disharmony between the teacher and the student, yet hands-on practice in the clinical area is core to competence and confidence development (Arshad and Thompson, 2003, Brown et al., 2011, Gillespie, 2002, Houghton et al., 2013, Melrose and Perry, 2017, Misbah et al., 2015). In protest, the student would then give up and refuse to be associated with procedures or the facilitator. Ultimately, such students would move out of a clinical area without doing the procedures, arguing that they only needed the certificate, not the skill. If students get demotivated by tasks which they think they are too hard and difficult to achieve, they may withdraw and become detached from what is going on around them (Benner, 2010).

Students who enrolled from the police or military then were more likely to graduate without acquiring the essential basic midwifery skills. Because of this and because they did not intend to practice, they will not directly benefit the country in reducing maternal mortality and morbidity. However, they are maintained on the register of midwives and counted among those who are actively involved, giving a misleading picture of the HRH deployed to improve the healthcare of the nation. This might also explain the continued shortage of experienced midwives.

The second group, who were previously hospital-based and had got promoted to sister in charge or matron posts before enrolling in midwifery training, also had difficulties in adopting a student’s status. They defied the orders of those whom they felt were younger and more junior to them. These and the first group of students were among those who would not attend demonstrations or would leave the attachment area without doing some of the procedures needed for developing skills. As a result, they performed poorly and got low marks at the end of training.

The third group comprised of those who also would go out of the attachment area without doing the procedures required to develop the skills in that specific area. Those from the third group who were less experienced would go out of the attachment area without practising due to a lack of confidence and fear of abuse from the facilitators. Midwifery students who do not complete their procedures are less likely to reach the proficient stage of competence development described by Benner (1982). However, supervisors from both
schools always reminded students that if they needed the certificate, they had to work for it through meeting the essential training standards.

Students who only needed the certificates would give more effort at summative evaluation time to pass the final examination and get the certificate. However, those who required the skills for practice were different since they would put more effort in gaining the competencies and becoming the best. This dichotomy resonated with the findings of Sparks (2017) and Ng (2014), who classified students according to their reasons for engaging in learning tasks. There were those who would only engage in learning to solve short-term problems and not to learn to master the skill, and those who were interested in skill mastery for lifelong problem-solving (Mansfield, 2012). Hence students were observed to have different motivations towards learning and engaging in tasks associated with skill development, agreeing with Ryan and Deci (2000) and Ryan and Richard (2017).

Age, experience and positions previously held were related to evaluation and feedback since the qualitative study found that these determined how the students perceived themselves and those around them. Evangelinou-Yiannakis (2013) noted that feedback can be given during and or after the performance, and it is intended to encourage students to improve their performance (Hattie and Timperley, 2007). In the present study, the facilitators gave feedback during procedures if the situation was life-threatening and after procedures if it was safe for the patient. Older students with more experience who had been in positions of authority prior to enrolling for midwifery training were not happy with negative feedback given in front of patients or colleagues although they did not mind the place or timing of receiving positive feedback.

8.4.5 Health institutions and wards worked in before midwifery training

Participating students had been involved in antenatal, labour and delivery, postnatal and neonatal care before midwifery training. The quantitative study showed that students had previously worked in maternity, surgical wards, paediatric wards and medical wards while in the qualitative study, some School A students had worked in the maternity area. In the quantitative study, students who had previously worked in one of those four areas tended to have lower confidence scores after 3 months of clinical practice, but the difference was only statistically significant for those who had previously worked in surgery. Nothing came out about involvement in the paediatric ward in the qualitative study.

Since previous experience and knowledge influences how individuals perceive themselves or others within a given context (Knowles, 1984), those students who worked in maternity
before enrolling for midwifery probably believed that they came for midwifery training for the endorsement of the experience and skills they thought they had already developed before training. Hence it was difficult to convince them to get actively involved in the ongoing procedures in the areas they were attached since they had worked there before training. This problem appeared to be more common among School A students. For this reason, the ward supervisors who had previously worked with them ended up signing for procedures which they had not seen them perform during their stay in the clinical attachment area. However, these students received a reality shock when they did the follow-ups and summative evaluation with clinical instructors and they failed to meet expectations.

8.4.6 Evaluation and feedback
Assessment is the cornerstone of competency-based approaches to health professional education (Frenk et al., 2010) and feedback is a primary component of the evaluation of learning, has a strong influence on learning and is inherent in each learning situation (Crisp, 2007). Feedback is used to alter the difference between real performance and the expectation (Hattie and Timperley, 2007). For feedback to enhance learning it must be formulated, framed and delivered in such a way which engages the learner (Sadler, 2010). Even though learners perceive and take feedback differently, the primary purpose is to modify the student’s thinking and their behaviour towards their performance (Shute, 2008).

In the qualitative study, there were negative relationships between some students and clinical instructors. This occurred when students were not willing to redo the procedures after the facilitator considered a remedial repeat was required. The student viewed the procedure as taxing and wanted to get it out of their way whether the facilitator considered it well done or not, as the student perceived themselves as competent. These same conflicting relationships between the student and the supervisor were found in several other studies (Aktaş and Karabulut, 2016, Arshad and Thompson, 2003, Brown et al., 2011, Chuan and Barnett, 2012, D'Souza et al., 2015, Ebert et al., 2016, Gillespie, 2002, Hegenbarth et al., 2015)

In the quantitative study, students’ performance was evaluated objectively by the self-assessed confidence score and the 360° assessed competence scores as assessed by the clinical instructor, the ward supervisor and peer. Evaluation and feedback were found to be critical to competence and confidence development in the present study. The qualitative study found that evaluation and feedback assisted the supervisors to identify student
weaknesses which they highlighted to the student. This included giving the student ways of improving their performance which motivated and prepared students for more challenging tasks when they saw the worthiness of the feedback. However, not all students viewed and received the evaluation and feedback positively as they did not appreciate the associated standards. These findings are congruent to those in several other studies (Chen and Chin, 2014, Einion, 2013, Frazer et al., 2014, Havnes et al., 2012).

Students gave themselves significantly higher scores than their supervisors at each time point in the study (before receiving the results of their state final examination, after receiving the results and after three months of clinical practice). This meant that the students continually perceived themselves more competent than their supervisors perceived them to be. These findings resonated with several studies which found that students over-rate their performance (Chenery-Morris, 2012; Plakht et al., 2013; Clanton et al., 2014; Barnsley et al., 2004). Indeed there is a tendency for students to over-evaluate themselves (Barnsley et al., 2004; Plakht et al., 2013). Hence self-assessment could be an unreliable method of assessment (Clanton et al., 2014), although the use of predetermined criteria was found to be effective in peer evaluation (Chabeli, 2002).

In support of the quantitative findings, the qualitative study showed that the students from both hospitals were complaining about their facilitator’s feedback in giving them lower marks, particularly the clinical instructors. Students attributed this to unfairness while the facilitators as sociated it with failure to meet the set standards.

8.4.7 Newly qualified midwives’ knowledge, perception towards learning ICM core competencies (socialisation into the profession)

A learning programme should have driving objectives which reflect the knowledge and skills the learners go through and acquire at the end of training in order to be certified (Rutledge, 2017). A profession should have a professional body which regulates its education, training, and practice (Cruess, 2004). This resonated with the definition and functions the newly qualified midwives in this study gave about the ICM. Nevertheless, the participants did not all have the same level of knowledge about the ICM – this was on a continuum from lack of knowledge to knowledgeable. In the present study, learning as involving information processing recalling, retrieval and experiential learning was similar to how Redman (1980) viewed and classified learning theories.

Those who were knowledgeable managed to define the ICM, giving its purpose, vision, detailed functions and the ICM core competencies. Those who did not have adequate
knowledge could give detailed information in some areas but fail to do so in others, and there were some who did not know anything about the ICM and failed to provide a single correct piece of information or could only give vague and fragmented information about an area. Learning theory and skills appeared to be a process involving five stages of information retrieval: the initial stage: ‘interpreting the question’, the second stage ‘searching the database’, the third stage ‘analysis and evaluation’, the fourth stage ‘presenting knowledge status’ and finally the fifth stage ‘addressing the question’.

The qualitative part of this aspect could be assumed to reflect the correlation between theory and practice at it also reflected the procedural theory students learnt and correlated with practice as discussed previously. Learning of skills is a triad involving the teacher, the student and the operating environment, and the associated relationships developing during the interaction. There is a wealth of theories describing how people learn and the uncertainties of learning are inherent in human nature. Education theories differ in purpose and are often considered according to their merit but applied in a pragmatic way (Thompson, 2002). For example, the behaviourists consider education theory when it has to do with the change of behaviour, while the cognitivists do so when it is about interaction with the environment, perception and cognition (David, 2007). The process of acquiring and developing the midwifery skills involves three phases: skill acquisition, skill transfer and actualisation, which will be described in detail in the Discussion chapter.

8.5 Dualistic Individualistic-Collectivistic Competence and Confidence Development Model

The critical realists posit that a qualitative study on its own is not adequate to build a theory to explain the causes of the described reality; hence there is a need for transduction to build a theory or model explaining the generated patterns (Blaikie, 2009). Considering what takes place during retrodiction at the integration level of the critical realist’s mixed-method study, retrodiction allows comparison of the qualitative and the quantitative study results where the qualitative results will explain the patterns of the quantitative results and giving an explanatory framework of the outcome results (McEvoy and Richards, 2006, Pawson, 2002).

A theoretical model was developed describing how the competences and confidences emerged from the transduction of the qualitative and quantitative results: the 'Individualistic-Collectivistic Competence and Confidence Development Model’. The model has four components: dualism, the clinical learning environment (school), student
characteristics (psychological, social and biological) and rate of student learning (slow learner and fast learner and the related energy expenditure). These shall be explained in the following sections.

8.5.1 Dualism

The component of dualism was inseparable from the other three components as the nature of the environment, typology of the student and learning rate all seemed to revolve around dualism. Dualism is a concept where a phenomenon is dichotomised into two contrasting or opposing parts (Rozemond, 1998). For example, the clinical learning environment was dichotomous as it represents the classroom and the clinical area. Another dichotomisation that had an impact on students' attitudes to evaluation was whether or not the school had an unwritten rule that no student should fail. The teaching and learning methods, relationship building and characteristics of the facilitators were dichotomous too. Students preferred to learn either as individuals or in groups; the same facilitators were viewed as good or bad by different students; feedback was positive or negative and the way in which it was delivered and the timing of the same either improved or reduced the student's self-esteem and confidence. The student was a biopsychosocial individual with characteristics which determined their response to their environment learning: they were either a slow learner or a fast learner. A fast learner used less time and energy in mastering and developing a skill while a slow learner used more. Dualism was accountable for the differences found in the environment, perceptions and views of the students and that of their facilitators and related experiences with the learning processes. Hence dualism underpinned the learning process and the associated outcome (competence and confidence) of the midwifery students in Zimbabwe.

8.5.2 Learning environment characteristics

Educators must be aware of the environmental factors which facilitate or hinder learning so that they can manipulate those factors to the benefit of the student in their learning. The qualitative study findings in describing the clinical learning environment as facilitating interactive mechanisms and underlying forces within the clinical setting responsible for the students' clinical skills outcomes are well supported by the literature (Arshad and Thompson, 2003, Brown et al., 2011, Ebert et al., 2016, Fraser, 2006, Hegenbarth et al., 2015, Melrose and Perry, 2017, Newton et al., 2012, O'Mara et al., 2014b, Saarikoski and Leino-Kilpi, 2002, Brunstad and Hjälmhult, 2014). The learning environment is capable of providing real-life situations which assist in the development of the skills and critical knowledge necessary for problem-solving (Sawyer et al., 2015). It can also give an insight
into specific professional values (Salamonson et al., 2011) and ethics (Panaou et al., 2012). The learning environment had direct and indirect influences on the student assimilation of information and their participation in skill acquisition and development process (Ivanic, 2006). The qualitative study revealed the qualities and characteristics of the School C and School A learning environments which accounted for the differences in competence and confidence scores between the schools found in the quantitative study. These included factors such as school policies, characteristics of the facilitators and the way the facilitators planned and organised their clinical settings to facilitate student learning. This had an impact on the learning behaviours, values, and approach to learning, beliefs and related learning experiences which ultimately determined the competence of the graduate. A key issue in competence development was how the school itself influenced the student’s attitudes towards assessment and standards. Students at School C appreciated that standards were there to guarantee quality of midwifery care, even when they failed assessments, and were more confident and competent after 3 months of practice. Students at School A had a more lax attitude towards standards because of the unwritten rule that no-one would fail an assessment, and consequently developed lower levels of confidence and competence. This was independent of whether a student was individualistic, collectivistic or on the individualistic-collectivistic continuum.

8.5.3 Individualistic-collectivistic learning preferences

Midwifery students in Zimbabwe had ways of assimilating, processing and recalling the information they had learnt to best acquire and master the new skills they were learning. The students also had preferences in learning the new skills both in the clinical area and the classroom, which could either be as an individual or collectively as a group. Those who favoured learning alone can be labelled as individualists while those favoured learning in groups can be called collectivists. There was also a group of midwifery students who operated on a continuum of individualist-collectivist behaviour depending on the context or complexity of the task at hand.

The individualist-collectivist framework was first used by Hofstede (1984) to classify individual behaviours in the context of country specific cultural characteristics as individualistic or collectivistic and later adopted by Triandis (1995) and Schwartz (1994) amongst others also in the context of culture. Individualism and Collectivism are multifaceted concepts describing the characteristics depicting the biopsychosocial nature of the individual (Waterman, 1981; Hui and Triandis, 1986; Hui and Villareal, 1989; Dansereau, 1989; Oyserman, 1993; Schwartz, 1990; Triandis et al. 1993). Individualism 313
indicates a worldview that gives precedence to individuals whereas Collectivism provides primacy to group goals and affiliations (Hui and Triandis, 1986, Hui et al., 1991, Triandis et al., 1988, Triandis et al., 1993) in relation to social and personal traits (Kelly and Shilo, 1991, Shilo and Kelly, 1997, Waterman, 1981). The individualist-collectivist continuum was argued by Schwartz (1990, 1994) and Green (2005), also in the context of culture and not midwifery education.

The present study found the same behaviour at the individual student level rather than at a societal level. It is the first study to have used the individualism-collectivism framework to describe the characteristics of learners in midwifery or nursing education. The individualism-collectivism framework was used to group the students’ biological, social and psychological characteristics. Resonating with Curry’s onion concept of learning style, the three layers are the outer layer symbolising the student’s instructional preference, a middle layer of information-processing style, and an innermost layer of cognitive personality style (Curry, 1983, Curry and Curry, 1983).The following sections examine the different components.

8.5.3.1 Social nature of the individual

Adult learning is best understood as a way of involving individuals in ongoing interactions and participation in a social context (Tusting and Barton, 2006) and is associated with building learning relationships between the student and the teacher (Won and Choi, 2017). The interactive nature of learning is associated with the student’s view of competence development (Tabari-Khomeiran et al., 2007) and the accompanying problems inherent in human interactions (Samiksha, 2013). The sociological aspect of an individual can be defined in terms of their relationships with those around them. Interaction has been argued to be inherent in both learning both from the classroom and the clinical area and is attributed to experience and behaviour change (Braungart et al., 2014; Candela, 2012). Learning is a process which often needs repeated interactions for it to be meaningful (Forrest, 2014). There are some individuals who chose when to interact and not to interact with others, and the teacher needs to aware of those individuals and maximise their learning during their teachable moments. This was a source of conflict between the facilitators and students themselves in the qualitative study: some students turned down group demonstrations and missing learning opportunities, potentially delaying qualification. Failing to handle student learning styles by the midwifery facilitators may have contributed to the student’s confidence and competence development.
The midwifery training programme in Zimbabwe uses the adult education framework where adult learners are assumed to direct their own learning and source appropriate help when needed. Facilitators need to be aware of the help-seeking behaviours of their students. From the individualistic perspective, the person believes that they are self-sufficient and they do not need anyone’s help (Green et al., 2005, Guiffrida et al., 2012, Györkös et al., 2013, Hui and Triandis, 1984, Hui, 1988). The present study revealed that such students can be difficult to deal with or supervise as they resent correction. Yet the learning of skills in a practical course requires guidance, evaluation and feedback for its success (Ebert et al., 2016, Frazer et al., 2014, Gillespie, 2002, Henderson et al., 2006, Houghton et al., 2013, O’Mara et al., 2014b, Panaou et al., 2012). The qualitative study found that characteristics of individuals are different and that some characteristics make it difficult for the student to be guided and supervised. There is a need for midwifery facilitators to be mature and to have developed emotional intelligence so that they can handle different types of students. The individualist tends towards activities which they can work on in isolation and do not see group participation as beneficial, which appeared to be a source of conflict among students themselves and facilitator relationships. In the midwifery programmes in this study, the faculty used both individual and group teaching methods, and there is a need for the midwifery educators to be aware of the composition of the students in their programme so that they can apply the available teaching methods to the benefits of the students (Boreham et al., 2013, Evangelinou-Yiannakis, 2013, Fullerton and Ingle, 2003, Ilic and Maloney, 2014, Jacobsen et al., 2008). Since the students’ preference in learning a certain subject is critical to their learning of both theory and skills, facilitators of learning programmes must be knowledgeable and appreciate each student's social preferences (Bhagat et al., 2015, Curry, 1983, Fox, 1984, Kolb and Kolb, 2005a, Labib et al., 2017, Riding and Rayner, 2013, Tuan and Long, 2010).

**8.5.3.2 Psychological aspect of the individual**

Oyserman et al. (2002) argued that both the individualists and collectivists are different, showing different psychological responses and behaviours towards different events. Shulruf et al. (2011) used the individualist-collectivist framework to measure the attitudes and values of individualist countries towards relationships, and the results of that study revealed the psychological aspect of individuals. The present study revealed the attitudes, emotions, motivation and help-seeking behaviour of the student midwives in Zimbabwe related to learning, feedback and relationship building. Psychological characteristics
included the attached emotions, emotions and feelings, and motivation associated to experiences connected to learning in the qualitative study. These were not measured empirically in the quantitative study. However, the qualitative study showed the impact the social processes have on the student’s self-esteem and confidence. For example, Kuppens et al. (2008) found that experiences of negative emotions had more impact on individuals from countries showing individualism than those showing collectivism. In the qualitative study, individualistic students over-reacted to outcomes related to their interactions, with such as having difficulties in receiving negative feedback, since they believed that whatever they did was correct until they were given a reality shock. Collectivist students were more compliant and received corrections positively, unlike individualists who had difficulty in complying with authority and coping with anxiety (Frías et al., 2013, Frías et al., 2014). However, the learning of skills involves complying to training standards, being evaluated and being given feedback on performance so that a student knows their strengths and weaknesses and gets advice on how to work on their weaknesses (Chen and Chin, 2014, Oermann, 2015, Smyth et al., 2014, Sood and Singh, 2014). This is a process to which individualists must adapt themselves.

8.5.3.3 Biological aspect of the individuals

The qualitative study found an association between competence development and the biological make up of individuals, agreeing with Honigsfield (2001). The biological aspect of the individual was their physical make up (Darwent and Kempenaar, 2014, McCollum and Pincus, 2009, Schmidt, 2012) including gender (Isman and Gundogan, 2009) and age (Honigsfield, 2001; Brunner, 1974; Piaget, 1990). Preferences for learning in the present study were associated with both gender and age.

The quantitative study found that the males had lower confidence and competence scores than those of females, although the statistical significance of the difference disappeared after being adjusted for midwifery school. This was due to a school effect with School C students outscoring School A students. After adjusting for school, the difference between males and females was no longer significant. Females did have higher mean competence and confidence scores at time 3 after adjusting for school but the effect was not statistically significant.

Females are associated with preferring visual learning with males preferring learning through touching and hearing since they are less good at visual analysis (Isman and
This might explain why male’s competence scores in this study were lower than those of females as midwifery is clinical course which needs more of hands-on practice. If males learn less through seeing, this could explain why they might have a tendency of asking more questions during demonstrations. If the males learn more through touching and feeling than just by watching, they may have not understood as much as the females and may be more likely to questions. This may explain why the clinical instructors at School C were surprised when males asked apparently trivial questions, yet this may indicate a real need for the male student as ‘auditory learners’ (individuals who learn more through hearing) (Bhagat et al., 2015, Isman and Gundogan, 2009, James et al., 2011). This could indicate that males are poor reflectors, a component which facilitates visual learning (Armstrong, 2008, Carroll, 1985, Carroll and Bandura, 1982, Douglas Greer et al., 2006, Madewell, 2011, Sawyer et al., 2015). Being offended by male students asking too many questions during demonstrations may also explain why the clinical instructors, most of whom were female and better visual learners, did not understand why the males would ask so many questions. The School C clinical instructors may therefore have stifled the learning of skills in their male students. Midwifery training is dominated by females and the male students at School C, unlike those at School A, may have felt exploited. The School A male students were free to ask any question and hence enjoyed the supported they received. Learning can only be effective when the facilitator manages to implement the correct learning style and assist the student to assimilate the new information successfully and meet their goal (Ismail et al., 2010).

Preferences for learning were also associated with age, particularly through previous working experience and responsibilities held before engaging in midwifery training. Some aspects were also related to gender, where male students had enrolled in midwifery training from the military or the police force and were not intending to practice midwifery after qualification. Their background might also explain why males in general had lower confidence and competence scores.

8.5.4 Rate of learning of the individual

The qualitative study found that the rate of learning and processing information were part of student the student’s learning style (Ismail et al., 2010, Isman and Gundogan, 2009). Learning requires an active learner (Bandura, 1977), regardless of the characteristics or nature of the content to be assimilated (D’Amore et al., 2012) and the learner should collaborate with the teacher for successful learning to take place (Knowles, 1984). When the teacher knows their student, they can exploit the most appropriate teaching style within
the teaching setting which would motivate as well as benefit the student to achieve their educational goals (Bhagat et al., 2015, Cavanagh et al., 1995, D'Amore et al., 2012, James et al., 2011, Kolb and Kolb, 2005b). Students who understand the procedural knowledge and skills within a short period of time will be called fast learners in this thesis while those who need more time will be called slow learners.

The rate of obtaining competencies in the clinical area created a rift between some clinical teachers and students, straining the teacher-learner relationship and creating favouritism. Facilitators tended to incline more towards helping and guiding fast learners at the expense of slow learners, and this could also be seen as a differences in the quality of skills developed among slow and fast learners. There is evidence that student characteristics determine the nature of teaching-learning relationships as well as the quality of support the student would receive from their facilitators (Licquish and Seibold, 2008; Hughes and Fraser, 2011; Joubert and De Villiers, 2015) or mentors (Hughes et al., 2014; Longworth, 2013).

The learning styles observed in this study reflected that the speed at which the students learn, understand and recall procedural theory and skills is different from student to student irrespective of being a collectivist or an individualist. Some students acquired and developed skills within a short period and with less energy expenditure, and some took more time and energy than others to develop the same skills. Of interest was that the amount of energy the student took to acquire and master the skills was directly proportional to that spent by the mentor, as was said by both students and mentors in the qualitative study. However, it should be remembered that the current study was not designed to measure the rate of learning specifically. A follow up study could be carried out to design a tool to measure the rate of learning and the energy expenditure for both slow and fast learners and also those for facilitators to confirm the claims made by students and facilitators in this study.

8.5.5 Midwifery student learning typology
The students' learning preferences (individualistic or collectivist) and the rate of learning were combined to provide a student learning typology. This collection of components correlates with what literature has described as constituents of a learning style (Honigsfeld, 2002, Kolb and Kolb, 2005a, Kruzich et al., 1986, Riechmann and Grasha, 1974). From the dualistic characteristics the student midwives exhibited during training, together with
the rate of learning and energy expenditure, midwifery students in Zimbabwe can be categorised in the following learning typology:

- individualist slow learner
- individualist fast learner
- collectivist slow learner
- collectivist fast learner
- individualist-collectivist slow learner
- individualist-collectivist fast learner

The present study is the first one to describe characteristics of learners using rate of learning, energy expenditure in learning skills and collectivistic or individualistic characteristics. Several studies have also developed theories and models describing the characteristics of student and learning styles and skill acquisition and development (Gresham and Reichmann learning style theory1974, Curry’s Onion Model, 1983; Kolb’s Learning Styles Inventory 1984; Gardiner’s Multiple Intelligences 1985; Gregory’s Mind Styles Models 1985; Myers-Briggs Type Indicator1985; and McCarthy’s Learning Styles,1990). However, these learning styles have their uniqueness and will not be discussed in this thesis.

8.5.6 Development of the model

The quantitative and qualitative components of the study found a number of factors impacting on the development of competence and confidence in midwives in Zimbabwe. The quantitative component found the training environment (school) to be a significant component of the competence and confidence scores of the students but it was the qualitative component that uncovered the features of the school that were having an impact. Data from the qualitative interviews laid the foundations for the development of a theoretical model which brings together the main factors affecting competence and confidence development (see Figure 8.1). The qualitative findings showed the interrelatedness of the complexities of the training environment, student characteristics and their competence and confidence development through interaction between the student and their learning environment. The student was an inseparable entity possessing biological, social and psychological characteristics each with their own aspects which contributed towards the whole, as described in sections 8.4 and 8.5.

The learning environment provided an arena in which the students could interact but this was controlled by the teacher characteristics, institutional characteristics and policies as
well as midwifery training standards. As discussed in section 8.3, characteristics of the teachers and facilitators determined how they designed and implemented their teaching, handled students, viewed and created teaching and learning relationships with students and implemented the training and institutional policies. School administrative policies also played a major role in the behaviour of students and their facilitators, and ultimately the learning and teaching relationships between them and the sourcing and provision of teaching and learning resources. School policies on assessments also indirectly influenced students’ attitudes towards midwifery standards.

Students’ learning orientation, motivation (as influenced by support from peers and facilitators, and their intention to practice as a midwife or not), rate of learning and related energy expenditure emerged from an analysis of student characteristics (biopsychosocial factors). The reasons for enrolling into the programme had an impact on the motivation of the student in the effort they exerted in acquiring and refining their skills. There was an underlying dualism in which they could interpret the same situations, relationships and events in opposite ways. The learning process was embedded within the students’ characteristics and the learning environment, and these determined the course of the processes involved in teaching and learning. Learner characteristics determined the teaching and learning relationships between the student and the facilitator. Teaching and learning were interactional and involved and the key in relationship building, determining the student’s access to learning and the nature of support they received from the learning environment. The student’s reaction and behaviour towards the support they received from facilitators and peers ultimately influenced their perception towards training standards and evaluation. The perception of the student towards training standards determines their behaviour towards achieving the required competences.

The acquiring and refining of midwifery skills occurs over time and the scoring of the skill depends on how well the skill is performed and assessed. The student’s rate of learning also determined the nature of their relationship with their facilitator. Fast learners had favourable relationships and quickly acquired and refined their scores over a short period of time. Slow learners took time to acquire and refine their skills and tended to have poorer relationships with their facilitators.

Development of competence and confidence can be seen through the overarching concepts of dualism and individualism-collectivism. Dualism was surprisingly common, occurring when students interpreted the same situations in opposite ways, and this impacted on their
understanding and progress. Ultimately, dualism and the other contributing factors from the student’s physical, psychological and social characteristics influenced by their learning environment positioned the student on an individualistic-collectivistic spectrum, either completely individualistic, entirely collectivistic or somewhere between the two extremes, which determined their competence and confidence development (Figure 8.1).

In conclusion, the present study found that the student’s learning style, the nature of the training environment and their competence and confidence development are interrelated though the process appears to be complex. The student characteristics were threefold (biopsychosocial), complex and inseparable, and controlled by the overarching concepts of dualism, individualism and collectivism as seen in the Dualistic – Individualistic-Collectivistic Competence and Confidence Development Model (DI-CCCDM) (Figure 8.1).
Figure 8.1 Dualistic Individualistic-Collectivistic Competence and Confidence Development Model

- Interactions
- Social support

- Training Standards
- Organisation policies
- Facilitator characteristics
- Material resources

- Age
- Gender

- Rate of learning
- Learning skills
- Psychological support
- Motivation
- Attitudes

Dualism

Individualistic

Collectivistic

Competence and confidence
8.6 Summary of the integrated results

The integration of qualitative and quantitative results focused on students from School A and School C who completed the three phases of the quantitative data collection and those who took part in the qualitative interviews. The quantitative study found differences in the patterns of competence and confidence between School A and School C at different time points and over time. School was the most important factor but the quantitative study itself could not identify what it was about the school that caused the difference. However, the qualitative study explored the characteristics of the learning environment (school) and identified a wide variety of factors such as school policies, the way the facilitators planned and organised their clinical settings to facilitate student learning as well as facilitator characteristics.

Therefore, using the qualitative study results, it was possible to compare and contrast the School C and School A characteristics to start to explain for the differences in their students' competence and confidence development. An important difference that had an impact was the students’ attitudes towards assessments and standards. Students at School C complained about low assessment marks but appreciated that standards were there to help guarantee quality midwifery care. Students at School A were allowed to pass all assessments and did not necessarily reach required standards. As a consequence, School C students developed higher levels of confidence and competence while School A students wanted the standards to be lowered.

During transduction, a model, the DualisticIndividualistic-Collectivist Competence and Confidence Development Model (Figure 8.1) was proposed to explain how the nature of an individual and their confidence and competence scores were related via a student learning typology combining individualism-collectivism and rate of learning.

The following chapter will discuss a summary of the main findings, the unique findings of the present study, the role of the proposed model in advancing the Benner (1984) model of clinical competence and the theory grounded in processes facilitating and hindering competence and confidence development.
Summary, Discussion, Implications and Conclusions of the Study

9.1 Introduction
Section 9.2 presents the summary of the objectives, methods and findings of the study. In Section 9.3, the main study findings are discussed related to the four central themes which emerged from these results: ‘two worlds apart’; ‘the problem is from the battle line: dualism’; ‘dialogue brings the two conflicting worlds together’; and ‘skill acquisition and development is dialogic and dualistic’. The themes are discussed in relation to skill acquisition and development. In Section 9.4, the theoretical model explaining competence and confidence development, which was introduced in Chapter 8, is compared against the Benner model for skill acquisition and development (Benner, 1982). This leads into a modified version of the theoretical model of the study in Section 9.5. A critique of the study will be presented in Section 9.6, followed by reflections on the study in Section 9.7, the original contributions of the thesis in Section 9.8, recommendations of the study in Section 9.9 and finally conclusions from the study in Section 9.10.

9.2 Study summary
The study aimed to explore the effectiveness of the competency-based midwifery curriculum in producing confident and competent midwives in Zimbabwe. The study addressed the following two questions:

- Are student midwives who have sat their state final examinations prepared for competency-based practice to the level defined by ICM core competencies for midwives both before and after receiving those results?
- Are newly qualified midwives prepared for competency-based practice to the level defined by ICM core competencies for midwives after they have been working in the clinical area for three months?

9.2.1 Study objectives
The following six objectives were addressed to answer the above questions using a critical realist methodology:

1) To identify the characteristics of midwifery students in Zimbabwe.

2) To explore the knowledge, practices and views of student midwives in Zimbabwe towards ICM essential competencies.
3) To develop an instrument to measure confidence in midwifery students as assessed by themselves and their 360° competence as assessed by others.

4) To assess the relationship between levels of self-evaluated confidence and the 360° assessed competence as assessed by others over time.

5) To explore factors related to self-evaluated confidence and 360° assessed competence.

6) To develop a theory grounded in the social processes affecting competence and confidence development

9.2.2 Methods
Exploratory Glaserian grounded theory (critical realist methodology) was used to address objectives two and six while a quantitative explanatory longitudinal correlational study addressed the objectives one, three, four and five.

Study participants were student midwives recruited from three Schools of Midwifery in Zimbabwe (School A, School B and School C) who wrote their state final examinations in November 2015 and April 2016. Data were collected at three time points by questionnaire for the quantitative study: time point 1 when they sat for their state final examination but before receiving those results; time point 2 when they received their state final examination results; and time point 3 after they had been working in the clinical area for three months (see Chapter 5). The main instrument used was the 360° assessed competence tool as evaluated by the ward supervisor/senior midwife, a peer, the clinical instructor and the student themselves. The qualitative data were collected concurrently with quantitative data from time point 2 through to time point 3, using individual in-depth interviews (Chapter 4).

9.2.3 Major study findings
The quantitative study revealed that the training environment was significant in competence and confidence development but could not explain why this was the case. However, the qualitative study allowed exploration of factors related to skill acquisition and competence, revealing that the learner typology, relationship dynamics and the skill acquisition and competence development processes all played their part. The following section discusses the unique findings related to competence and confidence development among midwives in Zimbabwe.

9.3 Discussion of the main study findings
9.3.1 Two worlds apart
The main thrust of the study findings was the dichotomous nature of the students, the facilitators, the practice environment, the teaching and assessment methods and the communication between the interacting individuals. The dualist nature of the student and the facilitators determined their thought processes, perceptions of self and those around them which, ultimately affected the communication and relationships accounting for their behaviours towards each other. This gives insight into the different worlds lived by two individuals within the same environment; for example, the participants in this study revealed that some would perceive the mentor as ‘good’ while others felt they were ‘bad’. The students indicated that they did not see the same things in the same way or receive the same treatment from the same environment from the same individuals. Hence it was difficult to share experiences in the learning environment, or speak on behalf of others. Such dualism meant that some students enjoyed the support, guidance and constructive feedback received while others did not receive adequate support and guidance. This disparity in experience was caused by differences found in the interacting individual’s perceptions and beliefs towards each other and the meaning attached to the environment around them; this also created tension and conflicts. The preceding description of the dichotomous nature of the study participants best suits what Farjoun (2010) described as ‘dualism’. Dualism describes a concept with two opposite meanings, with identifiable differences, consequently causing tension among interacting individuals. Accordingly, the dichotomous nature of the processes involved in competence and confidence development made it difficult to tease out which processes facilitated skill acquisition and development and which ones hindered skill acquisition and development. Dualism was responsible for the nature of the relationship developing between the student, the facilitators and peers. The concept of dualism was revealed to be a major issue in skill acquisition and development as it also determined whether the participants were either collectivists or individualists. Collectivists were those learners who were oriented towards group learning, unlike individualists who believed that they were self-sufficient and solely responsible for their own learning. Being either a collectivist or an individualist was largely determined by the individuals’ perceptions, feelings, and behaviour towards a mentor; teaching or evaluation method and feedback comments. Based on these facilitator traits, one can be labelled as a good mentor/good student and similarly as a bad student/bad mentor. Hence due to this dualism, students reported that it was not uncommon for two students to receive different support, guidance and feedback from the same mentor. The study findings did not indicate whether the individualist or collectivist student (Hui, 1988) was able to identify someone else whom they were able to get along with and receive the necessary support and
guidance. Given such an observation, it could be concluded that competence and confidence development are complex and further complicated by the multifaceted human nature which relies on interaction. Thus the study results revealed that it was difficult for either the student or the facilitators to predict what the other individual thinks or does, or how the individual was going to react towards a given situation.

Therefore, the dualistic nature of the individual determined how they would behave, learn, interact and develop relationships and perceive what is going on around them. Dualism became a source of conflict among interacting individuals, hence the term ‘the battle line’ is used to describe the differences encountered.

9.3.2 The problem is from the battle line: Dualism

Dualism explains how two individuals in the same environment can live in two conflicting worlds resulting in the individuals ‘drawing battle lines’. The study findings revealed that all processes involved in teaching and assessment methods, in addition to student and facilitator characteristics were viewed differently by different people. Therefore students and supervisors had different relationships with each other.

If one agrees that dualism means two opposing opinions which are distinctly different from each other (Farjoun, 2010), then the processes involved in skill acquisition and development can be perceived to be the battle lines (sources of the problems). Factors which facilitated and/or hindered competence development could not be separated, as individuals viewed the same process from different perspective bringing multiple realities into play. Principles of dualism are likely to have been operating in nursing and midwifery education since time immemorial. However, dualism has not been openly discussed and therefore has received little attention. Several studies have revealed individual thoughts about learning and assessment methods (Hughes et al., 2014; Norris, 2008; Warland and Smith, 2012; Tully, 2010; Mole et al., 2007) revealing the different ways that participants viewed and reacted towards the same learning processes, highlighting conflicting ideas. Thus, the co-existence of positive and negative perspectives related to the teaching processes has been embedded in education for some time. This current study has labelled these perspectives as dualism, bringing it to the attention of the educators.

Recognition of dualism in midwifery education can assist one to gain understanding of how individuals learn and adds to existing educational theory. Others have explored the dichotomies that exist within learning. For example, Bandura (1987) discussed bridging the gap between the cognitivists’ and behaviourists’ learning theories to develop the Social
Learning Theory. The assertions supported by the findings from this study that learning of skills is a triad involving the learning individual, those whom they are interacting with and the learning environment. However, Bandura (1971) recognised that there was a need to strengthen existing learning theories to support better learning outcomes. Existing theories according to Bandura (1977) suggest that teaching and learning benefit from a triad relationship between the learner, teacher and environment. However, if there is disharmony then one could question this philosophy. This notion is supported by my own findings, which demonstrates that dualism creates misunderstanding which hinders successful learning. As suggested by Thompson (1983), a major goal of teaching is personal development and growth through the manipulation of the environment; therefore a harmonious environment is essential to advance skills and knowledge. However, with dualism, as revealed in the present study; there is a need for the facilitator who is mature and who is aware that there are several truths which need to be shared through dialogue. Dialogue makes it possible to understand each other’s views and values about teaching and learning. For example, some of the participants in this study held beliefs that no one should fail from the midwifery programme while others believed that he or she should work hard for his or her success. Faced with such a scenario the facilitator, through emotional intelligence, should be able to organise teaching in a way that unites the different students, supporting them to learn without conflict. Knowledge of the individual student’s approach to learning is essential for the teacher to apply a suitable teaching style. Both the student and the facilitator should agree that there is not only one way of teaching, assessing or evaluating the learning and they should be prepared to adopt those that work without getting into conflict. It appears that some educators in this current study were frustrated when students failed to acquire the expected clinical skills. However, their relationship within the learning environment plays a part in this.

Social processes involved in teaching and learning are clearly influential. The present study advances our understanding of this through the concept of dualism. Dualism was found to either impede or facilitate the competence and confidence of students’ development over time. The dynamics of the student and facilitator were so individual that accounts were not transferable, i.e. a student’s opinion of a facilitator was unlikely to resonate with another student. Similarly, facilitators acted differently towards students, depending on their perceptions of that student. For example, one facilitator may fail to support a student whom they view as stubborn, whereas another facilitator may not have the same viewpoint and offer adequate support. Some students were not happy with group
demonstrations and were shunning them while others viewed these as the ideal and participated actively. The students visualised the environmental learning policies guiding the teaching and learning processes as unpredictable, depending on who was assisting them to acquire the skills in a given environment, teaching and assessment method among others. Hence all processes related to teaching and learning skills were considered to be ‘dual’.

An issue was also raised regarding the definition of ‘competence’ which was observed to be elusive (Eraut, 1994), meaning different things to different people. The ICM (2010, 2013) realised that the concept of ‘competency’ conveyed different meanings to different individuals within the same context and therefore decided to define the term from a midwifery perspective. However, despite this effort of harmonising the definition of ‘midwifery competency’, it appears as if the problem is still ongoing. Participants in this study came up with six different definitions for the same concept, despite going through a programme underpinned by the ICM’s definition.

Although the study participants challenged the present ICM (2010, 2013) definition and proposed some of their own, they did not reach a consensus on how to define ‘midwifery competency.’ The only consensus was that the definition should acknowledge the training environment challenges. Concerns over the definition seemed to come from those study participants who believed that acquiring all the competencies during training was impossible; this resonates with findings of other studies (Laven et al., 2014; Donovan, 2008; Erfanian and Khadivzadeh, 2011).

9.3.3 Dialogue brings the two conflicting worlds together

The current study found that disagreeing about on-going issues can cause unnecessary pain, bitterness and hatred, stirred by conflict; factors also identified by (Pearce and Littlejohn, 1997). Such conflict can be controlled if individual differences are accepted and multiple truths acknowledged (Littlejohn, 2012). How an individual deals with potential conflict appears to be grounded in a continuum of individualism-collectivism. It was revealed that the ‘self’ could operate as an individual or as part of a group, guided by different principles which may oppose one another.

The collectivism and individualism principles brought out the dichotomous nature of the student, the mentor and the processes involved in skill acquisition and development. The characteristics of individuals explained why two people, being guided and supported by the same mentor in the same environment, could be having different experiences. The study
found that conflict is attributed to the fact that interacting individuals fail to acknowledge that individuals are different from each other and that there exist multiple realities in the world (Bergin et al., 2008, Bhaskar et al., 1998, Bhaskar et al., 2014, Collier, 1990). This can cause people to ‘draw battle lines’ as they misunderstood each other. Hence, the participants argued that using emotional intelligence, through dialogue, was necessary to address the causes of conflict by raising awareness and resolving differences. Clear communications are a solution to addressing issues related to misunderstandings (Pearce and Littlejohn, 1997).

The interacting individual’s ‘battleground,’ according to the present study, is deep-rooted in dualisms which makes people view and value the same issues differently according to the individuals’ beliefs about self, and those around them. The students and/or facilitators were living in ‘different worlds,’ despite being in the same environment, due to differing interactions. The problem starts with individuals being myopic, self-centered and disregarding other people’s point of views and wanting to win the battle and not relenting easily. The participants in this study attributed such behaviours to pride and ignorance of the student, the peer or the facilitator who failed to appreciate each other’s personalities and differences.

This study found that some students and facilitators were self-centred. These individuals believed that they should dictate the pace of events around them with considerable self-belief in their actions. As a result, they were rigid and resented correction or support; this resulted in students failing to acquire the right skills.

Both the facilitators and the students in this study needed emotional intelligence to perceive situations from the point of view of others and to create harmony and professional growth. Similarly, a variety of proponents in the social sciences have argued convincingly that the ‘self’ is represented by the autonomous agency and the relationships with others so one cannot be hundred percent alone (Blatt and Blass, 1996; Cicchetti and Beeghly, 1990; Hart, 1988; Erikson, 1968; Taylor, Spiro, 1993; Stern, 1985).

There was also another group of students who were found only to accept help when they were under pressure and had little choice. However, such individuals relented only momentarily, but reverted to their previous stance after solving their immediate problem, findings which resonate with Festinger (1954). Based on the current findings, it could be concluded that such a framework reveals the dichotomous nature of people who operate within the continuum of individualism and collectivism, revealing the social aspect of
individuals (Fenigstein, 1979). Thus it could be argued that any justification of self-
development must include both an analysis of the individual’s autonomy and the available
structures for interactive relationships, not forgetting that humans are social animals who
need others for survival, support (Gardner et al., 1999) and growth. Therefore, the critical
issue in human development is to perceive that the ‘self’ is both an ‘independent and
interdependent’ human being, the dimensions of which are inseparable in self-
development.

The findings showed that it was impossible for an individual to progress in skill acquisition
and development without hearing what others thought about their performance against set
standards. Festinger’s (1954) theory of social comparison assumed that for individuals to
advance in skill acquisition and development, they have to be motivated to evaluate their
abilities and opinions against those of their peers. Hence, if individuals (students or
facilitators) do not have self-awareness, they are unlikely to succeed.

Conflict was observed in this study between three groups; students and students, students
and facilitators, and facilitators and facilitators. In all cases, a third person was usually
required to resolve the conflict. An ‘outsider’ perspective, i.e. someone who was not in
either world or could straddle both worlds, had the ability to create dialogue between the
interacting individuals to clarify their differences and dispel the misconceptions.

Engaging in dialogue was not always a smooth transition as it was determined by either
interacting individuals’ attitude towards each other or the type of emotions evoked during
the interaction process. Ultimately this affected their perceptions towards each other as
well as the nature of the developing relationship. The study found that a trusting
relationship between the teacher and the student is critical for the student to learn and reach
his/her full potential in the profession. Such a relationship was shown to develop when the
two (facilitator and student) perceived each other as having a common goal; achieved
through their different but complementary roles. However, it was also important for the
two to be aware of their differences and be able to discuss the sources of these differences
for mutual understanding and harmonious working. The findings from the present study
concurred with those of Pearce and Littlejohn (1997) on the issue of increasing sensitivity
and the ability of the facilitators in managing their emotions and that of others around
them. Snow and Williams (2013) called this ‘emotional intelligence’.

The study showed that through dialogue, it is possible to resolve conflicts and negotiate
each other’s emotions (positive or negative) through emotional intelligence for positive
relationship outcomes. Failure to handle emotions, especially negative ones, was associated with conflicts and damaged the student-teacher relationship. Hence, emotional intelligence was associated with the individual’s ability to handle their own emotions and those of others; acknowledging multiple truths was an important element of this. Such awareness could only be cultivated through dialogue, enabling perceptions, attitudes, values and behaviours to be observed within a given context (Pearce and Littlejohn, 1997).

Lack of awareness was described by Littlejohn (2012) as the ‘missing link.’ In the present study this ‘link’ needed to address the differences between individualism and collectivism was active student-facilitator open dialogue. The dialogue was perceived to assist in solving problems generated from differences, rather than aiming to ‘win the war’. Dialogue increased one’s sensitivity to the effect of their action towards another.

In addition to emotional intelligence, the students in this study believed that the facilitators should be trained on how to deal with different types of students; greater understanding creates tolerance which contributes significantly towards bringing ‘the two worlds together’. However, power dynamics were identified as a barrier to strengthening of relationships. Some facilitators in this study were found to abuse their powers over students as they demeaned and disrespected the powerless students through derogatory comments during feedback. Such facilitator actions left the students helpless and hurt, which students described as being psychologically destructive. These actions caused the student to lose confidence in their ability to learn and the facilitator’s ability to teach them. However, it appeared that other facilitators were able to give positive and constructive comments and these were revealed to boost the students’ self-esteem and motivated them to want to increase their effort and excel. Hence, competence and confidence acquisition is interactive (Bandura and McClelland, 1977) as will be discussed in the following paragraphs.

9.3.4 The Skill Acquisition and Development is dialogic and dualistic

Most proponents of learning-theories argue that humans process and understand information they have interacted with leading to a permanent change in skill performance (McEwen, 2014b). Indeed knowing theories facilitates provision of an environment or conditions conducive for student learning (Candela, 2013).

The findings from the current study could be situated within existing teaching theories related to learning and skill acquisition and development. Some learning theorists resonated with the present study findings. These were the Cognitive Development or
Interaction theorists, the cognitivists, behaviourists, constructivists, and Adult Learning theorists. The differences between these published learning theories and models are the lens through which the proponents viewed learning, acquired and developed the skills and explained their understanding. This thesis will not discuss the theories in detail but will provide a short general overview of the theories feeding into the findings of this present study.

The Cognitive Development or Interaction theorists believe that behaviour, mental processes and environment are interconnected and concerned with the progression in reasoning, thinking and perception. These proponents also believe that learning is sequential and incremental. Behaviorists believe that learning is shown by merely changing of behaviours in response to a stimulus (David, 2007). Cognitivists believe that learning involves information processing and argue that the associated change in behaviour reflects the thought process (David, 2007); hence learning involves an interaction and dialogue between the student and the teacher (Candela, 2013). Constructivists believe that learning is a process used by individuals to construct new ideas or concepts based on the knowledge or experience they have acquired (David, 2007). Indeed these proponents argue that individuals perceive events differently and use those mental processes to resolve or interpret situations; they suggest that this process is unique for each individual. Hence, the present study labelled those learners who are more inclined to individual learning ‘individualist learners’ and those who are inclined to group learning ‘collectivist learners.’ Those who are found within the continuum of individual group learners are labelled ‘individualist-collectivists learners’.

9.3.4.1 Individualism-Collectivism
The concept of collectivists and individualists was adopted from Hui and Triandis (1986)’s description of individuals according to behaviours towards certain cultural aspects and interaction with those around them. These were viewed from the cultural traits perspective on how individuals from different cultural background perceived ‘self’ in relation to those around them. Their cultural description resonated with the current study findings, leading to the concept of dualism. Dualism is a concept describing the dichotomous nature of a phenomenon which determines individuals’ perception and behaviours towards events and construction of meaning of events in their environment. The present study used the concept firstly to describe the midwifery students’ learning preferences and secondly to refer to the student’s interaction with colleagues and their perception towards core competences. The concept was also used to describe the student’s speed of acquiring and mastering skills.
This process facilitated emergence of the Dualistic-Individualistic-Collectivistic Leaner Typology (DI-C LT). The current study found that no one theory underpins a skilled midwifery practitioner and that learning and developing skills is dialogical; this resonates with Candela (2013).

Thus, it can be argued that each model or theory has its own place in explaining how education programmes should be undertaken to produce the best professionals (Thompson, 1983, Candela, 2013). However, from the present study, it has been revealed that the type of learner, learning style and learning environment are critical in the teacher-learner learning dialogue. Based on these findings the researcher proposes the need to adapt existing teaching and learning theories to reflect the interplay within this triad. The most relevant theories are the Skill Acquisition and Development model by Benner (1984) and the Social Learning Theory (SLT) (Bandura, 1977). It has been argued that the Bandura SLT is a bridge between the cognitivists, the behaviourists and the constructivists.

The present study found that through dualism, individuals vary and prefer different ways of learning, which determines how they would construct their own learning within different contexts. This supports the idea of multiple realities and meaning of learning from different student perspectives which could influence the student’s abilities in learning and development of skills. Bhaskar et al.’s (1998) theory of multiple truths and realities explains the reasons behind individual’s responses to different situations and the associated forces and mechanisms. Not seeing or observing the forces and mechanisms responsible for the observed or unobserved results does not mean that nothing is happening. The conflicts which were happening during the teaching-learning interactions could be explained along Bhaskar et al.’s ideology as most conflicts which were happening between students and facilitators in this study were about the failure to acknowledge the inherent dualistic nature of the universe (Jackson, 2008). As a result, this blindness caused either the facilitator or the student to disrespect one another’s ideas as each viewed themselves as trendsetters and believed themselves to be the best and to strive to make everyone conform to their beliefs. However, from the present study, participants felt that it was critical for facilitators to be aware of how the concepts of dualism operate and incorporate it into their teaching. If the facilitators become aware and acknowledge that each process involved in teaching and learning has both a positive and negative aspect, they will be able to make efforts to find out why others are behaving the way they do before overreacting and label them stupid and offer their opinion accordingly. This was found to be possible if the
individuals engaged each other in dialogue explaining and expressing their thoughts behind
their behaviours (Pearce and Littlejohn, 1997).

The present study findings suggest that adding dialogue to the Benner (1984a) Skill
Acquisition and Development model will strengthen it. The strength of this theory is found
in bringing the Benner model and the dualistic individualistic-collectivistic competence
and confidence development model together.

9.4. The role of the Dualistic Individualistic-Collectivistic Competence and
Confidence Development Model in advancing the Benner (1984a) model
9.4.1 Comparison of the Benner (1984a) Model and the DI-CCCDM
The Dualistic Individualistic-Collectivistic Competence and Confidence Development
Model (DI-CCCDM) which emerged during the transduction of the qualitative and the
quantitative data was summarised in Chapter 8. This section brings together three theories,
extending the Benner (1984a) Skill Acquisition and Development model. The three
theories are the Social Learning Theory by Bandura (1977), the Novice to Expert theory by
Benner (Benner, 1984a) and the current study model from Chapter 8. Neither the SLT nor
the Benner skill acquisition and development models considered the role of age, working
experience or previous areas of work before skill acquisition and competence development.
It has also been noted that the Bandura’s SLT appears to be more focused on philosophy
while Benner focused on the methods of acquiring and developing the skills. The present
study provided the input, the process and the outcome of the skill acquisition and
development process in a particular setting.

The results of the present study modify the Benner(Benner, 1984a) Model of Skill
Acquisition and Development through adopting, adapting and renaming the skill
acquisition and development levels. These were renamed according to the student’s
learning style typology and environment where interactions between student and facilitator
take place. The present study also differentiated between skill acquisition, skill transfer
and skill development which was not evident in the Benner (1984a) Novice to Expert:
Excellence and Power in Clinical Nursing Practice Model. Furthermore, the model did not
differentiate between components within the skill acquisition process; the researcher
suggests that there are in fact two phases: skill acquisition and skill development.

The present study suggested three distinct processes reflecting skill acquisition and
development, which take place within a specific context: the ‘acquisition phase’, the
‘transfer phase’ and the ‘development or refinement phase’. The acquisition phase involves
acquiring knowledge and skills from reading, being given procedural theory by facilitators
and observing role models in the laboratory and clinical area. The transfer phase involves specific clinical placement and practice, which leads onto the development or refinement phase which involves becoming immersed in the skill and becoming part of it. The three phases of skill acquisition and competence development can also be divided into six stages. The first is the ‘initialisation stage’ where skill acquisition involves acquiring procedural theory (the acquisition phase). The next four stages are the ‘acclimatisation stage’; the ‘transition stage’, the ‘resolution stage’, and the ‘familiarisation stage’, where skill transfer involves clinical attachment and correlating theory into practice and repeated activities involving skill mastery and development (the transfer phase). The final stage is the ‘naturalisation stage’ where the individual has reached the expert level in clinical practice (the development or refinement phase).

Stages one to three occur during training while stages four to six span from the point of qualification up to five years of working experience. The last stage of internalisation appeared to occur beyond five years’ experience, as shown in the discussion of the theory phases. All these stages of skill acquisition and development were found to be similar in all areas of clinical practice (antenatal clinic, labour ward, postnatal ward and special baby care unit).

The Benner (1984a) model had only two phases, which are ‘skill acquisition’ and ‘skill development’, which are made up of five levels and the process is situational. Benner (1984a) posited that the five skill acquisition and development process levels are: ‘Novice’, ‘Advanced beginner’, ‘Competence’, ‘Proficiency’ and ‘Expert’. These levels, according to Benner (1984a), appear to be simplistic, obvious and linear. However, the present study found that skill acquisition and development is a complex process which might be difficult to predict, especially after the skill acquisition phase.

The Novice level emerged in this study as the initialisation stage. In this study, this stage appeared to reveal socialisation of the student into the profession, involving learning about the midwifery association. In addition to procedural theory, observing through role modelling doing procedures and the associated experiences and outcomes equivalent to the Novice level in the Benner (1984) model minus experiences and the socialisation in the profession. The acclimatisation and the transition phase have no equivalent in the Benner (1984) model, whilst the Advanced Beginner is equivalent to the resolution phase in this study. However, the Competence and Proficiency levels in the Benner (1984a) Model are compressed together in the familiarisation phase of the present study’s model. The study
model has the Benner competence and proficiency level incorporated together as a phase showing three milestones occurring over a very long period of time. The first milestone was evident from the period of qualification up to one year. The second milestone is visible from one year up to two years post-qualification, while the third milestone takes almost 5 years, showing that it develops from the end of the second year to seven years post-qualification. Finally, the Actualisation phase is congruent to the Benner’s Expert phase.

The present study results partly supports Benner (1984a) and Dreyfus and Dreyfus (1980) in that skills can be acquired and developed within a practice environment and the process is incremental. However, the present study results also revealed that the process could be decremental or horizontal. Of note all of the participants managed to reach an acceptable skill level during training, which was the ‘transition stage’ equivalent to Benner’s Advanced Beginner (see Figure 9.1). This can also be called the changeover stage, since according to the results, the transition stage is when the new graduate finds their place in the profession. Hence, this is the level at which the newly qualified midwife will fall into one of the following three outcome categories: to continue to refine their skills, to remain the same or to decrement their skills. The present study showed that not every qualified midwife continued to refine their skills post-qualification, as some of the participants’ skill levels dropped in parallel to a drop in self-assessed confidence while others remained unchanged. Hence the present study found the resolution stage to be the defining stage as everyone in training reached this stage, where subsequent movement may be determined by the reason the individual enrolled into the midwifery training programme (see Figure 9.2 and Section 9.5.2.4). The issue of the decrement of skill development was not part of the Benner (1984a) Skill Acquisition and Development model, though in her study, Benner (1984) revealed that not everyone developed into experts.

Of significance are the differences in the aims of the current qualitative phase and Benner (1984). The present study used grounded theory to explore the social processes which facilitated and/or hindered competence and confidence development in midwifery students. This is different to Benner (1984a) where the model was developed using phenomenology to identify the experiences of newly qualified and experienced nurses. Benner’s intent was not to come up with a theory but to identify meanings and content which nurses attached to their skill development. The present study’s quotes which supported the development of the study model came from newly qualified midwives and their supervisors during training, who were not recorded as being at a specific level of skill development. The quotes used to support Benner’s (1984) model development came from participants whose
levels of skill development were established. Hence these variances may account for some of the differences in the results.

The present study was based on interviewing newly qualified midwives in Zimbabwe, a low resource country. The Benner (1984a) model was based on observing and interviewing intensive care nurses and their mentors in clinical practice in a high resource country. The present study managed to bring out the nuances involved in information and skill acquisition and development such as student’s experiences with relationship building, individualism–collectivism and dualism, the environment and learner typology among others. Although Benner acknowledged application of rules, she separated the theoretical knowledge from practical knowledge and concluded that an individual can acquire skills without knowledge (Benner et al., 1992, Benner, 1984a, Benner, 1982). However, the present study found that the application of theory into practice is important to facilitate reflection during observation. To support the idea that theory is important in skill acquisition and development, the results showed that there were participants who had worked in maternity wards who thought they had acquired the ‘know-how’ but failed the evaluation process which needed application of theory into practice. These participants had to practice applying the theory learnt from class into practice to pass the final evaluation on the second attempt.

However, Benner (1984) did find that students need rules to apply and acquire skills; these rules may include the need for theory to inform practice. But the Benner model did not show what happens between the time the student learns the theory to the time they transfer it into practice. This extra step was revealed in the present study. The present study found that the levels and rates of learning skills are different between individuals and the nature of the environment has an impact on the quality of skills. The Benner (1984) model did not show that energy expenditure and rate of skill acquisition and development are critical issues in competence and confidence development as well as in learner-facilitator teaching and learning relationships.

In summary, findings of the current study revealed that the methods involved in acquiring and developing theory involves three phases, 1) acquiring the skills, 2) transferring skills into practice and 3) actualising the skills. Individuals go through six stages in order to achieve skill acquisition and competence, not the five proposed by Benner (1984a). In addition, the present study revealed the impact of the learner typology and the associated amount of energy needed to learn the skill which the present study participants likened to
hard work and complexity. It can be concluded that the present study showed that the model appeared more focused on skill output at the expense of skill input and its process. The present study has consolidated cognitive development learning theory, especially Bandura’s (1977) SLT and the Benner (1984a) Skill Acquisition and Development model. This has resulted in a new model which includes a modification incorporating the determinants of skill acquisition and development. By adapting Bandura’s theory and Benner’s model, the interactive nature of the learning process is more visible.

9.4.2 Skill acquisition and development

Skill acquisition is attained when an observed behaviour has changed due to experience or practice. This has been referred to as acquisition of cognitive and motor skills and behaviours demonstrated through task performance (Koziol and Budding, 2012), with repetition being key to the skill mastery (Benner, 1982, Benner et al., 1992, Koziol and Budding, 2012). According to these authors, and several others, skill mastery is demonstrated through improved task performance (Khadivzadeh and Erfanian, 2012, Kelton, 2014b, Raymond et al., 2013b, Hughes et al., 2014, Hughes and Fraser, 2008, Norris, 2008, Warland et al., 2014, Tully, 2010a). Skill acquisition includes observational learning, role modelling and reflection (Bandura and McClelland, 1977, Sawyer et al., 2015). Furthermore, the student should be alert, cognitively sound and be able to reproduce what they have observed, facilitated by the motivation to participate in the activities and self-regulation.
Figure 9.1 Comparison of the Benner (1984) model and the Dualistic Individualistic-Collectivistic Competence and Confidence Development Model (DI-CCCDM)

Benner: Novice to Expert

Skill development levels

Skill acquisition
1. Novice level

Skill development
2. Advanced Beginner level
3. Competent level
4. Proficiency level
5. Expert level

DI-CCCDM: Initialisation to Actualisation

Skill development stages

Skill acquisition phase
1. Initialisation stage

Skill transfer phase
2. Acclimatisation stage 3. Transition stage
4. Resolution stage
5. Familiarisation stage
6. Actualisation stage

Skill acquisition and development process

Mixed-method study
* Quantitative: correlation
* Qualitative: grounded theory
* Sample of midwives

Qualitative study
* Phenomenology
* Sample of nurses

5 levels of skill acquisition and development

6 phases of skill acquisition and development

Sample of midwives

Sample of nurses

5 levels of skill acquisition and development

6 phases of skill acquisition and development
9.5 Modified Skill Acquisition and Development Model: Dualistic Individualistic-Collectivistic Skill Acquisition and Development Model (DI-CSADM).

9.5.1 Skill acquisition phase

9.5.1.1 Stage 1: Initialisation

Observing and reflecting what the student has learnt in theory is part of becoming ready to learn. During observation, the student is passively involved in skill acquisition. This comprises of the process of the students and the facilitator knowing each other, the procedural theory and the professional association, including the course objectives and the ICM core competencies. Other aspects include observing others (facilitator and peer) doing procedures, reflecting theory and practice. Social interactions are fundamental in the world of learning and developing skills through seeing, role modelling and imitation, collectively known as observational learning (Sawyer et al., 2015) or learning by ‘observing those with experience’ (Bandura and McClelland, 1977). Observing and interacting with peers and facilitators assists students in developing the competencies to be exhibited at the end of training. Such observation encourages the students to reflect their thoughts in comparing theory and practice without feeling silly or embarrassed (Brunstad and Hjälmhult, 2014, Hughes and Fraser, 2011). Reflection assists the students to learn to develop knowledge on the management of patients’ conditions and to control any arising situations through watching at a distance as the experience the facilitator modelling without engaging in the process.

Students in the current study realised there were some behaviours which made it difficult or easy for them to access learning and get support and guidance from facilitators and colleagues (Bandura and McClelland, 1977). Social learning theory proposes that skill acquisition is facilitated and reinforced through social interactions (Bandura, 1971) and places emphasis on the role of seeing the symbolic interaction and self-regulatory processes in skill learning and competence development. Skill learning relied on attention, retention, reproduction and motivation. All these characteristics of the SLT components (Bandura and Jeffery, 1973) explain how students develop. Students learn through observation and imitation (Armstrong, 2008). Bandura also suggests that learning does not always result in behaviour change, an issue which can be a source of conflict between the participants and their facilitators. The students showed that they were able to observe differences between facilitators, informing their decisions on whom to approach for support.

The students in this study were able to exploit the ‘ideal facilitator’ for a specific skill. Students were drawn to experienced mentors as they were aware that the newly qualified...
midwives were, themselves, still learning and trying to find their place in the midwifery profession; students believed newly qualified midwives could not carry the burden of teaching others. Interestingly, newly qualified midwives and those with less than two years’ experience were more equipped to provide the correct procedural theory than transmitting skills. Conversely, the most experienced midwives, who had worked for seven years and above, whom authors (Benner, 1982, Benner et al., 1992) have called experts, were good role models but could not explain the associated theory to the students. Those who had between two and three years’ experience required mentoring in a similar way to newly qualified midwives.

Several factors impacted on the student’s ability to learn, factors that the facilitator should be aware of and address before engaging the student in the skill acquisition process. For example, the speed at which the facilitator demonstrates the procedure may have a negative positive or a positive impact on the student’s ability to reflect on the procedure depending on the student typology. Slow learners, for example, need more observations and slow speed in demonstrating procedures for them to grasp the concepts, unlike the fast learners. Knowing the learner type is essential for each student to benefit (Kolb et al., 1981). Similarly, some students benefited from one-to-one instructions whilst others benefitted from a group approach (Benner, 2010).

Other aspects, such as being prevented from asking questions, illness in a close family member or a feeling that the process was too hard also impacted on learning the demonstrated skills. However, the study found that tackling such situations through effective psychosocial support improved skill acquisition and development. The students created psychosocial groups which provided peer support with positive results.

The study also found that psychological morbidity, presented as fear and anxiety, was associated with negative student-facilitator relationships. The students described the concept of ‘fear and flight’ which sometimes resulted in them ‘running away’ from learning. Thus, during demonstrations, despite being present, their mind was elsewhere. Indeed, it was evident that there was an association between the type of student-facilitator relationship and skill acquisition and development.

Before their clinical placement, the students reported that they received procedural theory from the tutors. This was followed by observations of patient care in the clinical area or the skills laboratory. This, the student called the ‘initial stage’ where they were inducted into midwifery, learnt about professional standards and gained relationships with peers and
facilitators. Important milestones included passing the procedural theory and associated examinations. Transferring the theory into practice also began at this stage, as students observed procedures from those experienced who would act as role models. Following observations, students were expected to reflect and imitate what they had observed, demonstrating the power of observation in skill acquisition and mastery.

There was an expectation that students would enhance their theoretical knowledge through additional reading. If the student was believed to be unprepared, the facilitator could cancel the procedural demonstration. On such occasions, students would be given additional homework before proceeding with the demonstration. This situation caused tension between students and facilitators, revealing the need to understand the characteristics and sources of motivation of students in enrolling for the learning programme. The clinical teachers believed that when the student showed that they had grasped the procedural theory, it helped them to move on as they could practice the procedure and refine it through repetition. However, the students were selective about which demonstrations they attended, believing some facilitators to be better role models than others.

Stories about good and bad mentors were passed down from senior to junior students. This was further reinforced to individual students who observed behaviours which led to unpleasant treatment of some students. Hence, students were able to regulate their behaviours through their peer’s experiences and were able to adopt conforming behaviours (Bandura, 1977).

Building positive relationships was found to be critical for the student to be able to learn. Observation and reflection were also important, allowing the student to store mental pictures of information and procedures which they could retrieve when needed. However, this process was sometimes hindered by fear of the unknown and confusion. The type of learner determined whether the student was able to watch and remember what they had observed. Two types of learner were identified in the clinical area: the slow and the fast learner. Slow learners needed more time to watch and process the information to make mental images which could be stored retrieved when time comes. The ability to reflect on what the student learns appeared to also be associated with self-esteem and confidence. Hence it is possible to have students at different phases of the initiative stage showing differences in student typology.

9.5.2 Skill transfer phase
The skill transfer phase is made up of four stages: the acclimatisation, the transition, the resolution and the familiarisation stages, as described in the following paragraphs.

9.5.2.1 Stage 2: Acclimatisation
This phase involves student’s adaptation to skill acquisition and mastery. This involved transferring skills from theory into practice.

This stage is associated with taking the first strides towards active participation in skill acquisition as students apply the rules of the procedure cautiously. Observing positive experiences of peers motivated students to engage in activities they perceived as difficult. Despite feeling fearful, students were motivated to succeed when they knew the goal to be achieved and how to achieve it. Open dialogue and relationship building were necessary for ‘hands on’ activities. This phase was characterised by uncertainty, motivation, courage, imitation and reflection. These feelings were supported by procedural rules and mentorship. However, the timing of the acclimatisation phase varied between students. Some students struggled to reach this level and needed extra encouragement from facilitators. As adult learners, some students resisted the efforts made by facilitators, wanting to set their own learning pace. Slow learners needed to observe many more procedures than the fast learners before they developed the confidence to conduct a procedure. As suggested by others (Bandura and McClelland, 1977; Skinner et al., 1985), self-regulation allows the student to learn to conform to specific behaviours or boundaries for them to enjoy support and avoid punishment and unpleasantness associated with delinquent behaviours. In this study, students used self-regulation in deciding when to engage or avoid certain activities. Through self-regulation, they would also learn where, when and how to seek different forms of help, adopting behaviours which enabled them to get appropriate help when needed. Such help could be sought from the peers or facilitators depending on their individual needs and level of skill acquisition.

Students’ help-seeking behaviour appeared to be determined by their experiences with peers or facilitators; prior relationships determined their opinions of the individual as a useful source of help. For example, when engaging in new procedures students preferred feedback from their peers as they empathised with the emotions held by students conducting their first procedure. Peer support has always been revealed to be critical in facilitating skill development among students (Eppich et al., 2015), and there is evidence that students tolerate feedback better, especially negative feedback, from their colleagues (Falchikov, 1995).
When students needed help in developing acceptable practice standards in order to pass summative evaluation procedures, clinical instructors took precedence. However, when wishing to implement evidence-based practice, students would seek more experienced clinical midwives for support. When looking for a clinical role model students, tended to choose those who had at least five years experience. Hence, students in this study called the ‘real role models’ those senior midwives who were able to showcase skills needed in a specific clinical practice context. As suggested by others, such ‘experts’ are appreciated by students (Benner, 2001, Benner et al., 1992, Benner, 1984a, Benner, 1982).

Wanting to impress others (peers, facilitators and clinical mentors) was a motivating factor in the skill transfer stage, positive feedback boosting self-esteem. Self-confidence was fragile at this stage, with positive feedback enhancing student learning and negative feedback delaying learning.

9.5.2.3 Stage 3: Transition stage
The transition stage is associated with gaining understanding of what is involved in skill development. Students tended to compare their performance with that of their peers and that of their facilitators to gauge their own progress. Through repeated practice, the student mastered the skills in a period of trial and error. This stage could be viewed as the preparatory stage, where the supervisors gave support and guidance on how to do the skills according to standards. The achievements and skill level development were associated with the student’s rate of learning and/or student typology.

The student typology depended on how the student thinks, interacts and feels about themselves and others influencing them. The characteristic of the individual is determined by the inseparable psychological, biological and social nature of the individual. Hence, an individual’s skill development and professional growth should be considered in relation to these characteristics. These characteristics place the individual on the continuum of individual-group perspective depicting an individual to be dualistic (Tafarodi and Swann Jr, 1996). This dualistic nature, as discussed previously, offers an individual a choice of either exhibiting individualistic or collectivistic characteristic. These characteristics make the individual think and reason differently, making interacting with the different individuals complicated (Triandis et al., 1988), as this defies uniformity.

The notion of interactive communication is inevitable and grounded in the fact that irrespective of what the professional does, personal communication will be an essential part of human relations. The ability of professionals to communicate with each other is
vital to skill acquisition and development as it is centred on the interaction between the mentor, the learning environment, the complexity of the skill to be learnt and the peer support. Mentors and peers benefit students in learning in the clinical area, such as assisting the student in closing the theory-practice gap by allowing students to practice ‘hands-on’. They promote reflective learning (Hughes and Fraser, 2011) and critical thinking which is vital to cognitive learning and decision-making in the clinical area (Lake and McInnes, 2012). Mentors’ and students’ characteristics determined the professional they would produce as these influenced student’s behaviour and attitude towards the profession, clients, and colleagues as well as the communication style (Joubert and De Villiers, (Annemarie and Johanna de, 2015). Hence the communication styles between the mentor and the student determined their reactions towards each other. This depicts the impact of individual characteristics in shaping their clinical practice and related competence development in all aspects of clinical practice (Brunstad and Hjälmhult, 2014).

Correlation of theory and practice is inherent in skill acquisition (Licquish and Seibold, 2008; Annemarie and Johanna de, 2015; Hughes and Fraser, 2011) where the role of the mentor is vital in guiding the student through the process. This suggests that skill acquisition is an interactive process between the mentor and the student or between students themselves, leading to the building of relationships which have both negative and positive impact on learning of the skills (Hughes et al., 2014; Longworth, 2013). Two forms of relationship were observed in this study. A positive relationship was observed to facilitate access to learning and promoted skill mastery and confidence development in the student, while the opposite was observed when relationships were negative.

During these interactions, the students were either motivated or demotivated as they made a self-evaluation, using peers and mentors as a benchmark to validate and clarify their achievements. When individuals compare their performance with colleagues or set standards, it allows the individual to check how close to or far away they are to the accepted standard objectively. However, if there are no standards or someone to guide the objective evaluation, the students will subjectively compare their performance between themselves. Hence, it could be problematic if a wrong measurement criterion is used since the wrong skills need unlearning and relearning. Reversing wrong skills wastes time and energy, but also causes emotional pain and threatens a person’s self-esteem. Indeed adult learners tend to be defensive when they feel that their self-integrity is threatened (Bandura, 1977). Adult learners, as demonstrated in this study, need to be approached with care
because they may have a misconception of their abilities and are often reluctant to change, as argued by Knowles (1980).

Students may be better placed to measure their performance against positive role models and set standards for the programme. This needs much motivation within the student for them to be able to compare self-performance with the performance of peers and facilitators or with the performance of those whom they had observed in role modelling. Subject to a student’s level of motivation, they may develop the tendency to associate their performance with someone either better or worse than their performance depending on their level of motivation. A highly motivated student may compare themselves with those who are more skilled than themselves, while a poorly motivated student may compare themselves with someone less skilled. However, at times, it is unavoidable for individuals to compare themselves with those with weaker skill acquisition to feel superior as a way of motivating themselves (Festinger, 1954).

Motivation plays a significant role in terms of self-evaluation and self-enhancement. Self-evaluation reveals the student’s positive characteristics within themselves centred on those of the best individual the student compares against. Self-enhancement then takes place when the student questions which of their characteristics need to be amended to reach the level of comparison.

During this comparison, there could be either divergence (disagreement) or convergence (agreement). Convergence instilled a feeling of success and a building of confidence, which acted as a driver to achieving more. Conversely, divergence instilled a feeling of failure and subsequent loss of confidence. The relationship between the facilitator and peers was crucial in this case. The student could believe the procedure to be too complicated and give up trying or may be motivated to seek additional support. Motivation is closely related to positive thinking about the self (Bandura and McClelland, 1977), a factor that should be considered by facilitators when supporting students.

Seeking help is essential for improving self-performance, but it is not automatic as the student would first perform a risk-benefit assessment before they made the next move. If the student perceives that not conducting a procedure will result in no punishment, then they are less likely to persist in a given clinical area. Instead, they will abandon the procedure temporarily, delaying their learning.

The belief that a procedure was too difficult was associated with the rate of student’s ability to learn and recall procedural theory and apply it to practice. Also, the nature of the
student/facilitator relationship could either facilitate or hinder the student’s access to learning.

In this study, student characteristics were observed to be associated with the way students perceived learning and impacted on the way they adapted to the learning environment and expressed their feelings towards learning. These student behaviours were associated with their age, experience, previous status and the ability to retain and reproduce what they had learnt through imitation. However, evaluation and feedback proved to be critical in competence and confidence development as they identified and offered remedial advice to the learner's learning needs. However, learners may give varied responses towards negative feedback as students have different expectations towards it.

The student’s response to negative feedback determined their actions, for example, influencing other students or facilitators to sympathise with them. Such behaviour is usually found among demotivated students who are sometimes perceived to be different. However, with peer evaluation and truth-telling, an individual may fail to influence colleagues to support them, forcing them to conform to the set standards and change for the better. Change in behaviours appeared to be associated with the nature of the student. For those learners who exhibited individualistic characteristics, for example, their changes were temporary and, after getting what they wanted, they were likely to revert back to their real selves. This was not true of the collectivists.

Constructive feedback and wanting to impress were found to be motivators for positive change (De Villiers, 2015). While both positive and negative feedback could be motivating, the student response to negative feedback depended on how it was presented to them. Some mentors used personal student characteristics instead of basing the feedback on performance of the student, such as likening old age with knowing everything and getting angry with students’ unexpectedly poor performance. This was considered offensive to the student and destroyed the teacher-learner relationship, hindering learning. In these findings such facilitator actions were associated with loss of confidence in the students and cultivated a feeling that the facilitator had failed to teach them. This led to the student disassociating themselves from the supervisor and losing interest in their support. In such situations, the student would resent the facilitator, causing a level of stress that resulted in physiological symptoms, such as increased heart rate, trembling, forgetfulness, sweating and muscle tension. Such stress limited their ability to perform, which was compounded by resentment, fear and grief.
Students appreciated negative feedback better if it was given in a gentle manner or in a jovial way, similar to that given by peers. Reaction to the timing and presentation of feedback appeared to be associated with student characteristics such as age, gender, previous experience and being a collectivist or individualist. As the matrix of competence development is not complete without the facilitator, mentor and environmental characteristics also mattered in determining the success of student learning (Thompson, 1983).

Several studies have suggested that competences could be developed in any environment provided that the students were given adequate support and guidance (Tsele and Muller, 2000; Thorkildsen and Råholm, 2010; Gilmour et al., 2013). This study highlighted that this is not always the case, as a shortage of resources and environmental policies and characteristics also impacted on the facilitators’ practice experience as well as their ability to teach students the skills. The study showed that clinical instructors had practice skills which met the professional practice standards, as compared to the ward facilitators because they had an advantage of always performing their procedures using appropriate resources. Such a difference was noted as one of the causes of conflict between the student, ward supervisor and the clinical instructor. The quality of skills imparted to students by the ward sisters appeared to be of poor quality compared to those given by clinical instructors. This resulted in high failure rates among students during summative evaluation despite having signatures revealing that they had met the expectations. Indeed this higher failure rate among students caused a straining of relationships between student, ward supervisor and clinical instructor. Clinical instructors rely on the ward supervisors’ supervision and guidance since the ward supervisors spend most of the time with students in the clinical area with clinical instructors coming in occasionally.

9.5.2.4 Stage 4: Resolution stage
This is the level where the student has demonstrated the basic competences needed for midwifery practice, having written their state final examination and waiting for results, or a newly qualified midwife who has received their results and has not yet registered.

These newly qualified midwives perceived themselves as competent and confident to work in the intended areas however they have different levels of competences and confidence. The present study revealed that student’s perceptions and views towards competence determined how they defined competency and behaved towards achieving and developing the essential competences during training. For example, the study revealed the following different definitions of competence as an: effect, belief, standard and expectation among...
others. During the resolution phase, the student’s skill and confidence continued to rise and the student could see themselves moving from being a student to a newly qualified midwife. During this period, students did not have any responsibility apart from thinking about their achievement and starting a new career before going into the familiarisation stage. The resolution stage is reached by almost everyone who enrolls in the training programme, whether at first or second attempt. This level is the launching pad for the skill development trajectory. Some individuals will move on to the familiarisation stage, others will remain static while some go through skill decay. The direction in which a student goes depends largely on the reason why they enrolled on the programme (some were not intending to practice as midwives) and the area in which they were deployed post-qualification.

9.5.2.5 Stage 5: Familiarisation stage
This is a transit stage, characterised by activities associated with changing over from the resolution to the naturalisation stage and acts as a bridging stage. It is similar to what Benner (1992) described as the proficiency level; a bridge between competence and an expertise phase. In the present study, it is the starting point of skill refinement in the profession. This is the turning point of the individual, who moves from being a student to being a professional. At this point the individual has changed from being competent to being proficient and has the ability to master the professional skills. It is a phase which shows the milestones of the individuals as they move up the hierarchy of skill development starting from the time they qualify up to seven years. The first milestone is from qualification to up to one year; the second milestone is evident from one year to two years and the final milestone develops over a period of five years from two years to seven years post-qualification.

Skill development describes refining a skill that someone has already acquired to reach a level of self-development and self-actualisation. Skill development is significant because a person’s skills determine their ability to execute their duties successfully, and achieve their planned goals. Improving skills is necessary in the profession of midwifery for midwives to maintain, upgrade and enhance their abilities within the context of ICM core competencies.

The first milestone spanning from qualification is situating oneself in the profession. Students reported that they observed newly qualified midwives struggling to adjust as qualified midwives. Newly qualified midwives needed help from those who had a minimum of five years clinical experience to adjust to their new role. Hence, strong
mentorship was pivotal to a smooth transition. Some students found the transition more difficult than anticipated.

The second milestone occurred one year to two years post-registration, during which the midwife is said to be an ‘intermediate midwife’. At this point, the midwife has been working in the same area and has become to understand the common problems and offer solutions through enhanced analytical skills. However, at this level, they continue to struggle beyond observed problems and become anxious when confronted with complicated cases. They are able to teach others the aspects of a condition and still operate under the rules which they can also pass down to their mentees. They do acknowledge their limitations in mentoring other students and refer them to senior midwives if they are unsure what advice to give. At this level, midwives still need considerable support to continue to grow critical thinking and analytical skills and to facilitate their movement to the next milestone.

The third milestone shows the participant is moving on the expert trajectory. However, the process is long and it can take five years to be called a ‘senior midwife’. During this period, the midwife is experienced, though would not yet be considered to be an ‘expert’. The practitioner becomes sensitive to the hidden characteristics critical to problem-solving capabilities which are needed to function adequately in the area based on experience and professional growth (Benner, 1992). At this level, the midwife can demonstrate an understanding of skills needed to manage a given scenario in an efficient and orderly manner as the natural events unfold (Benner, 1984). The individual gains more insight and become more familiar with problem-solving strategies in the field with the help of those who have already reached expert levels.

During this phase, the midwife can exploit what they know and do not know and seek appropriate help from experts when supporting women with complicated cases. Such individuals can share similar and shared visions, principles, interests, conducts and intelligence with those who are the experts in the area, making it is easier for them to interact with each other. The individuals feel that their views will be confirmed by those who share the same beliefs and make them feel competent and confident carers. Positive role models are more likely to have impact if they share similar values and beliefs as those who are their juniors. This is particularly apparent for those midwives who have high self-esteem and thrive to identify with the experts of the profession. The individuals at this time have reached a point where they witness and realise that their skills are becoming
much sharper. The midwife becomes more analytical and sceptical; they no longer take things for granted as they use diplomacy and strategy to unveil meaning in every situation they experience. These individuals see things from other people’s perspectives and engage in dialogue to iron out differences between them and their students. They are open-minded and willing to change if need be.

In addition to improved cognitive skills, these midwives become more aware of the nuances between women’s symptoms and conditions. Midwives at this level practice more intuitively, being familiar with patterns of problems and workable solutions. At this level midwives can act as role models and can mentor students, but have the awareness to refer to seniority if necessary.

9.5.3 Skill development phase

9.5.3.1 Stage 6: Naturalisation stage

The professional who reaches this level would have developed necessary procedural, relationship and communication skills to be able to reproduce them without much effort. This level is congruent with Benner’s (1984) ‘expert level’, in which an expert uses analytical skills based on experience and previously acquired knowledge to come up with solutions to problems. Solutions come automatically because of the developed procedural memory related to the vast experience in addressing similar problems over time. Procedural memory is the unconscious recall of skill information which is long-term and assists in performing tasks without thinking about it and is built upon experience (Purves, 2010). Procedural memory guides the everyday processes as they go through an easy retrieval process when needed and are both cognitive and technically related. They do not need attention or consciousness to retrieve and to use them. They are created by performing the same procedure repeatedly over an extended period until all the necessary neural systems work together automatically to produce the activity, though the procedure has to be learnt and understood first theoretically.

The individual will view any situation, particularly difficult ones, as a chance for them to learn, mature and change for the better, as they focus their attention on improving themselves instead of concentrating on changing others or blaming anyone for their deficits. During this phase, the individual will have developed emotional intelligence as they become aware of and understand causes of anger, embarrassment, motivation, inspiration and frustration, to themselves and others during interaction and act accordingly. The expert can make situations and relationships flow naturally as they can manage their emotions when interacting with the novice. They are aware that making mistakes is part of
learning, avoid the battle lines and thrive on conflict resolution. They can control emotions, especially negative ones. Even during anger, frustration, and embarrassment, they think openly and objectively and act so.

In this phase, the practitioner develops sharp observational skills which assist them to handle complex situations accurately and sense difficult situations before they get out of hand; intuition drives their actions. They believe that individuals are different and view situations through different lenses. They are able to tactfully erase the battle lines and bring the conflicting worlds together through dialogue and cohesion. They have the power to change those with different perceptions or abilities to align to one’s beliefs without feeling defeated. They make the situation appear as if everyone is important, and that everyone is a winner in their way. They can transcend the individualistic-collectivistic student typology continuum (whether fast or slow learners) successfully through use of emotional intelligence.

Experts have high self-esteem and believe in themselves; they believe they can accomplish anything within their profession to achieve the best for their clients and mentees. An expert has developed the feeling that the profession is part of them and they can balance between stress and work during challenging situations to increase productivity. Those practitioners who have naturalised in the profession can quickly recover from disappointments or obstacles, regardless of the extent of challenges.

In addition to having good role-modelling abilities, the individual acts as a source of knowledge and inspiration in the profession and is appreciated by students and newly qualified professionals who copy these skills from them through observation.

9.5.4 The combined theoretical model

Figure 9.2 diagrammatically shows the Dualistic Individualistic-Collectivistic Skill Acquisition and Development Model (DI-CSADM). This combines the Dualistic Individualistic-Collectivistic Competence and Confidence Development Model (DI-CCCDM) of Figure 8.1 from Chapter 8 with the six skill acquisition and development phases. The gap between the resolution phase and the familiarisation phase indicates the turning point reached by the newly qualified midwife. Some will progress upwards into the familiarisation phase where they start bridging the gap between being a competent midwife and becoming an expert midwife. Some will stay at the same level of competency while others will fall backwards as their skill level decays, particularly if they enrolled on the midwifery programme for reasons other than becoming a practising midwife.
Figure 9.2 Dualistic Individualistic-Collectivistic Skill Acquisition and Development Model

Social factors
- Interactions
- Social support

Biological factors
- Age
- Gender

Environmental factors
- Training Standards
- Organisation policies
- Facilitator characteristics
- Material resources

Psychological factors
- Rate of learning
- Learning skills
- Psychological support
- Motivation
- Attitudes

1. Initialisation
2. Acclimatisation
3. Transition
4. Resolution
5. Familiarisation
6. Naturalisation

Dualism

Individualistic

Collectivistic
9.6 Critique of the study
In this section, the limitations and strengths of the study are presented. The impact of the chosen study methodology on the outcome of the results will also be discussed.

9.6.1 Limitations
It is necessary to acknowledge the study process limitations even if the aim of the study has been met, as there is no research process without flaws (Burns and Grove, 2010).

Interpretation of the quantitative results had several limitations which need to be considered. A total of 360 midwives trained in all of the 22 schools of midwifery in Zimbabwe during the data collection period. However, only 85 (21.6%) from three purposively chosen schools at major teaching hospitals (School A, School B, School C) participated in the study; the 85 were 53.8% of the 158 qualifying at the three schools. However, due to the small sample size, caution should be exercised when interpreting the data. Across the three midwifery schools, 58/85 students completed the study, a retention rate of 68.2%. Only 55 of the initial 85 students had complete data across all variables. Quantitative results should be interpreted with additional caution as they are largely based on data from students from School C or have higher competence scores at time point 1.

The results of regression modelling, in particular, should be interpreted with caution as the sample size of 55 was small for linear regression models. Tabachnick and Fidell (2001) give rules of thumb for sample sizes for multiple regressions that depend on the number of predictors. To test the overall significance of a model with the six predictors used in Chapter 7, a sample size of at least 98 is needed; to test the significance of six individual predictors, a sample size of at least 110 is needed. In Chapter 5, looking at the more relaxed rules suggested by (Miles and Shevlin, 2001) a lower target of 70-75 was proposed, but the final sample size was smaller than this. There was evidence of higher differences between actual and predicted scores when the predicted scores were lower, suggesting that the homogeneity of variance assumption might be violated. This is a further reason for interpreting the regression results with caution.

Qualitative studies, by the nature of their design, are conducted to provide a detailed account of participants’ experiences. Qualitative studies are relatively small and are context specific (Bond, 1986, Carcary, 2009, Denzin et al., 2006). This study was limited to three selected (School A, School B and School C) midwifery training schools in Central Hospitals in Zimbabwe out of the 22 available schools. However, transferability of the results to other midwifery schools in Zimbabwe is likely since midwifery training is
governed by the Ministry of Health and Child Care (MoHCC), has the same funding, is hospital-based and subscribes to the ICM core competencies and education standards. Due to limitations beyond the researcher’s control, she failed to collect qualitative data from one of the schools (School B). This site may have provided a different perspective because of the differences in institutional policies and the way the tutors plan, organise and implement their teaching.

Since the qualitative data were created from participant narratives, individuals could overemphasise novel and unusual events in contrast to routine occurrences (May 2001). Those students, for example, who had a unique negative experience, could dominate the analysis and interpretation of the findings.

The researcher had been a midwifery tutor at one of the facilities, prior to data collection. Students may have felt coerced to participate and/or may have adjusted their responses for fear of reprimand. However, recruitment was initiated by a clinical research associate, independent of the hospital. Furthermore, anonymity and confidentiality was assured and strict ethical principles were adhered to. The fact that students appeared open about the negative aspects of their experiences provides some confidence that the process was not intimidating.

The purpose of in-depth data collection in grounded theory is to understand participants’ concerns and behaviours within social processes (Glaser, 2002). Such data collection techniques have the potential to be manipulated by participants, who may be influenced by the dynamics of the interview and may conform to providing socially desirable answers (Rubin and Rubin, 1995). It is also conceivable that the fact that the researcher was also a midwife influenced dialogues. Nevertheless, the researcher used conventional processes to ensure data collection was rigorous (using multiple sources of data, keeping an audit trail, having ongoing discussions with supervisors and keeping field notes). Resonance (Charmaz, 2006) with participants cannot be claimed for this study as member checking was not carried out after transcription. However, the researcher recapped on the key issues with each participant, ensuring that the main areas of interpretation were grounded in the data.

Since data analysis for a grounded theory is researcher dependent, it is argued that objectivity is very difficult to claim. Despite the determination in trying to make the data analysis and interpretation process transparent, the researcher’s background in all positions
of a midwifery teacher, a clinical instructor, a ward supervisor and a student may have had an impact on the process. However, throughout the research process the use of reflexivity, constant comparative analysis and discussion of findings with supervisors, enhanced the trustworthiness of the findings.

9.6.2 Strengths
The reason for carrying out research is to understand and make sense through knowing the truth about the world we live in (Polit and Beck, 2013). Therefore, the primary concern of the researcher is how to get this truth using a correct methodology (Maxwell, 2004). The challenges facing the researcher are to adopt the best approach (McEvoy and Richards, 2006) to address their phenomenon of interest (Markey et al., 2014) and this is usually determined by the research question (Maxwell and Mittapalli, 2010a). This study intended to answer the question: Are midwives in Zimbabwe prepared for competency-based practice to the level defined by ICM core competencies for midwives? To answer this question and provide a comprehensive understanding of the area of investigation, a mixture of quantitative and qualitative approaches were employed. The mixed-methods approach was a strength of this study.

To address the question, firstly, there was the need to explore the knowledge, practices and views of midwives towards ICM core competencies and build a theory grounded in social processes which facilitated or hindered competence and confidence development among midwives in selected midwifery training schools in Zimbabwe. Hence, the exploratory Glaserian grounded theory was found to be ideal. There was also the need to determine the relationship (Trochim, 2006b) between self-assessed confidence and competence assessed by others and their changes over time using an explanatory longitudinal correlational study.

Retroduction made it possible for the researcher to compare the knowledge, practices, and the views towards ICM core competencies and the actual scores of competence and self-assessed confidence. Critical realists believe that when retroduction, induction and deduction are put together their explanatory powers are enhanced (Scott, 2007). A mixed methodology enhances the credibility and transferability of study results involving multifactorial issues related to social events (Johnson et al., 2007). Hence, determining the processes involved in skill acquisition and development among midwives in selected midwifery training schools in Zimbabwe might not have been possible using a single method (McEvoy and Richards, 2006). The qualitative results revealed the input and
process while the quantitative study revealed the outcome, and finally, the transduction of the results revealed the relationship between the input, process and outcome.

The quantitative study instruments were checked for reliability and validity, and the quantitative data were analysed using appropriate statistical methods. While statistically significant findings are unlikely to be chance findings, the analysis cannot rule out selection bias or confounding. The quantitative findings were, however, explained by the qualitative findings and overall, findings were congruent with those in the literature review in Chapter 2.

9.7 Reflections of the research study
Reflection is a crucial aspect of experiential learning comprised of three phases: the experience of the individual, the specific learning that occurred as a result of participating in the experienced activities and the imagined activities thought to have contributed to specific learning from the overall experience (Boud et al., 2013). In the present study, several lessons were learnt from going through the research process; each phase had its challenges and insights along the way.

Self-awareness and openness to learning assisted this novice researcher to overcome the fears held before starting the study. Since this was her first use of mixed-methods and her first qualitative study, the process was initially shrouded with uncertainties. The researcher assumed that it was going to be a challenge to learn and apply two methods at the same time, notwithstanding the challenges of academic writing. The researcher discovered that conducting a grounded theory study, especially the in-depth interviews, was both a challenge and a learning curve. Some participants were open to sharing their information with the researcher freely and made it easier to probe further while those who were not ready to open up made it difficult for the researcher to keep going. The use of field notes was initially challenging because the researcher found it hard to note them down during the interviews. She subsequently discovered that capturing notes and interviewing the participant at the same time assisted in deepening the probing and aided theoretical sampling. The researcher’s initial thought was that the students would not be open about delicate issues related to the student-teacher relationships. Indeed, the first few participants were uncomfortable in the interview, initially. However, following assurance regarding confidentiality and anonymity they opened up about the effect of the politics of the institution and the behaviours of the facilitators which impacted negatively on teaching and learning.
The researcher also learnt that most participants and gatekeepers do not understand the essence of research. Most participants associated research with a chance to earn some money. Without payment, potential participants lost interest and withdrew. Disappointingly, some gatekeepers did not demonstrate any altruism when approached to support the research. Furthermore, most students who dropped out did so because the researcher was unable to pay them.

Initially, the researcher thought that ethical clearance would be a straightforward process. However, navigating through the Institutional Review Boards (IRB) was a challenge. Those who were facilitating the process did not always communicate the full application requirements, resulting in several exchanges prior to approval. However, after eventually submitting the required documents, the process became less problematic. The clearance process from the Medical Research Council of Zimbabwe (MRCZ) went smoothly as the process was organised, transparent and electronically supported. The council has a website with all of the requirements stipulated as well as the forms for the needed documentation. This was unlike the IRBs where the secretary gave an incomplete list of requirements, which skipped some of the procedures making the system appear inefficient.

The researcher learnt that the Medical Research Council of Zimbabwe is efficient in their ethical clearance process if one is able to gather and adequately address the prerequisites at submission of the application. Most of the challenges are faced with the IRBs who do not have clearly written requirements, which are given piecemeal by the one receiving the applications over a period of time. This can be time wasting when one is given different information at each encounter.

Initially when the research was planned, School C was not among the chosen training sites. However, due to reasons beyond the researcher’s control, she could not access Harare Central Hospital midwifery training personnel, despite the Institutional Review Board (IRB) ethical clearance. However, dropping Harare Central Hospital and taking School C Central Hospital as a research site (which is 439 km from where the researcher lived in Harare) came with its challenges. It meant that the researcher had to travel to Bulawayo (where School C of Midwifery is situated) to supervise the quantitative data collection process three times as well as to do the in-depth interviews in and out of Bulawayo city. The change of data collection timing also meant that the researcher had to travel to the participants’ workplaces for in-depth interviews if they were theoretically sampled. As a result, the researcher learnt that successful data collection requires considerable
commitment and determination, and one has to move out of their comfort zone and adjust accordingly. The researcher also learnt that getting ethical clearance does not mean that one has easy access to the participants; it is the gatekeepers who ultimately determine one’s access.

Under normal circumstances, the midwifery students would receive their results a week before they leave their training institution which meant data at time point one and time point two were supposed to be collected before the participants left the training institutions. However, the Nurses Council of Zimbabwe closed during the festive season and released the results on 15 January 2015, when the students had already left the training institution. This meant that the students had to seek permission from their workplaces to come back for data collection after they had cleared and registered with the Nurses Council of Zimbabwe. This meant it took time to finish the data collection as the participants were not released at the same time. This was unanticipated and was a lesson that a researcher should expect the unexpected and be proactive for a successful data collection endeavour.

As for the collection of qualitative data, the researcher did not foresee that once the student had received their results, they would only stay at their training institution for only seven days and was not feasible to do in-depth interviews in the three schools within such a short space of time. As a result, the qualitative data collection schedule was prolonged more than planned for at time point 2. The interviews were finally carried out between time point 2 and time point 3 of quantitative data collection and involved either the researcher or the participant travelling to meet up, depending on the issues of release of participant from their work place. If the participant was released from their work place, they would come for their interview at their training institution; if the participant faced problems being released, the researcher would travel to the place and perform the interviews in a place designated by the participant after making their presence known to the area superiors.

9.8 Reflexivity and Classical Grounded Theory

The imperative role of the researcher in a qualitative study has been widely researched (Holland 1999). Challengers of qualitative research approach persistently highlight the impact the investigator have on the study participants and how this can affect the value of data produced (Finlay and Gough, 2003). Therefore, being reflexive constitute the researcher’s mindfulness of her/his role in the research process and making conscious effort to guarantee that his or her subjective role is reduced. Consequently, this researcher explored and documented her personal characteristics, preconceived ideas,
epistemological
and philosophical perspectives preceding the qualitative study (Finlay, 2002). Since it was critical to safeguard imposition of the researcher’s voice on research participant, especially as this is argued to be a concern in an interpretivist based qualitative studies (Lincoln, 1995).

From the onset of the research there were certain assumptions by the researcher and study participants. An example of an assumption on the part of the researcher was that all research participants would not divulge the sensitive things happening and affecting their training and actually giving names of those involved from both the schools of midwifery and the clinical area. Issues such as training standards where the mentors gave signatures acknowledging that they had witnessed the student doing procedures which they did not. I was not aware that even if you have reassured the participants prior to the interviews if the researcher asks them a question they feel it is sensitive they will still ask you to pledge confidentiality one again. and at the same time reassure them that there is no one around who can eavesdrop before they open up. Some participants would ask the researcher to switch off the recorder before they divulge the sensitive information despite the fact that they will have been assured that no one else would listen to it and if they were not sure how you would react if you are part of the ongoing process.

In addition, the researcher realized that there are some issues which arise during the interviews which participants expect you to know and that it is obvious that the participants would not bring it out if not probed tactically. The participants would volunteer some of the information they think that you don’t know and suspect that these issues affect skills development and relationship building. If the participants gave you some responses, they expected you to know I noticed they would feel offended if you continue probing it but after a few interviews I got a way of probing it where I would acknowledge it and then indicate that what I might know and expect to happen and the way we see interpret and react towards issues was different and that’s when then participant might either open up or for ask for double reassurance before they indicate what it is. I did not know that the participants when they were theoretical sampled they would ask the ones who had undergone the process experiences before they agree to participate in the interviews and they would actually divulge it to the researcher and this could actually affect the quality of the study as the participants.

The experiences, beliefs, interests and assumptions can influence the study (Finlay 2003). Moreover, Chambliss and Schutt (2006) mentioned that the way the researchers resolve the
problems and interact with the subject in the field are expressed as their own reflexivity within the research process since these also influence the quality of the data collected.

According to Finlay, (2003) and Murphy et al (1998), reflexivity is also about the researcher’s sensitivity in which their presence influences the data collection and analysis. This resonates with Glaser and Strauss (1967) when emphasizing the impact, the researcher has during study process through their concept of theoretical sensitivity in grounded theory.

However, the proponent of classical grounded theory believes that the researcher has no influence on the research process (Glaser, 2014) contrary to other proponents such as Charmaz, 2014 and Strauss and Corbin (2008). Consequently, this researcher used the classical grounded theory and found that she could not do without reflexivity. The researcher could not ignore their experience, as a clinician, midwifery teacher and assessor of skills and knowing the training environmental challenges. The researcher, found out that all the decision which were made the experience could not be ignored. Hence, the researcher would advocate use of reflexivity in classical rounded theory and join Charmaz, (2006, 2014) in criticizing Glaser (2014) stance on reflexivity that it is inherent in all GT methods.

9.9 Contribution of the thesis

- Use of the critical realists’ philosophical stance (worldview) influenced the nature of the results of the present study, making it possible for the researcher to view the results from the multiple reality perspectives. This gave the researcher an insight into the social processes associated with teaching and learning processes in midwifery training from different perspectives. This resulted in the present study being the first one to adopt the concept of dualism to teaching and learning processes in midwifery.

- This was also the first study to use 360-degree feedback to measure the student competence and confidence scores. This made it possible to identify three types of midwives: those who continued to develop their skills and become experts in the profession; those who remained stuck at a certain level of competence; and those who failed to retain their midwifery skills and were neither competent nor confident.

- This is the first study in Zimbabwe to explore the confidence and competence of midwifery students within training and during their transition from training to practice. The study also explored the newly qualified midwives’ knowledge and perceptions towards the ICM and ICM core competencies.
• One outstanding contribution is an understanding of the characteristics of student midwives and their training processes at the selected schools in Zimbabwe, which has not been documented before. Student characteristics were found to be determined by the biopsychosocial status of the individual. These, in turn, determined how the students interacted with their environment and the challenges faced during their training. The study found that solutions to training/learning challenges also revolved around the biopsychosocial status of the individual since the ‘self’ is inseparable and needs to be addressed holistically by considering its combined biological, psychological and sociological makeup. The uniqueness of each student was determined by the concept of dualism which showed that the differences in individuals are determined by the ‘individual’s worldview’, i.e. how each individual views the world. Hence, the study revealed the unique contribution of dualism to the student characteristics and strategies needed to facilitate learning and achievement of learning goals.

• The study found different definitions of competency in general and related to midwifery competencies. This was despite the fact that the ICM (2010, 2013) has defined competencies for midwives. This study found that midwives found it difficult to define competencies. Furthermore, fulfilment of ICM competencies was dependent on beliefs, values and behaviours during training and at completion of training.

• The current study found that acquiring competencies involved significant energy expenditure for both the student and the facilitator. It appeared, from the perspective of students and facilitators, that there was also a relationship between the rate of acquiring the skills and energy expenditure. The study developed a new student learning typology featuring a combination of a position on the individualistic-collectivistic spectrum and rate of learning, and a new theoretical model of competence and confidence development called the Dualistic Individualistic-Collectivistic Competence and Confidence Development Model (DI-CCCDM). Finally, when the skill acquisition processes were blended with the DI-CCCDM model, the model facilitated the modification of the Benner (1984) Skill Acquisition and Development model, which had stood the test of time for 33 years. The final theoretical model for the study combining competence and confidence development and skill acquisition was named the Dualistic Individualistic-Collectivistic Skill Acquisition and Development Model (DI-CSADM).

9.10 Recommendations of the study
9.10.1 Recommendations for policy

- Local and global policies need to consider the training environment, student learning styles and teaching processes required for students to acquire the clinical skills and theoretical knowledge necessary to become qualified practitioners.

- At the local level, the Ministry of Health and Child Care and the Zimbabwe Nurses Council should strengthen their policy related to continually inspecting schools for their suitability through the use of evidence-based information. Such policies should be associated with the regulation of the training environment, student recruitment, student selection, skill acquisition and development processes.

- The Zimbabwe government and training institutes should ensure that adequate resources are available to enable educators to provide effective training to students.

- Policies should be put in place to advocate for supportive research environments, free from individual payments, when the outcome of the research is likely to benefit patient care.
9.10.2 Recommendations for practice
- Clinical and academic mentors need opportunities to share experiences, problems and solutions, to foster relationships and provide students with positive learning environments.
- Forums should be made available for students to discuss any problems during their clinical placement, in a non-threatening environment.

9.10.3 Recommendations for education
- Teachers need greater awareness of the impact of their behaviour on student learning. Training of trainers should include topics such as leadership skills, dealing with mature students, relationship-building, unconscious bias, self-awareness and how best to offer support to weaker/difficult students.
- Schools differ across Zimbabwe. Therefore, partnerships between schools may be a useful way of promoting quality of midwifery training. In this current study, the two schools would be able to learn from the strengths and successes of each other. Healthy competition, created by benchmarking is likely to raise training standards for the midwifery education in Zimbabwe. Peer support across schools may provide an external avenue for the additional support of teachers.
- Schools should disseminate their good practices to motivate others. For example, School C midwifery training school was capable of producing students who were confident and competent after being placed in the clinical area for three months post qualification. This could be shared with other schools in Zimbabwe.

9.10.4 Recommendations for research
- This study was mainly based in two schools. It would be important to replicate this study on a larger scale to include the unique characteristics of Mission and Provincial midwifery schools. Furthermore, students of midwifery are from diverse socioeconomic backgrounds and different ethnic groups; such characteristics were not adequately captured in this study. A large scale study could identify all the possible demographic and psychological characteristics in an individual to classify students on an individualist-collectivist continuum. Such characteristics could then be used to develop an instrument to capture the characteristic of students at the entry point and be able to offer the most appropriate support and guidance related to student characteristics.
The present study added the concepts of dialogue and dualism and an additional level of skill acquisition to that proposed by Benner (1984). This model needs further development. The researcher recommends a mixed-method follow-up study that collects both qualitative and quantitative data on these features and competence/confidence to further develop the learning typology and the model for the development of competence and confidence. This could include qualitative research to help develop quantitative instruments to measure the individualistic-collectivist characteristics of students and possibly also facilitators in these domains. Such development will assist in the application of the model in teaching practice.

9.11 Conclusions of the study

The aim of this critical realist mixed-method study which used both quantitative (longitudinal explanatory correlation design) and qualitative (classical grounded theory) methodology was to explore midwives’ preparation for practice to the level defined by ICM core competencies in Zimbabwe, and the results were triangulated using transduction. The mixed-methods approach was vital in gaining a comprehensive understanding of the underlying issues.

The newly qualified midwives’ knowledge levels on the ICM were on a continuum from not knowing to knowing. The knowledge levels were determined by the student’s ability to understand the information they had learnt, retain the information for ease-of-recall, and retrieve the information when needed. Perception towards ICM core competencies was associated with the training environment, student characteristics and how teaching and learning interactions were organised. The study found that the midwifery training school, the environmental characteristics and the inherent nature of the human being were strong predictors of students’ perceptions, knowledge and actions towards ICM core competencies. Some students felt that the ICM core competencies were difficult to develop during training though everyone was able to show that the ICM core competencies were the drivers of the Midwifery profession: practice, education and regulation.

Though three schools participated, one of the schools dropped out, and the results are based on the two whose students completed the study. There were distinct differences in graduate characteristics from the two schools since two different environments were found, one strictly adhering to training regulations and the other having unofficial institutional rules making it difficult to implement training rules effectively.
The students had basic biological (age, gender), psychological (motivation, learning skills, need for psychological support) and social (interactions with others) characteristics that were independent of the nature of the environment. The individual was found to be an inseparable self who determines the uniqueness of the individual and their learning styles through dualism.

Dualism was found to be an overarching concept in this study as it was inherent throughout the social processes and determined the relationship between students and facilitators. The interactive processes were inseparable so they could not be classified as facilitators or hindrances to competence and confidence development but were discussed together. The dual nature of the social processes associated with learning and teaching meant that they may not have been seen from the same perspective by different individuals. As a result, students and facilitators lived in different worlds, and this was a source of conflict which needed dialogue for resolution; this could determine students’ competence and confidence level at the end of training.

The biopsychosocial characteristics influenced the behaviour of the student, the type of problems they faced, the support they needed as well as their attitudes towards achieving the ICM core competencies. The relationships the students developed with their facilitators either assisted or hindered competence development. Both schools operated within the ministry of health and child care jurisdiction, though different institutional policies influenced student learning. Both schools had busy working environments and multiple roles for staff, leaving facilitators overwhelmed. Coupled with a shortage of resources, facilitators were unable to give students the support and guidance they needed.

Adult learners were found to be proactive to issues related to goal achievement. Students designed strategies to mitigate the challenges of the learning environment interfering with the development of their competence and confidence. Students discovered that their social needs were not taken care of, so created psychosocial and spiritual support groups. The student wellbeing support groups catered for the basic human needs such as food and belongingness through the provision of food, physical care during illness, support of the bereaved and prayer rites. Indeed the goal of the support group was to ensure everyone was in his or her best shape to acquire and develop the fundamental midwifery skills.

During transduction, a theoretical model, the Dualistic Individualistic-Collectivistic Competence and Confidence Development Model (DI-CCCDM) emerged, explaining how the nature of an individual and their confidence and competence are related in addition to
an Individualism-Collectivism Learner Typology (ICLT). This model was used to extend the Benner (1984) Skill Acquisition and Competence Development model into the Dualistic Individualistic-Collectivistic Skill Acquisition and Development Model (DI-CSADM), with six phases of skill acquisition and development.
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Morse, J. M. (2010). Simultaneous and sequential qualitative mixed method designs. *Qualitative inquiry*.


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### Appendix 1: Data extraction sheet

<table>
<thead>
<tr>
<th>author and date of publication</th>
<th>Title</th>
<th>Study aims</th>
<th>Methods</th>
<th>Sample</th>
<th>Main points/findings</th>
<th>Quality assessment</th>
<th>Quality total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ilic and Moloney (2014)</td>
<td>Methods of teaching medical trainees evidence – based medicine: A systematic review</td>
<td>To identify what type educational methods is most effective in at increasing medical trainees’ competency in EBM</td>
<td>Systematic Review of RCTs</td>
<td>Nine studies met the criteria</td>
<td><strong>Methods found and implications</strong>: Lecture vs. online teaching Directed vs. self-directed, Multi-disciplinary vs. discipline specific group and Lecture vs. active small group facilitated learning was then identified compared and contrasted teaching methods. However, there were no differences found in skills acquisition across the methods they were all similar</td>
<td>The methods and limitation of the results in the articles were cited and discussed in detail <strong>good quality</strong></td>
<td>36</td>
</tr>
<tr>
<td>Licquish and Seibold 2008 Australia</td>
<td>Bachelor of Midwifery students’ experiences of achieving competencies: The role of the midwife preceptor</td>
<td>To explore and describe Bachelor of midwifery students’ experiences specifically the role of the preceptor in learning and development of competence from the</td>
<td>Grounded theory methodology -in-depth interviews</td>
<td>N=8 bachelor of midwifery students completing their final clinical placement -One clinical teacher</td>
<td>1) Preceptor behaviours- both helpful and unhelpful to students 2 <strong>Qualities of preceptors</strong> -good quality - enhance learning, enjoys teaching, and knowledgeable allowed mistakes as part of learning encourages increased responsibility and decision-making for students <strong>bad quality</strong>- poor role models, do not allow the student to</td>
<td>Inadequate ethics -implication for practice only Limited ethics description But detailed methods and results <strong>Fair quality</strong></td>
<td>30</td>
</tr>
<tr>
<td>(van der Putten, 2008) Ireland</td>
<td>The lived experiences of newly qualified midwives: A qualitative study</td>
<td>To explore newly qualified midwives’ lived experiences of clinical practice to (or “intending to”) gaining a deeper understanding</td>
<td>Qualitative – Heideggerian phenomenology-semi-structured interviews</td>
<td>N= 6 Newly qualified midwives</td>
<td>Imeaning of clinical practice is not grasped -overwhelmed -stressful related to job expectations -the discrepancy between was in theory and actual clinical support available -continuous professional development for continued safe care - EBP - 2 preparedness -all participants felt were not competent to deliver 3Participant views for need for good clinical support/mentorship</td>
<td>Unstructured abstract but contain all information -moreover, no limitation though a detailed report on methods -Fair quality</td>
<td>34</td>
</tr>
<tr>
<td>Barry et al 2012 Ireland</td>
<td>An exploration of student midwives’ experiences of the objective structural Clinical Examination assessment process</td>
<td>To explore experiences of OSCE assessment process for obstetric emergences in the BSc Midwifery Program AND 18/12 Higher Diploma IN midwifery programme</td>
<td>Qualitative descriptive approach-focused group discussion- N=36 students BSc and Higher National program</td>
<td>3 Themes identified 1 Preparation of OSCE – beneficial 2 OSCE process- Waiting time stressful Time in time to show their skills Still reflecting previous within the procedure Advantage if assessor known to student Improves skills and instils confidence Student reflected mixed feeling on reflecting real life situations -Prepar for practice though 3) Feed- back -Expressed need for immediate feedback though aware of the impossibility</td>
<td>program or mentor allocation for newly qualified</td>
<td>-unstructured abstract 2 implications stated but well detailed methods -Fair quality</td>
<td>32</td>
</tr>
</tbody>
</table>
| Brunstad and Hjälmhult (2014) Norway | Midwifery students’ learning experiences in labour wards: A grounded theory | To explore the main concern expressed by postgraduate midwifery students during their clinical placements in labour wards and how they acted to resolve this concern | Grounded theory | 10 student midwives | **Student’s concerns**
Gaining access to relevant learning experiences
- Challenging - unpredictable learning environment due to unexpected events – leading to insecurity and stress.
**Affected by academic writing**
initially considered as a burden
**Familiarisation** improved access to learning experiences.
**Relationships building though**
time and energy consuming critical for accessing learning, boosting self-esteem and a sense of security belongingness
**three phases of relationship building:**
1) **controlling vulnerability** – vulnerability due to perceived lack of knowledge and the power of midwives (responsible for training and evaluating students) and feeling of being critically assessed instead of supervised
- initially difficult to take initiatives due to **perceived workloads** of midwives and on feeling secure, they dared to take initiatives even though they **depended on midwives as they were motivated to achieve** their goals through confidence | Methodology clearly described including rigour and biases
-Sampling selection not justified
-detailed methods and results
**Fair quality** | 30 |
<table>
<thead>
<tr>
<th>Study</th>
<th>Title</th>
<th>Research Question</th>
<th>Methodology</th>
<th>Sample Size</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thorkildsen and Råholm (2010) Norway</td>
<td>The essence of professional competence experienced by Norwegian nurse students: A phenomenological study</td>
<td>To explore and describe the professional of the nurse student from a Norwegian perspective</td>
<td>Phenomenology</td>
<td>11 students</td>
<td>Four themes emerged: 1) <strong>safe relations with the supervisor</strong> - enhanced learning and confidence building and clinical skills acquisition. - <strong>Supervisor characteristic</strong> knows and, respects their students Offer safe learning environments. Security reduces stress and contributes to professional and personal maturity. - <strong>Positive role modelling</strong>, - <strong>Encouragement and support</strong> quality feedback and assessment. <strong>The students perceived</strong> the clinical environment as the best place for learning clinical skills, but they feel threatened by it - <strong>relationship with supervisor</strong> determined student-patient relationship as well</td>
</tr>
</tbody>
</table>
2) **Seeing the context and understanding the clinical picture** – student learnt holistic care from patients themselves under guidance of experienced nurses as role models

3) **Responsibility enhances professional development and accountability** – responsibility cultivated the desire to want to develop expert knowledge and continue their education promoting independence and preparedness to take new challenges be flexible, creative and develop awareness of changing patient condition and needs – Which promoted student visibility

4) **Being a burden stunts professional growth** - a student who felt they were a burden to the supervisor withdrew away from a supervisor, did not ask questions and advice. They failed to fit in and experience loneliness’. Perceived students ‘vulnerability assisted them to understand vulnerability of patients and development of ethical knowledge
<p>| Tsele and Muller (2000) South Africa | Clinical accompaniment: The Critical care Nursing Students’ Experiences in a Private Hospital | To explore and describe the experiences of the critical care nursing students about the clinical accompaniment in a private hospital in Gauteng | Qualitative, exploratory and descriptive research design: Phenomenology | 10 Critical Care Nursing Students | Two themes emerged: 1) <strong>internal environmental experiences</strong>: inconsistencies in theory and practice supernumerary status caused (physical, mental and spiritual) distress and intrapersonal conflict which inhibited learning - <em>initially motivated</em> but this progressed to demotivation due to reality shock, the stress of treated like children - Inconsistent supervision as supervisors is too busy to care. - <strong>Frustration</strong>, due to lack of knowledge, inability to meet the mental emotional and physical demands of the unit, lack of an adequate educational structure, <strong>inadequate guidance</strong> - clinical tutor to insecurity –perceived intimidation by unit sisters and fail to ask questions <strong>Pace of events</strong> too fast resulting in impatience and intolerance by unit staff and other practitioners, Alternatively, interpersonal conflict was with supervisor - <strong>trusting relationships</strong> gradually develop with time and supervision improved -gaining confidence and a sense of | Methodology defined and the weaknesses of the study not highlighted and limited background to information - <strong>Fair quality</strong> |</p>
<table>
<thead>
<tr>
<th>Yuan et al. (2011)</th>
<th>Nursing students’ views on the effectiveness of problem-based learning</th>
<th>To describe Nursing students' views on PBL in Macao and Shanghai</th>
<th>Descriptive study</th>
<th>28 fourth year undergraduate nursing students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive experiences: promotes: self-directed learning, motivation and knowledge acquisition, problem-solving, critical thinking communication and group collaboration skills</td>
<td>1) Positive experiences: promotes: self-directed learning, motivation and knowledge acquisition, problem-solving, critical thinking communication and group collaboration skills</td>
<td>2) Negative experiences relationship building - not a smooth process - Time-consuming and stressful - Increased workload and vague information received to lack of guidance leading to a lack of</td>
<td>abstract, not structured - sample methods or criteria no stated - implications only mentioned practice and policy - Fair quality</td>
</tr>
</tbody>
</table>

achievement and assisted in achieving objectives
- Progression in skills acquisition led to enjoyment of challenges through responsibility

**Two external environment**
- High workload and unpredictable environment inhibited learning
- Patients allocated not meeting learning needs (boredom),
too busy to learn, the time specified for learning specific skills not adequate and inadequate orientation by unit managers, the general layout of units, policies and procedures and equipment used, interpersonal conflict between supervisor and student

Yuan et al. (2011) | Nursing students’ views on the effectiveness of problem-based learning | To describe Nursing students' views on PBL in Macao and Shanghai | Descriptive study | 28 fourth year undergraduate nursing students |
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<td>abstract, not structured - sample methods or criteria no stated - implications only mentioned practice and policy - Fair quality</td>
</tr>
<tr>
<td>Gilmour et al. (2013) Australia</td>
<td>Exploring the impact of clinical placement models on undergraduate midwifery students</td>
<td>To explore the learning experiences of students in two models of placement</td>
<td>Descriptive qualitative approach</td>
<td>112 midwifery students</td>
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<tr>
<td><strong>Themes:</strong></td>
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<tr>
<td>1) <strong>Student roles</strong> – adopting student role – reasons for the attachment, learning (a chance to correlate theory and practice, dealing with challenges), gather necessary support and reassurance (senior student and newly qualified midwives)</td>
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<tr>
<td>2) <strong>Facilitated learning</strong> – relationship building – stressful and determines adaptation to environment and access to learning</td>
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<tr>
<td>- <strong>Characteristics of midwives</strong> – good midwives – teach and support students, students – supportive – build confidence, - bad ones have nothing to with students devaluing student – undermine confidence</td>
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<tr>
<td>3) <strong>Belonging to a team:</strong> – feeling supported and valued - offers a constant, regular non-threatening environment which promotes learning, feel accepted as individuals not just a student</td>
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<tr>
<td><strong>No rationale for methods selection and analysis methods</strong> – good description of data collection and findings - no implications - no biases - <strong>Fair quality</strong></td>
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<td>27</td>
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</tbody>
</table>
Bradshaw et al. (2012) Ireland  | Working and learning: Post registration student midwives’ experiences | To explore student experiences of the clinical competency assessment process utilised on the Higher National Diploma in Midwifery 18/12 programme | Descriptive qualitative study | 20 student midwives

Themes; 1) **process of competence assessment** – perceived by many students as facilitating continuous assessment of clinical practice but issues were with language and number of assessments. Students do not see the usefulness of written evidence as time wasting – progressive improvement in development was appreciated – viewed feedback as critical

2) **support for competency completion** - Felt a named preceptor is needed - found support from peers, junior midwives and BSc Midwifery students in their learning

3) **Factors affecting completion of competence assessment** - continuity of preceptors and balancing time between theory and practice

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Ethics not fully described

-Fair quality

34
Valdez (2008) in the UK

<table>
<thead>
<tr>
<th>The transition from novice to competence: What can we learn from the literature about graduate nurses in the emergency setting?</th>
<th>To examine and interpret what is known about the GN role from novice to a competent practitioner in the acute care setting</th>
<th>Systematic review</th>
<th>21 articles</th>
</tr>
</thead>
</table>

Themes emerging

**Culture shock** – most would not have carried a full patient load or dealt with realities of professional nursing practice – work environment and professional norms is not what they expect

**Stress and frustration** – due to feelings of inadequacy, fear of independent practice, dealing with new situations work schedule - challenges unclear expectations, finances and student loans

**Inadequate preparation** – feel inadequately prepared for professional practice and lack of self-confidence

**Assimilation** - mentoring, orientation and social support is needed

- No abstract but good description of methods and results

*Fair quality*
<table>
<thead>
<tr>
<th>Study</th>
<th>Methodology</th>
<th>Purpose</th>
<th>Participants</th>
<th>Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake and McInnes (2012)</td>
<td>Exploring cognitive skill development in midwifery education</td>
<td>To explore to the development of cognitive skill this-this undergraduate curriculum: specifically how and when development is supported or assessed</td>
<td>Action research</td>
<td>36 students</td>
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<tr>
<td></td>
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<td>Document analysis- program to produce an independent practitioner</td>
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<td>Student perspective unaware of cognitive development through theoretical part of the program, EBL or, summative evaluation</td>
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<td></td>
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<td>Development student acknowledge that clinical exposure causes progression in thinking skills, practical skills, though cognitive skill development is invisible or is inferred through r skills like decision making</td>
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<td>Mentor influence: -encourages reflection –key to cognitive development –differences in student experiences critical-mentor variations is appreciated</td>
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<td>Reflection-critical in practice – diaries and assignments</td>
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<td>Simulation:emergency situations –observing and thinking</td>
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<td>Evaluation and assessment: promotes practical skills and knowledge development rather than thinking making skills</td>
<td></td>
</tr>
<tr>
<td>Morgan (2006) Ireland</td>
<td>Using skills laboratories</td>
<td>To investigate how a selected study</td>
<td>Qualitative study</td>
<td>Six student nurses</td>
</tr>
<tr>
<td></td>
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<td>The basic skill learnt in a skills laboratory assisted them to fit in</td>
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<td></td>
<td>Purpose of study state and a detailed abstract</td>
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</tbody>
</table>

Data collection methods scanty and unstructured limited information abstract | 29
to promote theory – practice integration during first practice placement: An Irish perspective

cohort of nursing students experienced their first practice placement in a large Irish teaching hospital

the clinical area easily and were able to reflect what they learnt in theory and put it to practice

methodology was given, and limitations of the but results of the study were summarised

**Fair quality**

| Plakht et al. (2013) Israel | The association of positive and negative feedback with clinical performance, self – evaluation and practice contribution of nursing students | To evaluate level of feedback provided to nursing students during clinical practice and investigate their association with related outcomes such as clinical performance, self-evaluation of achievements and contribution of the practice to the professional skills | Cross-sectional study | 124 third year nursing students | **Quality positive feedback** was found to be related to quality practice and over self – evaluation whereas higher quality **Negative feedback** was associated with more accurate self – evaluation | -minimal information in the introduction -implications partially stated -detailed methods and sample methods and justification -**Fair quality** | 32 |
Choi et al. (2014)  
**Effects of problem-based learning vs. traditional lecture on Korean nursing students’ critical thinking, problem-solving and self-directed learning**

To explore effects of PBL on critical thinking, problem-solving and self-directed learning among Korean nursing students and examined the association among critical thinking, problem-solving and self-directed learning outcomes.

Pre-test–post-test quasi-experimental design used.

90 first year nursing students

- **Critical thinking** score increased for both methods though were higher in PBL than in traditional lecture.
- **Problem-solving** and self-directed learning scores both increased in PBL while they both decrease in traditional method—though not statistical significant.
- **Relationships** between learning outcomes revealed a positive correlation between critical thinking and problem solving, critical thinking and self-directed learning and problem solving and self-directed learning respectively—PBL superior to TBL—no true differences or statistically insignificant results—occurs with under power or insufficient time for differences to show.

Farahani and Heidari (2014)  
**Effects of the case-based instruction method on the experience of learning**

To evaluate the effects of the case based method on the learning experience of midwifery students.

Quasi-experimental -Lecture based method and case-based method

27 student midwives

**Skills acquisition:** There was a significant statistical difference between the pre-test and post-test scores within the instrument—however, no significant differences were found in case based/PBL and lecture method

Learning experience

Purpose of the study stated fully described methodology, and study limitations indicated minimum information on sample.

- sample no clearly defined
- silent on ethics
- Methods and results are detailed
- **Fair quality**
<table>
<thead>
<tr>
<th>Study</th>
<th>Intervention</th>
<th>Objective</th>
<th>Methodology</th>
<th>Sample Size</th>
<th>Results</th>
<th>Purpose of Study</th>
<th>Fair quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simonelli and Paskausky (2012) UK</td>
<td>Simulation Stimulates Learning in a childbearing Clinical Course</td>
<td>To determine whether simulation are better adjuncts to traditional learning experiences or they may replace some proportion and obtain equal or better results in performance</td>
<td>Experimental</td>
<td>381 student nurses</td>
<td>Results – simulation improved performance better than none-simulation - clinical skill was better achieved in simulation - there was a statistically significant different for simulation</td>
<td>Purpose of study stated with described methodology but did not state what design was used limitations and implication of the study indicated - minimum ethics Unstructured scanty abstract - Fair quality</td>
<td>34</td>
</tr>
<tr>
<td>Fieschi et al. (2015) Italy</td>
<td>Teaching midwife students how to break bad news using the Cinema: An Italian qualitative study</td>
<td>To examine the effects that a course which uses a reflection as a method of learning and cinema as a teaching tool</td>
<td>Simulation informed consent, privacy - freedom to leave out answers not comfortable with the small sample may have produced bias Qualitative narrative</td>
<td>Different types of communication approaches and their impact on the patient were acknowledged knowing self was reflected - attitude awareness and behaviour change - aware of emotions associated with the situation - identified their ability and limitations - reflective skills - knowledge skills - communication skills</td>
<td>Transferrable to other science humanities may hinder it Important for midwifery practice as they have to enter Theory patients affectively Good - methods and results detailed - unstructured scanty abstract - Fair quality</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Methodology</td>
<td>Research Question</td>
<td>Methods</td>
<td>Effects on Skill Development</td>
<td>Implication</td>
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<tr>
<td>Khadivzadeh and Erfanian (2012) Iran</td>
<td>The effect of simulated patients and simulated gynaecologic Models of student anxiety in providing IUD services</td>
<td>To find out the effect of simulated patients and simulated gynaecologic Models of student anxiety in providing IUD services</td>
<td>Simulated gynaecologic RCT pre and post – test Simulation: traditional method Midwifery students 56- survey</td>
<td>Effects on skill development -enjoyable- increase enthusiasm and motivation -increased knowledge -practical skills improvement -appropriate to their learning style identification of legal and ethical issues -80% yes and 20% was not sure -useful in increasing reflective practice and silent on the theoretical aspect -working in groups learnt teamwork management approach proof knowledge retention</td>
<td>Generalizable -practice implication Ethics and bias -randomised - Detailed description of methods and results by students -results congruent with RCTs -Fair quality</td>
<td></td>
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</tr>
<tr>
<td>Raymond et al. (2013) Australia</td>
<td>Learning through authentic assessment: An evaluation of a new development in the undergraduat e midwifery curricula</td>
<td>To explore the feasibility and usefulness of an authentic item that focused on a common scenario in midwifery practice.</td>
<td>Bachelor Midwifery Students in final -7</td>
<td>Student views Positive -knowledge Learning together-group work-see beyond task - for clinical practice –bringing all skills together practical skills, communication, organisation, documentation, working in a noisy environment</td>
<td>Implications -ethics - -qualitative descriptive Evaluation Design well described -Unstructured abstract -bias not stated - Fair quality</td>
<td></td>
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</tr>
</tbody>
</table>
Confidence building and reflects the real world reflects multi-tasking needed for clinical practice
Manageability—fair and reasonable for peer assessment
Negative aspects of filming—being watched and filmed-evoked stress, some don’t want to be photographed
-watching others improved self-efficacy—ideal in difficult life situations
—limited learning and practice difficult
-the value of watching listening and doing learning a social process

<p>| Lavender et al. (2013) Nairobi | A pilot quasi-experimental study to determine the feasibility of implementing a partograph e-learning tool for student midwife training in Nairobi | To assess the acceptability of an e-learning tool as a method of learning about partograph use and to examine the potential for the e-learning tool to improve partograph recording skills | Simulation -Computer package -Learning practical skills -acceptability of the method -potential to increase knowledge-Uncontrolled before and 92 Student midwives views -Student positive on relevance to practice, ease of completing, like—ability and appearance -the content was about right -the third year found it difficult to complete than fourth years Beneficial Improve -knowledge -practice as indicated by the test scores -Pre-test score was higher than post-test score though not impressive | Transferable -methodological flaws identified and explained Ethics not in detail -abstract structured and detailed -Fair quality | 35 |
| Kelton (2014) | Clinical Coaching: An innovative role to improve marginal nursing students 'clinical practice | To present data collected including outcome achieved and coaching strategies used when clinical role was implemented to support and develop nursing practice for marginal performer or at risk student | couching - correct and reinforce good practice in - communication, practical, critical thinking and reflective skills | 188 student nurses | <strong>Narrative synthesis</strong> - Vast improvement in the coached skills - student was motivated - reflective and the process used in referring and coaching is congruent to literature review findings | Transferability - implications and - ethical scanty - limitations mentioned - detailed methods and results <strong>Fair quality</strong> | 34 |</p>
<table>
<thead>
<tr>
<th>Study</th>
<th>Objective</th>
<th>Methodology</th>
<th>Sample Size</th>
<th>Findings</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ali et al. (2007) West Indies</td>
<td>The simulated trauma patient teaching module does it improve student performance?</td>
<td>To evaluate the effectiveness of trauma simulate modules in comparison to control learning modules in enhancing knowledge and skills in assessing and managing trauma patients</td>
<td>70-Final year medical students</td>
<td>-skills were similar at baseline - moreover, all improve post test -the simulated group had higher scores though</td>
<td>Transferable Inclusion of both subjective and objective data is ideal to give more confidence in the results good Self-reported Confidence-Not clear RCT -Fair quality</td>
</tr>
<tr>
<td>Clanton et al. (2014) Ohio</td>
<td>Relationship between confidence and competence in the development of surgical skills</td>
<td>To evaluate the relationship between confidence and competence of medical students undergoing basic surgical skills training</td>
<td>128 medical students</td>
<td>Before training, there was no correlation between confidence and competencies as mean score were 0 for both competent and not -competent students ‘ -There was a strong association between confidence and competence post training - both competence and confidence improved post training - It was revealed that self-assessed confidence and competencies are unreliable - Hence the need for objective measurement of performance -younger students were less confident less confident</td>
<td>Scanty sample and ethics description -detailed methods, data analysis, results and implications -Fair quality</td>
</tr>
</tbody>
</table>
Younger students gained more than older students were least skilled and failed to achieve skills. Confidence-enthusiasms-motivation-enhance learning practice and experience. Younger perceive increased need for training-maximise training effort. Previous experience had a positive effect on suturing. There was a significant difference between confidence and competence.

Laven et al. (2014) Australia
How was the intern year?: self and clinical assessment of four cohorts from two medical curricula
To assess how well prepared the graduates felt for their internship and compare this self-assessment with the clinical supervisor assessment results of their intern year
Triangulation
166 medical doctors graduates
Graduates from traditional lecture rated it well more than the PBL'. Preparedness-TLB higher levels of understanding disease process while PBL cohorts are more prepared in legal and ethical issues. Resilience: no differences in the two cohorts was noted.
Clinical skills and preparedness-no significant difference between lecture and PBL. PBL was associated with good inter-discipline interaction.

Lofmark and Wikblad (2001) Sweden
Facilitating and obstructing
To delineate the factors that the student
Not stated
47 third year students
Facilitating factors: 1) Taking responsibility for a group of patient encourages.

-Ethics, implications and bias no detail but the rest satisfactory
-Fair quality
Factors for development of learning in clinical practice: a student perspective

<table>
<thead>
<tr>
<th>Practising skills</th>
<th>Promotes skill and confidence building and self-awareness</th>
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<tbody>
<tr>
<td>Collaboration and supervision</td>
<td>Gives the courage to ask questions and build confidence or show weaknesses to be worked on</td>
</tr>
<tr>
<td>Peer support</td>
<td>Supervision of classmates and nurses on what they know as this increases their confidence as they transmit their knowledge to others</td>
</tr>
<tr>
<td>Overview and control</td>
<td>Understanding the whole situation in care of patients from admission to discharge</td>
</tr>
</tbody>
</table>

Obstructing factors:

1. Lack in the student–supervisor relationship – supervisor who does not rely on the student or takes over, a feeling of not being treated seriously or arrogant, comments from a supervisor, insufficient supervision or an uninterested or irritated supervisor. Lack of feedback and time to reflect
2. Organisational shortcomings in the supervision – supervision that lacks

Findings were detailed. Ethics lack detail.
continuity, lack of guidelines for nursing practice or uneasiness with the working climate, stress or lack of time, lack of opportunity to practice or not allowed to take part
3) The experience of student's shortcomings experience of insufficient and or own failure, difficulties in taking initiatives, doing wrong things not being self-reliant and insufficient knowledge.

<table>
<thead>
<tr>
<th>McMullan (2008) in the UK</th>
<th>Using portfolios for clinical practice learning and assessment: The Pre-registration Nursing Student’s perspective</th>
<th>To obtain pre-registration nursing students’ perceptions regarding the use of portfolios for their clinical practice learning and assessment</th>
<th>Survey quantitative and qualitative data</th>
<th>253 pre-registration diploma of nursing student first year - 131  Third year - 122</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Portfolio evaluation by students</td>
<td></td>
<td>Quantitative</td>
<td>Qualitative Data</td>
</tr>
<tr>
<td></td>
<td>49% felt it was good 51% felt it was not good and 76% felt there was room for portfolio improvement</td>
<td></td>
<td>Three main themes emerged</td>
<td>Why students liked portfolio</td>
</tr>
<tr>
<td></td>
<td>Qualitative Data</td>
<td></td>
<td>Why students liked portfolio</td>
<td>1) Keeps your information in one place</td>
</tr>
<tr>
<td></td>
<td>Three main themes emerged</td>
<td></td>
<td>2) Reveals student’s strengths and weaknesses</td>
<td>2) Reveals student’s strengths and weaknesses</td>
</tr>
<tr>
<td></td>
<td>Why students liked portfolio</td>
<td></td>
<td>3) promotes independent learning</td>
<td>3) promotes independent learning</td>
</tr>
<tr>
<td></td>
<td>Fair quality</td>
<td></td>
<td>4) Felt there is a need for support</td>
<td>4) Felt there is a need for support</td>
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<tr>
<td></td>
<td>Aim of the study</td>
<td></td>
<td>5) Stress full</td>
<td>5) Stress full</td>
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<tr>
<td></td>
<td>well-articulated methodology, findings, data analysis and sample described</td>
<td></td>
<td>One implication</td>
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</tr>
<tr>
<td></td>
<td>One implication</td>
<td></td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
<th>Methodology</th>
<th>Participants</th>
<th>Findings</th>
</tr>
</thead>
</table>
| Jordan and Farley (2008)the UK | Confidence to practice midwifery: Preceptor influence on student self-efficacy | To examine the influence of student perception of clinical preceptor behaviours on student self-efficacy for two hallmarks of midwifery practice: The value of therapeutic presence and non-intervention in the absence of complications | 125 student midwives | 1) **Self-efficacy and environment**  
Most participants had high self-efficacy scores for both hallmarks despite the clinical setting or experiential background – learning is unavoidable is stubborn it can occur in any setting  
2) **Midwifery hallmarks**  
- participants had higher self-efficacy scores for therapeutic presence behaviours than non-intervention in level 2 hospitals  
- Students’ belief in the value of a specific behaviour was the most significant variable for self-efficacy scores  
3) **Preceptor behaviour**  
- had an impact on student self-efficacy score  
- important in socialising students to philosophically based midwifery. |
| Hughes et al. (2014) | Introducing an obstetric emergency training strategy into a simulated environment | To explore the impact on final year midwifery students’ feelings of self-efficacy following participation in simulated | 65 final year students | Descriptive statistics and thematic analysis  
Emerging themes:  
1) **Self-awareness and confidence**  
students were able to reflect on their contributions to the emergencies and indicated confidence development and enhancement of decision making and communication skills |
<p>| Longworth (2013) | An exploration of the perceived factors that affect the learning and transfer of emergency drill training | To examine the attitude of student midwives towards skills training and practice | Mixed method study - questionnaires Semi-structured interviews 2 phases 1 Year 1 -15 Year 2-11 Year 3-7 Total 33 for quantitative and qualitative Year 1-1 Year 2- 2 Two facilitating and hindering factors were identified – a) <strong>Teaching method</strong> - facilitating factors adequate instruction and designated space a) <strong>-hindering factors</strong> – unrealistic models and equipment | Purpose of study, quantitative study and qualitative studies outlined results were realistic -sampling lacked detail -<strong>Fair quality</strong> |
| Norris (2008) the UK | The midwifery curriculum: introducing obstetric emergency simulation | To evaluate student perception on | Evaluation research | 27 midwifery students | 83% students felt that the content reflected what they have learnt in obstetric complications and was happy in time allocated to learning each module -valued applying of theory into practice -reflected merits of teaching theory followed by practice as theory is consolidated -affords practice in a safe environment -can repeat procedure to correct mistakes, controlling own learning -Promotes team work | A detailed description of methodology -scanty unstructured abstract -one implication and no bias sources -Fair quality | 28 |</p>
<table>
<thead>
<tr>
<th>Study</th>
<th>Research Question</th>
<th>Methodology</th>
<th>Sample Size</th>
<th>Findings</th>
<th>Methodology Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karabacak et al. (2012) Turkey</td>
<td>To determine the general self-efficacy level of students studying for undergraduate degree in nursing and examine the relationship between skills development and self-efficacy</td>
<td>Descriptive study</td>
<td>100 student nurses</td>
<td>Self-efficacy scores were high with no correlation between personal characteristics and self-efficacy</td>
<td>Fair quality</td>
</tr>
<tr>
<td>Barker et al. (2013) Kenya</td>
<td>To explore students’ views and experiences of e-learning as potential options for inclusion in midwifery training package</td>
<td>Qualitative interpretive approach</td>
<td>Emerging themes: 1) Moving with times - keen to incorporate e-learning in their studies and to some extent already using it, were eager to illustrate their interest in incorporating new learning methods 2) Global networking - appreciate power of internet to assess information beyond their country and excited in the difference in training received</td>
<td>Methodology defined - few implications and no bias described - unstructured scanty abstract - Fair quality</td>
<td>35</td>
</tr>
</tbody>
</table>

- understand multi-disciplinary individual role in obstetric emergencies which is difficult to understand during theory
- unstructured scanty abstract
- ethics no detail
- methods and data analysis are detailed

-Fair quality
| Deegan and Terry 2013) the UK | Student midwives’ perceptions of real-timesimulation: A qualitative phenomenological study | To explore student midwives perceptions of their experience of engaging in real-time simulation in management of emergency | Phenomenology | Described but no size midwifery students | Emerging themes: 1) **benefits** – acquisition of practical skills-concrete experiences -merits of teaching theory followed by practice – teamwork and communication skills through role play -identifying problems and managing them without compromising patient -Practising in a real situation created a sense of urgency | Purpose of study and methodology explicitly described but scanty unstructured abstract -one limitation and sources of bias **Fair quality** |
preparing for the stress of emergencies
-closing theory-practice gap
2) Challenges – stepping out the student role – provoked unanticipated reactions, conflict of opinions and emotions - student had limited understanding of how they learn from acting outside their role in role play as seen safer -fearing of responsibility and understanding some of the roles were highlighted - emotional response – blaming others - the depth of feelings and emotion exhibited in the discussion if task not met and how it had impacted on them some displayed avoidance behaviours, and things go the wrong student were upset, and feeling of blame emerge
3) Importance of debriefing and de-rolling – with facilitator built on their knowledge and giving them opportunities to release emotions – feedback important for detecting and correcting errors

Donovan (2008) the UK
Confidence in Newly qualified midwives
To explore confidence levels of students at the
Not stated
32-4 year
18/12 -17
3 year -12
There were no differences in the score in all three programs cohorts - though the three-year - unstructured scanty abstract and introduction
30
end of 18/12,3 year and four year degree courses cohort showed a variety of confidence levels in skills -methods and data analysis and implications are detailed -no sources of bias -Fair quality

<table>
<thead>
<tr>
<th>Armstrong (2010) the UK</th>
<th>Clinical mentors influence on student midwives’ clinical practice</th>
<th>To investigate whether student midwives are influenced by the traditional practices of their clinical mentors if so to what extent</th>
<th>survey</th>
<th>145 midwifery student</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1)</strong> Practice and mentor</td>
<td>92% Student perceived that what was taught in the university relates to practice and are encouraged to apply Evidence-Based Practice(EBP) but does not correspond to what happens in the clinical area -76% indicated that their mentors suggested alternative ways of doing things -65% student thought that medical staff does not allow them to use EPB AND 39% thought that they were too busy to apply it to practice 52%-policies and guidelines are not evidence based -78% thought they had no authority to change practice</td>
<td><strong>2)</strong> Influence of mentor on practice</td>
<td>87% -agreed were practices based on tradition, but some are good and seem to work (67,5%) -54% would challenge their mentors for not applying EBP, and 37% thought it was easier to</td>
<td>Clear purpose, methods description, results -abstract unstructured and no adequate information -Fair quality</td>
</tr>
</tbody>
</table>
| Chabeli (2002) SA | A poster presentation as an evaluation method to facilitate reflective thinking skills in nursing education | To describe perceptions of the student midwives who subjected to poster presentation as an evaluation method to facilitate critical and reflective thinking | Qualitative approach | 1) **Positive perceptions** - all participants indicated that it facilitated creative, critical and reflective thinking skills  
**Group-work** - Teamwork and cooperation and human relations  
**Problem-solving skills** – through data collection and facts analysis  
**Student independent and sense of ownership** take responsibility and self-directed learning  
**Fair evaluation** – through use of predetermined criteria  
2) **Negative perceptions** - unclear expectations  
Group work difficulty - lack of time to meet living in different areas | Purpose stated and achieved, methods described in detail giving meaningful rationale though no limitations stated  
- abstract unstructured  
- practice, education and research implications  
- no bias sources  
- **Fair quality** |
| Baird (2007) the UK | Exploring autonomy in education | To ascertain through relevant methods of enquiry whether the pre-registration midwifery | Qualitative research-Phenomenology | Eight midwifery students | 1) **Preparation for autonomy practice** - it was not explicit during training  
2) **perceived barriers to autonomy** - the role and status of | - unstructured scanty abstract  
- detailed methods and results  
- one implication  
- No sources of bias  
- **Fair quality** |
<table>
<thead>
<tr>
<th>Study</th>
<th>Methodology</th>
<th>Findings</th>
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</thead>
<tbody>
<tr>
<td>Weston (2012) the UK</td>
<td>Telling stories: The value to midwifery students</td>
<td>To explore the value that student midwives place on birth story -telling and the significant stories they tell and hear during midwifery training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>46 final student midwives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1) Positive: Stories were told to share experience in the clinical area and release stressing and understanding, self and peer evaluation, patient’s condition and raising awareness, recalling of stories through a sense of humour.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Negative: instil fear, judgemental and labelling</td>
</tr>
</tbody>
</table>

| Barnsley et al. (2004)| Clinical skills in junior medical officers: A comparison of self-reported confidence | To determine the relationship between self-reported confidence and observed competence for some | 30 junior medical doctors within one year of qualification |
|                       |                                                                             | correlation study                                                        |
|                       |                                                                             | 1) Correlation - There was no correlation between self- assessed confidence and actual competence performance.  |
|                       |                                                                             | 2) Competences - A wide range of competencies was exhibited from          |

midwife- midwives should stand up for their profession

3) Medical dominance - Autonomy more pronounced in midwifery led units

4) Rigidly policies influencing midwifery practice-hierarchical medical model - doctors are seen as taking precedence over midwives
<table>
<thead>
<tr>
<th>Authors and Year</th>
<th>Study Title</th>
<th>Methods</th>
<th>Sample Size</th>
<th>Results</th>
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<tbody>
<tr>
<td>Efarnia and Khandivizadeh (2011) Iran</td>
<td>Evaluation of midwifery students competencies in providing intrauterine device services Using objective structured clinical examination</td>
<td>To assess midwifery students skill in delivering intrauterine device services in clinical examination and their satisfaction using objective structured clinical examination</td>
<td>62 bachelor of midwifery students</td>
<td>1) <strong>Performance</strong> -92% students performed poorly -scoring an average of 49% of total score 2) <strong>Perception</strong> -80% enjoyed the Objective Structured Clinical Examination experience.</td>
</tr>
<tr>
<td>O’Mara et al. (2013) Canada</td>
<td>Challenging clinical learning environments: Experiences of undergraduates nursing students</td>
<td>To explore student’s perceptions of challenging clinical learning environments, their responses within the CCEs and the impact of CCE</td>
<td>54 undergraduates nursing students</td>
<td>1) <strong>context of Challenges</strong> Curriculum design and delivery -balancing and timing of theory and practical activities -inadequate resources human and material. -clinical faculty not having needed skills to teach -Lack of respect of faculty-dysfunctional relationships</td>
</tr>
</tbody>
</table>
on learning experiences

- Attitude of unit staff influenced learning
  Created tension and hindered learning
  - Too many demands from the nurse in charge (Some took it as positive experience as it showed trust

2) **Impact of challenges**
- Tension and intimidation
- Loss of learning opportunities
- Living in fear - shared stories of negative experiences
- Unsupportive staff lack of confidence

3) **Responses to challenges – four phases**
   a) rebuilding relationships - humbleness
   b) redirection - turn to peers and faculty for help or becoming independent and self-reliant
   c) Retreating - avoiding those unsupportive or endure for the period in the area
   d) Reframing - supportive relationships with others, increased learning and self-directedness and self-confidence

Mole et al. (2007) the UK

<table>
<thead>
<tr>
<th>Evaluation of teaching pack</th>
<th>To evaluate a teaching pack</th>
<th>the authenticall</th>
<th>- 75 Student nurses</th>
<th>1) <strong>experiences</strong></th>
<th>Implications and data analysis</th>
</tr>
</thead>
</table>

**Fair quality**

transferable 28
| Joubert and Villiers (2014) USA | Learning experience of mentees and mentors in a nursing school’s mentoring programme | To explore and describe the learning experiences of the mentees and mentors and obtain recommendations for improving the programme | An action method research | 14 Mentees student nurses in an undergraduate programme 5 mentors | **learning experiences mentees**

1) **availability**-limited numbers of mentor were either provided late or not at all
2) **Knowledge and competence**

Felt they were knowledgeable and competent
3) **attitude and support rendered**—were enthusiastic and volunteered their support and met student expectations
4) **theory and practice integration**- was satisfactory
5) **vital role**-plays a vital role in training of students through an awesome workout for mentor-mentee | Minimal data for analysis and background -implications not mentioned and but good methods

**fair quality** |
| Brosnan et al. (2006) Ireland | Implementing objective structured clinical skills evaluation (OSCE) in nurses registration programs in a Centre in Ireland: A utilization-focused evaluation | To evaluate the process and outcomes of the (OSCE) from the perspective of the stakeholder groups: first and second year nursing students, lecturers, clinical placement coordinators and assessors | A formative utilisation-focused evaluation two stage data collection stage 1 – interviews stage 2 questionnaire | Students-20 Staff who facilitated the OSCE-8- | 1. **Student profile** - significance difference between age and OSCE older students were more likely to obtain higher scores  
Two **attitudes towards OSCE** - Beneficial with a positive impact on both staff and students – students more meaningful, fair and appropriate assessment  
More prepared for clinical placement  
Two **preparatory periods before OSCE** stressful year two student thought time was inadequate, but most were prepared and concurred with staff  
Three **impacts of personnel on OSCE** - personnel involved are the source of stress but not aware of it  
4 **Stress and OSCE assessment** High stress experienced in the corridor waiting for the assessment and less between OSCE and Feedback  
More stressful than written examinations-mixed feeling  
**-clinical deficiencies in newly qualified midwives** | **Abstract** unstructured -methodology and sample lack detail -detailed results but there are no sources of bias some implications for practice, research and policy - **fair quality** |
<table>
<thead>
<tr>
<th>Study Authors</th>
<th>Study Title</th>
<th>Methodology</th>
<th>Results</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uys and Tredwell (2014)SA</td>
<td>Using a simulated patient to transfer patient-centered skills from simulated practice to real patient practice</td>
<td>Pre-test post-test experimenta l design</td>
<td>Skill acquisition - patient-centeredness is better gained in students who use simulated patients</td>
<td>28</td>
</tr>
</tbody>
</table>
| Martin et al. (2014)the UK    | An evaluation survey to assess the effectiveness of using an interactive workbook to deliver bereavement education to undergraduat e student midwives | Evaluation survey                                                                             | 1) Skill acquisition - Post-intervention scores significantly higher than pre-intervention scores in the workbook equipped midwives with clinical skills - Seniors benefited more their juniors  
  2) Perceptions - Knowledge and understanding was better after intervention  
  3) Experiences - Shocked with first exposure to still birth but workbook gave reassurance | 22      |
<table>
<thead>
<tr>
<th>Study</th>
<th>Title</th>
<th>Research Questions</th>
<th>Participants</th>
<th>Outcomes</th>
<th>Methodology</th>
<th>Implications</th>
<th>Quality</th>
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<tbody>
<tr>
<td>Steadman et al. (2006) the USA</td>
<td>Simulation improves acute care critical assessment and management skills</td>
<td>To determine whether full-scale simulation is superior to interactive problem-based learning for teaching medical students</td>
<td>31 fourth year medical students</td>
<td>Skills development</td>
<td>Simulation group performed better than problem-based group</td>
<td>Transferrable Implications for practice and education</td>
<td>Poor quality</td>
</tr>
<tr>
<td>Fiedler et al. (2012)</td>
<td>An assessment of students’ confidence in Performing Psychiatry Mental Health Nursing Skills: The impact of the Clinical Practicum Experience</td>
<td>To discover how PMH clinical practicum experience influence BNS students’ perceptions of their confidence in performing clinical skill</td>
<td>103 Nursing students</td>
<td>Perceived Confidence and performance of specific clinical skills</td>
<td>there was no significant differences in mean scores pre and post-practicum students in the two groups of students accelerated and traditional group</td>
<td>Purpose stated and detailed methodology and No bias and sample not detailed</td>
<td>Poor quality</td>
</tr>
<tr>
<td>Rawnson et al. (2009) the UK</td>
<td>Student midwives’ views of case loading: the BUMP study</td>
<td>To elicit the students’ views of their preparation and support during their case loading experiences.</td>
<td>146 student midwives</td>
<td>10 view case loading valuable teaching method in midwifery education -assists in focusing thoughts and aiding planning</td>
<td>FDGs – themes 1)preparation</td>
<td>Detailed finding but full methods description referred to another study</td>
<td>Poor quality</td>
</tr>
</tbody>
</table>
the need for thorough preparation before experience
putting materials required together
- requires time and regular contact and the opposite is true
2) **Knowing your mentor**
- for support and supervision
  – confidence building and preparedness if the mentor is supportive
- Relation building- need trusting relationships and good communication
3) **tripartite meetings**
  not held on time
- held in unsuitable places and unfruitful
- Some students are missed
  - the student felt they needed the mid-point feedback for accountability of their learning,
  the sphere of practice, record keeping maintenance of safe practice and confidence building

| Warland and Smith (2012) Australia | Using online role play in undergraduate midwifery education: A case study | to identify student’s opinion of communication and collaboration skills developed | -simulation -role play -computer packages case study | 19 final year undergraduate midwifery students | 1) **Skills developed**
  communication Skills
2) **Experiences**
  - opportunity to practice in the real world
  - active and collaborative learning | Sample selection and data analysis methods not indicated but a detailed description of results availed and an inadequate | 23 |
| Tully (2010) | Student midwives’ satisfaction with enquiry-based learning | Evaluate the process of EBL as a learning tool from the student viewpoint | Qualitative study | 10 students | emerging themes: 1) **student satisfaction**—most student enjoyed as it made them more proactive 2) **Presenting to colleagues**—motivated to search more information as well as demotivated some students did not put in more effort since it was not going to be marked—boring and pointless 3) **PBL only effective** if students become active learners and if lazy would prefer the lecture method 4) **group work**—identified tension when some students do more work than others 4) **Facilitator role**—variations in facilitation confused students—the role of tutor important in clarification of the process and follow-up those who do not feedback and give guidelines on what was correct Pressure from other work commitment was cited as reasons for not giving feedback. | A detailed description of methodology though no described biases—the implication for practice and education—poor quality. | 24 |
| Houghton et al. (2013) Ireland | Students’ experiences | To describe the students’ | Multiple case study | 20 Undergradu | **One theme: reality of practice** | Methodology sources of biases | 27 |
of implementing clinical skills in the real world of practice experiences of the real world of practice about the learning and implementation of clinical skills. three sub-themes 1) **the real world it is different** - doll and a real person leading to reality shock - different doing it in a simulated room than award challenges differences in performing same skill from the skills laboratory - meet inconsistencies in the way different people do things - clinical area is the most appropriate place for learning skills, but at times teaching and learning opportunities are missed if the ward is busy 2) **Supervision and support** – critical to students’ experiences in the clinical practice **Two** - Direct supervision is for the junior nurse where the supervisor is checking on the skill performance - peripheral is for the senior students who consult when the need arises Peer, senior students and preceptorship support valued equally important. 3) **fitting in-facilitating factors** (provision of learning opportunities, supervision, confidence and communication skills and previous experience as adequately described - One implication stated. - minimal sample description **Fair quality**
| Muldoon et al. (2014) Ireland | I found the OSCE very stressful: Student midwives’ attitudes towards an objective structured clinical examination (OSCE) | To report student midwives’ attitude towards the OSCE | Descriptive survey | 35 second year students | **Attitude**<br>1) **Process**<br>slightly positive as an experience<br>- Neutral as a teaching assessment tool – Felt it was very stressful<br>2) **Timing**<br>Inappropriate and untimely feedback decreased students’ learning experiences reducing the relevance of the OSCE for clinical practice.<br>- An appropriate method for assessing clinical competencies<br>3) **Impact**<br>- students neutral on whether it gives them greater confidence and feel more prepared for clinical practice | -sample, ethics, data collection has scanty information but detailed results and methods<br>-**Poor quality**<br>26 |
- agreed that it gave them an opportunity to show their clinical knowledge

<table>
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<tr>
<th>Smith et al. (2012) Australia</th>
<th>Simulated learning activities: Improving Midwifery students 'understanding of reflective practice</th>
<th>-evaluating the redesign method</th>
<th>Simulation -scenario -reflective skills -clinical skills</th>
<th>midwifery diploma students 61</th>
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444
<p>| Noble and Pearce (2014) the UK | Student midwives’ views on incorporating creative arts as a teaching strategy | To identify student midwives views towards incorporating a creative arts teaching strategy into their midwifery education programme | survey | 53 student midwives | 1) Creative learning encourages deeper understanding of the topic as indicated by 87.5% who had disagreed or undecided before creative teaching to agree after the intervention also develops self-awareness and insight 2) Teaching strategies should incorporate creative art majority 83% agreed strongly after Intervention compared unlike 81% undecided before 75% would want to attend another creative art 3) Benefits of session – encourages personal growth. - Connect theory and practice - Learning about self is threatening, but art reduces The threat as realisation come from self - discovery identify and while pursuing own values, the solution to problems and reframing the problem and questioning their practice - Enhances the affective domain of learning |
| Edwards et al. (2004) | The impact of clinical placement location on nursing students | To determine relationship between location of clinical placements | Quasi – experimental design using pre-test post-test survey | Third-year Bachelor of Nursing students-212 | 1) Competencies development improvement in competence and confidence noted - rural students were more confident competent and organised | Abstract-scanty information and unstructured - silent about ethics Methodology defined and the weaknesses of the study highlighted - fair quality |</p>
<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Methodology</th>
<th>Number of Students</th>
<th>Themes</th>
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<td>Chenery-Morris</td>
<td>2012</td>
<td>World Café</td>
<td>11 students and two midwifery lectures</td>
<td>Four themes emerged- 1) <strong>organisation of learning and subsequent assessments</strong> - felt overwhelmed by the amount of learning to be demonstrated - difficult in working with different type of mentors learning Will withdraw their practice until they see how the new mentor does it -lack of time for mentors to assess learning - felt they were a burden to the mentor for finding an ideal time for documenting their practice documentation 2) <strong>grading and tripartite meetings</strong>-mentor and student usually agree on the student performance –Students felt uncomfortable or arrogant to award themselves</td>
<td>A detailed description of the methodology through biases and limitations partially stated, abstract unstructured - <strong>poor quality</strong></td>
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<td>Hofsten et al. (2010) Sweden</td>
<td>Case seminars open doors to deeper understanding – Nursing students’ experience of learning</td>
<td>To describe students experiences of learning in case seminars</td>
<td>72 student nurses</td>
<td>Emerged themes: 1) <strong>open doors to deeper understanding</strong> through ways colleagues contribute and creation knowledge and revealing new dimensions of the case and invisible ways –creating a learning climate reducing student worries about doing wrong things -there is understanding of both individual and group. 2) <strong>learning together through discussion</strong> –Listening to each other’s point of view</td>
<td>Structured abstract but scanty information -sample and data collection not detailed only - no bias sources methods and results are very detailed -Poor quality</td>
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-different explanations made learning easier and more interesting
-different knowledge in the group became visible through the use of different senses
-large groups made it hard for one to be the head (challenging and problematic for some students)

3) Learning together with structure
-structure teaching method made it easier and challenged in problem-solving
–especial writing on the whiteboard
–making context clear same headings
-helped understanding disease easier

4) Learning together with supervision
-the open enabling atmosphere
-the value of teacher support and concern for student learning was over emphasised

Challenge
-learning is difficult but worth taking up
-high level of knowledge is required in discussion
-the demand of being well prepared induced fear for not
<table>
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<th>Study</th>
<th>Research Question</th>
<th>Methodology</th>
<th>Sample Size</th>
<th>Benefits/Findings</th>
<th>Limitations</th>
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<td>Gidman (2013) the UK</td>
<td>Listening to stories: Valuing knowledge from patient experience</td>
<td>Phenomenological Study</td>
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<td>benefits: Listening to stories assisted students to understand certain illnesses, social situations, good nurse-patient relationships and appreciating patient experience of several health-related situations and importance of explaining situations to patients and relatives.</td>
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<td>Skirton et al. (2012) the UK</td>
<td>Preparedness of newly qualified midwives to deliver clinical care: An evaluation of pre-registration midwifery education through analysis of key events</td>
<td>Longitudinal qualitative study</td>
<td>35 newly qualified midwives</td>
<td>1) Preparation: Newly qualified midwives were equipped to work autonomously. 2) Confidence: however, lacked confidence in key areas which improves with support from colleagues.</td>
<td>the purpose of the study stated and good abstract methodology not detailed no implications, no sampling criteria - poor quality.</td>
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<tr>
<td>Hughes and Fraser (2010) the UK</td>
<td>There are guiding hands, and there are controlling hands:</td>
<td>a qualitative longitudinal cohort study</td>
<td>58 student midwives</td>
<td>Qualities of a good mentor – approachable for student to feel comfortable, to ask any question without feeling silly or stupid, encourages learning, willing to explain and give time to learn.</td>
<td>Limited information in introduction - no bias mentioned - full ethics considered.</td>
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| student midwives’ experience of mentorship in the UK | mentorship in practice and to survey perceptions of the qualities required for mentorship | new things, build student confident, encourages student to learn through mind stretching, has a sense of humour – advocate for the women A unique career for women – Evidence-based Practitioner and reflects on own practice 2) **Student experiences** less effective mentors do not reflect their practice and do not want to be asked any questions  
**a) mentor relationship** with women and communication skills – role modelling good for student  
**b) mentor-student relationship** critical for competence development  
- relationships are difficult to develop with midwives who do not want to mentor students, mentors controlling students and take over with and unhelpful,  
**-c) personality differences** can be an issue though good – treating the student as a child and two students can get different things from the same mentor  
**d) Teaching things** the student is not ready for – level of training  
**e) Expectations of Mentors** – too high for students | - detailed data analysis  
**Poor quality** |
|   |   |   |   | style of mentorship | one style not appropriate for all students, f) experience student gets depends on mentor expectation and how much student is allowed to do g) role modelling- all students want to be like good mentor students e) mentorship experience-want continuity in the first year but want a variety of from the second year on |
|---|---|---|---|---|
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## Appendix 2: Quality assessment criteria
(Quality assessment criteria Hawker et al., 2002)

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## Appendix 3: Quality of the included studies

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### Appendix 4: Quality assessment protocol
Hawker et al. (2002) Quality assessment protocol

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<td>Was there a good background and clear statement of the aims of the research?</td>
<td>Is the method appropriate and explained?</td>
<td>Was the sampling strategy appropriate to address the aims?</td>
<td>Was the description of the data analysis sufficiently rigorous?</td>
<td>Have ethical issues been addressed, and what has necessary ethical approval gained?</td>
<td>Is there a clear statement of the findings?</td>
<td>Findings not mentioned or do not relate to aims.</td>
<td>How important are these findings to policy and practice?</td>
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<td>Good Structured abstract with full information and clear title.</td>
<td>Full but concise background to discussion/study containing up-to-date Literature review and highlighting gaps in knowledge. Clear statement of aim and objectives including research questions</td>
<td>Method is appropriate and described clearly (e.g., questionnaires included).</td>
<td>Details (age/gender/race/context) of who was studied and how They were recruited. Why this group was targeted. The sample size was justified for the study. Response rates were shown and explained</td>
<td>A Clear description of how the analysis was done. Qualitative studies: Description of how themes derived/Respondent validation or triangulation. Quantitative studies: Reasons for tests selected hypotheses driven/numbers add</td>
<td>Ethics: Where necessary issues of confidentiality, sensitivity, and Consent was addressed Bias: Researcher was reflexive and aware of own bias. Findings are explicit, easy to understand, and in a logical progression. Tables, if present, are explained in the text. Results relate directly to aims Sufficient data are presented to</td>
<td>Context and setting of the study is described sufficiently to allow comparison with other contexts and settings, plus high score in Question 4 (sampling).</td>
<td>Contributes something new and different regarding Understanding/insight or perspective. Suggests ideas for further research. Suggests implications for policy and practice</td>
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Appendix 5: Consent form

**CONSENT FORM**
Please note that example consent points 3-6 will most specifically relate to interview or focus group studies.
If you are happy to participate, please complete and sign the consent form below.
Please initial box

1. I confirm that I have read the attached information sheet on the above project and have had the opportunity to consider the information and ask questions and had these answered satisfactorily.

2. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason and without detriment to my treatment/service/self.
If the participant cannot withdraw beyond a certain point, this needs to be reflected in this section

3. I understand that my data will remain confidential
If there are any times when comments will be disclosed to others, this needs to be outlined in the PIS and reflected here

4. I understand that the interviews will be audio-recorded.

5. I agree to the use of anonymous quotes.

6. This clause should only be used if the data is being retained for a further study by the research team when the comment should read along the lines of
I agree to my data being retained indefinitely for further research related to ….
Alternatively, if the data is being archived for use as secondary data reading along the lines of
I agree that any data collected may be archived and used as anonymous data as part of a secondary data analysis process

I agree to take part in the above project

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This Project Has Been approved by the University of Manchester’s Research Ethics Committee [UREC reference number15357].
Appendix 6: Participant’s Information Sheet

Title of Research

A mixed method study to explore competence based practice of midwives in Zimbabwe

Participant Information Sheet

You are being invited to take part in a research study which is carried out as a fulfilment of the degree of Doctor of philosophy- as part of a student project. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take the time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for taking the time to read this.

Who will conduct the research?

Professor Dame Tina Lavender

Doctor Carol Bedwell

Unice Goshomi (student)

What is the purpose of the research? :

The purpose of this study is to determine whether student midwives before they sit for their state final examination after they receive those results and after have been working in the clinical area for three months are prepared for competence based practice to the level defined by ICM core competencies for midwives.

Why have I been chosen?

You have been chosen because you meet the criteria for the study informants for this study as they should be a cohort of midwives as students before they sit for their state final examination after they have received those results and after they have been working in the clinical area for three months. Approximately 80-95 participants will be recruited for the quantitative study of these 30 will be recruited for the qualitative study approximately 10 participants from each of the three the three central hospitals for the qualitative study. The study will assist in providing a conducive learning environment for developing confident and competent midwifery practitioners.

What would I be asked to do if I took part?

You will be given Visual Analogue Scale of self–assessed confidence measurement of 1-10 with a range of confidence levels from not confident at the lower end to confident at the upper end. Using the scale, you are asked to rate your confidence in carrying out a few selected tasks in antenatal, labour, postnatal and neonatal care by placing a mark at the level which you think describes your level of confidence in carrying out such tasks. It will take 15 minutes. The ward supervisor or senior midwife, your peer and clinical instructor will rate your actual competence using a Visual Analogue Scale for competence measurement and will take 2 hours,This will be done three times at time point before you sit for your state final examination, at point two after you have received
your results and after you have been working in the clinical area for three months. At point two some of you will be interviewed for 1 hour 45 minutes at your convenience.

**What happens to the data collected?**

If you are interested in the results, I will be happy to give them to you. I hope that the results will be published in a Midwifery Journal or any other journal which can accept it. The results can also be disseminated to all the stakeholders concerned with this study.

**How is confidentiality maintained?**

All data collected will be entered into a computer under pseudonyms and interview before transcribed, the data will be kept locked under lock and key and password protected, and no identification data will be kept together with the score sheets. The score sheets will be coded, and the transcribed data will be encrypted, disguised pseudonyms used and in such a way that it would not be possible to identify who said what, when and where. The data will be kept for a minimum of 5 years after which we expect to publish and clear any issues arising from the research which need the data for clarification.

**What happens if I do not want to take part or if I change my mind?**

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time without giving a reason and without detriment to yourself.

**Will I be paid for participating in the research?**

You are not being paid for participating in the study it is out of your good will to make the study a success. Your will get your bus fare to and from your place of residence to your training schools at time point three for competence assessment since you will have left the training schools.

**What is the duration of the research?**

2 hours x 3 for competence assessment and 15 minutes x 3 for self-assessed confidence and then 1 hour 45 minutes x 1 for the interview.

**Where will the research be conducted?**

The research will be conducted at Parirenyatwa, Harare and Chitungwiza Central hospitals’ schools of nursing and midwifery. Alternatively, for the interview, you can decide a place and time conducive for you.

**Will the outcomes of the research be published?**

The findings will be published in a midwifery Journal.

**Who has reviewed the research project?**

The project has been reviewed by the University of Manchester Research Ethics Committee 1/2/3/4/5/, Medical Research Council of Zimbabwe and the Parirenyatwa, Harare and Chitungwiza Central hospitals institutions’ research ethics committee.
What if something goes wrong?

I think you might have psychological stress and anxiety from the assessments and emotional distress evoked by remembering an adverse event if the issue comes up in the interview. If any problems you may stop the interview or the performance evaluation process when you feel like not continuing with the process. This will not disadvantage you in any way and neither will you be asked to account for your withdrawal.

What if I want to complain?

Any queries concerning this study can be forwarded my supervisors Professor Dame Tina Lavender at Tina.Lavender@manchester.ac.uk or Doctor Carol Bedwell at Carol.Bedwell@manchester.ac.uk or you can contact the University of Manchester Research Practice Governance Coordinator at research-governance@manchester.ac.uk or via phone 01612758090.

However, if you would prefer not to discuss with members of the research team, please contact If you wish to make a formal complaint about the conduct of the research you can contact a Research Governance and Integrity Manager, Research Office, Christie Building, University of Manchester, Oxford Road, Manchester, M13 9PL, by emailing: research.complaints@manchester.ac.uk or by telephoning 0161 275 2674 or 275 8093

How can I contact you?

unice.goshomi@manchesterpostgrad.ac.uk or phone number +263772924 885

Add researcher (and if relevant, supervisor) contact details including email and telephone number these contact points should be professional email and phone numbers, not personal contacts

This Project Has Been Approved by the University of Manchester’s Research Ethics Committee [UREC reference number:15357].
Appendix 7: New Qualified Midwives’ interview topic guide
Midwives’ interview topic guide
Schools of Midwifery (Chitungwiza, Parirenyatwa and Mpilo)
Introduction
- Greeting and making the participant at ease and comfortable
- the purpose of the study and interview explained
- Discuss study, answer questions and obtain written consent
- Explain about confidentiality
- Explain can refuse to answer questions they are no comfortable with
- Explain can stop the interview at any time
- Reassure the participant that the questions can be rephrased if not understood
- Check that the equipment is working (the tape recorder)

Question guides semi-structured
Using prompts as necessary

Knowledge
1) What do you know about ICM?
2) Tell me what you know about the ICM core competencies?
3) Can you describe the function of the ICM core competencies to midwives?

Views:
1) What are your views about ICM core competencies?
2) What do you feel about the ICM core competencies?
3) Why do you think the ICM core competencies desirable?

Practices:
1) Which skills do you think you have acquired for you to practice?
2) How have you acquired these skills?

Social processes
1) Which relationships were you involved in during your training?
2) Which of these relationships were beneficial?
3) Were there any problems associated with these relationships?
4) What are your views about these relationships?
5) What were your experiences during these relationship?
Appendix 8: The Interview guideline for clinical instructors and senior midwives
Social processes involved during, demonstrations, follow-ups and assessments.

1) How do you organize for the clinical evaluation of your students?

2) What are your responsibilities towards the student learning in the clinical area?

3) What are your reactions towards the student’s performance during an evaluation process?

4) What problems can be encountered during these clinical evaluations?

5) What do you think could be the cause of the associated problems?

6) What do you think about the interactions which are involved between you and your students?

7) What impact do you think these interactions have on the students and you?

8) In your own opinion how best could these interactions benefit the student?

9) How much value do you place on your students’ clinical practice?
Appendix 9: Overview of the data analysis framework approach: Classic Grounded Theory

**STAGES OF DATA ANALYSIS: GLASERIAN APPROACH**

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<th>SELECTIVE CODING: 2</th>
<th>THEORETICAL CODING: 3</th>
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<td>Limiting coding to concepts explaining the core variable adequately—writing memos throughout</td>
<td>Integrating the relationship between the core category and the concepts and their characteristics: Inter-changeability</td>
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|         | • Line by line coding for substantive codes  
• -opening the data  
• -Theoretical sampling  
• -discovering codes  
• -trying to saturate the code  
• -Constant comparison:  
• -Generating concepts and hypotheses  
• -Comparing incident to incident for uniformity and varying conditions  
• -The core variable:  
• -most frequently appearing variable  
• -accounts for variations in the main concern  
• -explains how the main concern is continually resolved  
• -sort out memos to identify core category | • Delimiting: stop open coding  
• -limiting data collection and coding to what is relevant to the core variable: Emergent conceptual frame work  
• -Begins after discovering the core variable  
• -Elaborating and integrating the core variable, its properties and is theoretical connections to other relevant variables  
• -Sorting out memos identifying the inter-relationships between the core variable and their characteristics  
• -Checking for similarities difference and degrees in consistency of meaning between incidences generating uniformity and coding it creating its properties as a result  
• -Discovering its relationships with other conceptual codes refines it to reach its best fit  
• -Continuous constant comparison of inter-changeability indicator produce saturation of concepts and their properties  
• -Pacing: Allows for creation of theoretical memos.  
• -Small but significant increments of coding, analysing and collecting promotes growth and maturity in the data  
• -Discovery process  
• -Sorting out memos |
Appendix 10: Transcript
Interview: 20160815:142658.

Interviewer: what can you tell me about your training?

Interviewee: I think it was the first day when we started training when we were the highlights that what midwifery is as defined by the ICM and ethics in midwifery as outlined by ICM

Interviewer: may you tell me more about ICM

Interviewer: it has to do with midwives its quite a lot its only that it running out but I know uuummm they represent issues of the midwives and aah that what I can remember buts its quite a lot and is going out but the country has to register and be affiliated to it aah what else can I say I am forgetting but I know I will tell you more about it if it comes

What can you about the international confederation of midwives in relation to your midwifery training?

Interviewee: yes it does have a relation with my training because as I was training we were told about the board that it is the one which defines who the midwife is the theory and practice as well as the scope of practice of the midwife as I was training we were lucky to have the midwife’s day being celebrated at our institution actually we actually learnt a lot about ICM and it made us aware of the different programs that they do and the advantages of the body to us as midwives buts its only that I have forgotten most of it

Interviewer: what can you tell me about the ICM core competences?

Interviewee; I have heard about them I think if I am not mistaken it’s all about how competent a midwife should after they qualify and I am not sure about but I heard of it is it a board as well (acknowledges hearing but seems to lack emphasis)

Interviewer: which of this competence are you aware of?

Interviewee: like the competences as in like I was training and learning about the skills which I should have acquired after going through the training like I am working in labour I should is it I should be able do the procedure needed so I need the skill ideal in running the affairs of labour ward like delivering the patients in labour. Admitting patients in labour and all the
Appendix 11: Interrelationships of subcategories, main categories and core category
### Appendix 12: Memo

<table>
<thead>
<tr>
<th>OPEN CODING</th>
<th>EMPIRICAL DATA</th>
<th>RELATIONSHIP BETWEEN EMPIRICAL DATA AND EMERGENT CODE (MEMO)</th>
<th>Emergent Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERVIEWER:</td>
<td>I think it was the first day when we started training there were the highlights that what midwifery is as defined ...the ICM ...ethics in midwifery as outlined by ICM</td>
<td>The participant recalls learning about ICM as they remember that the term midwife was defined by the ICM and the other functions of ICM and stipulating ethics for midwives. As revealed in the following statement. ‘…I think it was the first day when we started training there were the highlights that what midwifery is as defined ...the ICM ...ethics in midwifery as outlined by ICM.’</td>
<td>Being socialised into the profession</td>
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<tr>
<td>INTERVIEWER: MAY YOU TELL ME MORE ABOUT ICM</td>
<td>It’s quite a lot its only that it running out ... I know ...they represent issues of the midwives ... But the country has to</td>
<td>Students when they learn they are expected to store and retrieve the information they learn and be able to retrieve the information from they have learnt it. The recalling and</td>
<td>Information processing</td>
</tr>
<tr>
<td>INTERVIEWEE: I THINK IT WAS THE FIRST DAY WHEN WE STARTED TRAINING WHEN WERE THERE WE WERE GIVEN THE HIGHLIGHTS THAT WHAT MIDWIFERY IS AS DEFINED BY THE ICM AND ETHICS IN MIDWIFERY AS OUTLINED BY ICM</td>
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</table>

Students when they learn they are expected to store and retrieve the information they learn and be able to retrieve the information from they have learnt it. The recalling and information processing.
<table>
<thead>
<tr>
<th>RESEARCHER: WHAT CAN YOU TELL ME ABOUT THE INTERNATIONAL CONFEDERATION OF MIDWIVES IN RELATION TO YOUR MIDWIFERY TRAINING</th>
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</table>

| As I was training we were told about the board that it is the one which defines who the midwife is the theory and practice as well as the scope of practice of the midwife as I was training we were lucky to have the midwife's day being celebrated at our institution ... we .... Learnt a lot about ICM and it made us aware of the different programs ... they do ... the advantages of the body to us as midwives but ...I have forgotten most of it |

| The participant recalls learning the information about the ICM and defining it as a boarding which has a function of defining who a midwives is and deciding the theory which the midwives should learn or know about and what the practice of the midwife should be. The ICM also facilitate the celebration of the midwife’s day ‘As I was training we were told about the board that it is the one which defines who the midwife is the theory and practice as well as the scope of practice of |
the midwife as I was training we were lucky to have the midwife's day being celebrated at our institution ... we .... Learnt a lot about ICM and it made us aware of the different programs ... they do ... the advantages of the body to us as midwives but ...I have forgotten most of it'
### Appendix 13 Sorted memos

<table>
<thead>
<tr>
<th>Codes</th>
<th>Memo Notes</th>
<th>Participants</th>
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<tr>
<td>Student interactions during training</td>
<td>Student interacting together as they teach other and coach each other on how to do procedures. The participant emphasised on repetition on competence development as the students would encourage each other to practice several times. As revealed in the following statement: ‘... We would practice with my colleagues ... Showing each other how the procedure is done ... You watch them ... Do the height of fundus on abdominal examination ... Maybe how to palpate the level of the presenting part ... Lie ... the presentation as we practice and practice several times ...’</td>
<td>Teaching-Learning relationships</td>
</tr>
<tr>
<td><em>Student –tutor</em>&lt;br&gt;<em>Student – clinical instructor</em>&lt;br&gt;<em>Student – qualified midwife</em></td>
<td><strong>Common student interactions during training. As revealed in the following statement:’... Tutors the clinical instructors and the qualified midwives ...’</strong></td>
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<tr>
<td>Student – student interaction</td>
<td>Student interacting together as they teach other and coach each other on how to do procedures. The participant emphasised on repetition on competence development as the students would encourage each other to practice several times. As revealed in the following statement: ‘... We would practice with my colleagues ... Showing each other how the procedure is done ... You watch them ... Do the height of fundus on abdominal examination ... Maybe how to palpate the level of the presenting part ... Lie ... the presentation as we practice and practice several times ...’</td>
<td>Being Motivated to learn</td>
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<tr>
<td><em>Peer teaching</em>&lt;br&gt;<em>Peer coaching</em>&lt;br&gt;<em>Being repetitive</em></td>
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<td>M</td>
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<td>Learning theory</td>
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<tr>
<td>Student-clinical instructor interaction</td>
<td>To be become a midwife the Tutors gave midwifery theory to students and clinical instructors did the clinical teaching. As revealed in the following statement: ‘Given a lecture on a topic by the tutor ... They will take their time to explain and explain until I will understand ... The clinical instructors ... We ... Book them for follow ups and will help me for example to perform a proper delivery ... Until we have mastered ...’ The participant indicated that the student contact and that of the clinical instructor can be planned or incidental. For example they might come to support the student as they book a patient in for antenatal care. The clinical instructor will be supporting the student. As revealed in the following statement: ‘... I will ask the clinical instructor to come or they will just come on their own and assist me to book a pregnant mother ... She ...’</td>
<td>Learning clinical skills&lt;br&gt;Building working relationships&lt;br&gt;Learning theory&lt;br&gt;Building working relationships&lt;br&gt;Learning theory</td>
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<tr>
<td><em>Being attached in the clinical area</em>&lt;br&gt;<em>Learning midwifery competences</em>&lt;br&gt;Being supported&lt;br&gt;<em>Being in contact</em>&lt;br&gt;<em>Evaluation and feedback timing</em>&lt;br&gt;<em>Learning midwifery skills</em>&lt;br&gt;<em>Verbal communication</em>&lt;br&gt;<em>Instructor expressing feelings</em>&lt;br&gt;<em>Student expressing emotions</em></td>
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<td>Evaluation and feedback</td>
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During student clinical instructor interaction the clinical instructor give comments on how the student they are watching is performing in a form of feedback. Depends with how the student is performing how the instructor feels about it through the tone of the voice and facial expression amid the comments. Hence the student can also respond emotionally where they will express that they feel good, hurt or pain. The student would give an apology the clinical instructor as the facial expression and the voice indicate that the student have offended the clinical instructor. Some of the statements said to students cannot be repeated by the students themselves. As revealed in the following statement.’.... I think ... Maybe it depends with the tone of the person and who is saying the comment ... Someone may say leave that thing softly ... Someone may say harshly leave that box why are you doing ... And someone says nicely no why are you doing it like that leave that baby alone do it like this and like this and ... Also depends with the facial expressions ... So ... Same words can be said differently one way good and the other way hurting and some of them paining with you only saying I am sorry maam.... Some of them I am not comfortable ....repeat them...

The participant defined being hurt as the pain they feel deep inside them after being offended by the comment uttered by the clinical instructor to me. These comments also annoy the student though they are powerless. They will only be able to process the anger inside them as they cannot let it out. Those who will be able to let their emotions out they will do so by crying or feeling numb. The experiences the student would have with the clinical instructors were different for some it was the order of the day whilst some completed training without experiencing. As revealed from the following statement.’... The pain I felt deep inside me after offended by the comment said .to me .. As a student you get angry but you cannot say anything ... And say .... Why is this person saying this to me why ... So harsh ... Or at times... Will see other would express the pain by crying ... Myself I don’t cry individual s express pain differently some will.... Staring being motionless and not ... Say something ... Not planned it’s just happens ... It was different with individuals others never experienced problems throughout training ... Others had countless problems...

The participant noticed that as the clinical instructor is assisting the student to develop
and refine their competences. The way the feedback is given to the student depends with the preferred way of the clinical instructor clinical instructor who is any one of the following methods can be used. As reflected in the following statement.’... Will be correcting me and give me the feedback ... How it’s given depends on the clinical instructor who is there ... Someone will let you do the procedure ... Then correct you after ... Someone will be correcting you as you do it... Giving health education someone will say that is wrong you ... Someone will let you finish and then say ... You were giving the mother ... Wrong information...’

<table>
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<th>Clinical instructor being different</th>
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<td>The participant noticed that as the clinical instructor is assisting the student to develop and refine their competences. The way the feedback is given to the student depends with the preferred way of the clinical instructor clinical instructor who is any one of the following methods can be used. As reflected in the following statement.’... Will be correcting me and give me the feedback ... How it’s given depends on the clinical instructor who is there ... Someone will let you do the procedure ... Then correct you after ... Someone will be correcting you as you do it... Giving health education someone will say that is wrong you ... Someone will let you finish and then say ... You were giving the mother ... Wrong information...’</td>
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<tr>
<th>Student –clinical interaction</th>
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<tr>
<td>*Being assessed</td>
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<td>*Student expressing emotions</td>
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<tr>
<td>*Being student</td>
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<tr>
<td>* Failing to judge</td>
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| The participant has discovered that students would always agree that they failed for not meeting the standards of doing the procedure. The students would actually cry after failing. The reason why the student would fail for example an ANC assessment was indicating that that they have heard the fetal heart which the clinical instructor would indicate that it was not there. Also students who gave reports on the outcome of their assessments were inconsistent. For example issues failing the other. One would come and say they passed under those circumstances which the other failed. Making it difficult to take sides or judge as revealed in the following statement.’... People will cry after failing an assessment... One will do an ANC booking and the assessor will say I didn’t hear the fetal heart ... The student will say but the fetal heart is there and then .... Start crying and say I failed but the fetal heart is there .... It was difficult to say it was fair or not ... For the student because no one ... Know the truth ... Except the two of them, as students who failed came up with... All sorts of stories and could not be understood ... It was complicated some will come and say they were so luck... Passed when their findings and that of the clinical instructor were different... The other would actually come crying after failing over the same issue ... no body will be there as such to witness what really transpired it’s difficult to judge.
<table>
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<tr>
<th>Challenges in the training environment</th>
<th>The participant has discovered that students would always agree that they failed for not meeting the standards of doing the procedure. The students would actually cry after failing. The reason why the student would fail for example an ANC assessment was indicating that they have heard the fetal heart which the clinical instructor would indicate that it was not there. Also students who gave reports on the outcome of their assessments were inconsistent. For example issues failing the other. One would come and say they passed under those circumstances which the other failed. Making it difficult to take sides or judge as revealed in the following statement. ‘... People will cry after failing an assessment... One will do an ANC booking and the assessor will say I didn’t hear the fetal heart... The student will say but the fetal heart is there and then... Start crying and say I failed but the fetal heart is there... It was difficult to say it was fair or not... For the student because no one... Know the truth... Except the two of them, as students who failed came up with... All sorts of stories and could not be understood... It was complicated some will come and say they were so lucky... Passed when their findings and that of the clinical instructor were different... The other would actually come crying after failing over the same issue no body will be there as such to witness what really transpired it’s difficult to judge.</th>
<th>Students being evaluated</th>
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<tr>
<td>Student –student interaction</td>
<td>The participant revealed that the group mates were mostly there to give the colleague psychological support in times of need. But they would not take any action against what their colleague would call an act of unfairness. They would actually encourage the colleague to pray and leave everything in the hands of God as they continue carrying out their religious rites. Hoping to pass at the end of the year. As revealed in the following statement. ‘... They will just say... Midwifery course is very tough let’s keep on praying... It shall be over no action was taken as a student there is nothing you can do... You just keep on praying... That if only God can answer my prayers and finish this course... And go home with a certificate.</td>
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<tr>
<td>Student clinical instructor perception</td>
<td>The participant indicated that the student will always have problems with the same clinical instructor or ward sister during a follow up. As revealed in the following statement. ‘... A certain student will come say... I had problems with clinical instructor such and such... Some students will say what do you expect she is always like that... Had a follow up with her was harsh... Someone will... Say I had a follow up with sister so and so... Someone will say... That one is so... He can actually teach... Looked like all those students who had problems had problems with the same clinical instructor... It was beyond my control...’</td>
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<tr>
<td>*Training regulations</td>
<td>*Student-behaviour</td>
<td>*Student-experiences with clinical instructors</td>
</tr>
<tr>
<td>Student perception towards clinical instructor</td>
<td>The participant indicates that most of the time they will pray and motivate each other to keep reading and working hard. As revealed in the following statement.'... We would just pray and support each other as we encourage each other to read and work hard...'</td>
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<tr>
<td>Student interaction *Performing religious rites *Peer support</td>
<td>The participant indicated that the sisters in the wards will only endorse procedure done according to standard and you have to agree on the conditions which warrant a signature. You may do the procedure together but if she feels that it does not warrant a signature even if you enter it she will not sign. As revealed in the following statement.'... You do it according to the accepted standards... You have set a proper trolley... Your procedure... Do your delivery... The sister whom you have conducted the delivery with... Comments on how you would have conducted the delivery... Then put signature... They have to tell you to enter the procedure for you to get the signature... If you enter the procedure which you were not told to do you will have a hard time she will not sign for it... First demonstrate to you... Then give a return demonstration...'</td>
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| Student –ward sister interaction *Being verified *evaluation and feed back * Being supported | The participant indicated what comes out of the interaction between the supervisor and the student is the product of these two people. That does how the student performs will determine what perception the supervisor will have on the student determining what they will say to the student. It also goes with the type of supervisor. And their choice of words. The supervisor words and tone of voice will in turn determine the student’s emotional response. The student can either be hurt or encouraged by the supervisor's comments. This will make the student to meditate a prayer which will make them able to cope with the situation to make them able to continue respecting the supervisor as they wish that if they could also pass at the end of the course.

This is revealed in the following statement.'... Depend on how I... Performed... What the supervisors thinks or feels about me which will come out of the comments they... Pass... How... These comments... Put them across some might say you need to work hard and practice more you will make it I was once also a student midwife I... Went through the same process... This... Encourage you to keep trying... And... Someone... Just say in a high voice you! You think you can be a midwife with this rubbish you are doing you are not serious I don’t think you will make it... Its distressed and pained deep down angry... Hurt... You... Let's hope I will...
**Student – supervisor interaction**

*Types of mentors*

**Behaviours of mentors**

It has been revealed that there were two kinds of supervisors found in the clinical area. These were be classified according to the characteristics they exhibit to the students. The unapproachable and the approachable.'.... The unapproachable according to students exhibited the following characteristics. ‘....They were not free people which the student will go to them and clarify issues ... The clinical instructor is always serious and unapproachable ... And not tolerate anyone… The way they would teach they will be harsh looking angry such that you will be afraid when you look at them ... Even to ask how something is done

Characteristics of an unapproachable mentor

The participant revealed that the supervisors who are Harsh to student their appearance is enough to instil fear in the students. The student's fear is not in doing the procedure but the assessor who is associated with bad outcome. The students would perceive them as failures before they even start which will make them to thrown of balance and fail to perform to expectation ad ending up failing . This is revealed in the following statement,'... The student ... When you just see them you will just say not this one again ... The student won't be afraid of performing the delivery but ... The assessor ... And usually associate ... A bad outcome ... Will automatically lose confident, start shivering , sweating profusely you actually feel the heat on you face hands and feet aaah you will actually afraid and confused and not able to do anything

Characteristics of an approachable mentor

Whilst the approachable supervisors were nice and would show the following characteristics'......

But some were nice ... You were able to go back to them ask for another demonstration ... You will say maam may you please demonstrate for us again ... And ... They will do it

Being a midwife

To be a midwife the student indicated that there is a time you should be in the classroom
**Being in class learning midwifery theory**
**Discovery learning** Being a midwife

**Being in the clinical area** learning midwifery skills

**Facing challenges in the learning environment**

**Social interactions**

**Relationship building**

**Shortage of resource**

**Professional standards**

**Uncertainties**

learning midwifery and then the clinical area to learn the midwifery skills. The period the students when they are in the classroom they are happy and excited as they learn new things and not associated with any major challenges. A revealed in the following statement: 


> ... Was interesting though tough ... Challenging ... Students were happy and so relaxed when they were in class. As this area was not associated with any challenges ... It was organised and straightforward ... Interesting ... Maybe learning new things...'

The student midwives were not happy being in the clinical area although they knew that’s the place to learn the midwifery profession in the clinical area. The student students indicated that the clinical area was associated with a lot of challenges related to the assistance they need for them to develop the skills. The students discovered that among the qualified midwives in the wards some were willing to teach them whilst some were giving them a hard time. At times the students had to sacrifice their free time to do the procedure. The problem comes when they ask the sister who supervised them to sign for the procedure. Some sisters will tell the students that the procedure was not performed to expectation or the student did not have adequate resources so they won’t sign. This would not go down well with the students who would to expect nothing else other than a signature from the sister. which could be the reason why there developed the other set of midwives who when they have done the procedure with the student they will give the student some hope that they cannot give the signature at that moment for a particular reason they are not able to sign but will do it until the regulated time expires. And this frustrates and depresses he student. Some other midwives will complete refuse to supervise these students. This is revealed in the following statement: 


> ... Most challenges were being faced in the clinical area... Like asking the qualified staff to help you perform certain procedures ... Some sisters may come and demonstrate for me how am supposed to conduct a proper delivery or vaginal examination ... Then a certain ... Say no I am tired it’s my tea ... The student will feel offended and say I wish it... Was also qualified ... Like the issue of signatures ... The sister will say I will not give the signature you did not perform the deliveries correctly you had no proper pack... Then a student will go home stresses ... Most the time the student will dismiss late .... Wanting to do the procedures
| Student – supervisor interactions | The student though they will be stressed about not getting the sister's signature after a procedure they know that the sisters will not sign a procedure which does not meet the standards and what it means when the sisters start giving them excuses. Though the student will express bitterness since they feel that it's beyond their control to have an adequate pack when the institution does not supply the resources. But the fact remains the pack is substandard and the procedure is not going to be signed for. As revealed in the following statement: '... The sisters would not refuse ... To sign but you can read ... That they are playing tricks they don't want to sign ... Some will say I will sign ... Tomorrow but ... They will be off or ... Say ... After lunch ... Then after ... Am busy ... Some will... Tell you ... I won't sign there was proper pack ... The hospital will have cotton wool which is not the student fault...'

*Student – supervisor relationship
*Training environment challenges
*Supervisor validating procedures
*Student being manipulative
*Professional standards
**Student – supervisor interaction
*Student manipulation
*Professional standards
*Student expression emotions
*Verification

The participant highlighted some of the environmental challenges which might make the student to feel that the student might think that they are being treated unfairly when they discover that the supervisors do not compromise the quality of the program. There are some circumstances which will leave them with no option but to operate with what they have. At the same time this make the student to learn about some of the circumstances which they might operate within and how they go about to help clients in such situations. Hence you do your best under such situations but quality is compromised. The problem comes now that the students may think they can take advantage of such situations which they call sister must understand my plight stressing themselves unnecessarily when they actually know the correct process of securing a signature. The sister will give a promise which is so obvious that they will not fulfil maybe to give the student time to reflect on what happens in such situations and is part of experiential learning. If the student would want to be sincere with themselves they will see that when the pack is not complete some manual manipulations involved in developing manual dexterity associated with such a procedure would not develop hence
they would not be as competent as defined by ICM. As revealed from the following statement: ‘... She has supervised for example when you are booking a patient in the antenatal clinic should be there when you take history do the physical examination, do the abdominal examination, then give the health education. Antenatal clinic is busy ... Can be impossible for ... Sister to ... Doing a follow up ... Are working alongside ... Sister ... You ... Cover as workforce ... Not given time to learn ... Working with this midwife ... Whole day ... Expect them to understand your plight of signatures ... Around four whilst you are preparing to go home ... Say sister may you sign the procedures ... We did together ... She will say ... Am tired I will sign tomorrow ... When check the duties that sister is not there...’

Some supervisors will shout as well as passing nasty comments to the student nasty comments. AS revealed from there following statement: ‘... Some shouts you ... This is disaster leave that baby.... or what are you doing you are a dangerous nurse .... Toxic nurse what are you doing you will kill that baby .... Leave that baby I will finish the delivery what sort of foolishness is that what sort of delivery is that is that what you were taught at school ...
The students knowing the professional standards guiding a procedure that it starts with a proper pack they at times try their lucky to arm twist the sisters to get the signature. But they have never succeeded as they end up frustrated by their manipulative efforts. The sisters have never fallen for their traps the reason why they will avail themselves is for the safety of the patient not to give the signature when standards are not met. As the participant bold enough at one point to confront the sister who had supervised them and told them that that she would not sign. They asked the sister why they availed themselves for the procedure and only to frustrate them by refusing to sign. As revealed in the following statement: ‘... A certain sister who said to me I won’t sign because there was no proper pack and I said but sister ... I need a procedure ... She said we cannot stop you from practising and I am here to protect the patient but you will only enter a procedure with a proper pack ... When packs were now available I will do the follow up and sign for you this was not proper procedure ... She didn’t sign

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<th>Student-student interaction in class</th>
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<tr>
<td>* Team work</td>
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<tr>
<td>* Being different</td>
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<td>* Having lighter moment</td>
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<td>* Being cooperative</td>
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The participants indicated that the students were working as a team in learning and refining skills as well as gathering the needed resources for follow ups and assessments. This idea of putting an effort to get adequate resources encouraged students to do the correct procedures and be able to develop the
required manual dexterity for a specific procedure. There some who were difficult to cooperate in doing the team but still needing the support from the group which the group was able to do and incorporate them and also bring their problem to their attention and they will later joke over it. As revealed in the following statement.’... We worked as a team and we would practise and put our resources needed for assessment or follow ups together ... Someone will not come ... Then during the day of the assessment or follow up that person will make you run wanting you to do things for him or her then we will say but you were not part of our team ... But they were not serious issues we would assist them ... Then ... Laugh about it later...’

According to the participant student will support each other as they would want to make sure that their colleague is as comfortable as possible. They would take care of the stresses their colleague could endure as they are being assessed. The run to get whatever they might want to use if it not there. They will bring food for their colleague if possible and make them relax in between if they can get the chance. As they called themselves a team. As revealed in the following statement,’... When someone is doing an assessment ... The assessor would go for tea ... Also tell the student to go ... Want to make sure that their things are in order ... And will not go ... The colleague ... Bring something to eat and drink ... Ask them relax whilst I will counsel their patient as they breathe for 5 minutes or ... If they want something not in the ward ... Colleague will ... Look for it ... And bring it for you ... It was like more of a team work.’...

Even though they worked as team the students discovered that there were some colleagues who were difficult to work with. These will not do anything for anyone they will relax as if there nothing going whilst others are running around for a colleague. But to the groups surprise the expert some to give them the full support. Now depending with group mates the group will divide some who will ignore them or those who will give them the help and tell them to change their behaviour. It was discovered those who usually not join others and work usually face a lot of challenges during their assessments and usually fail with the group feeling for them and exonerating them in the next round. As revealed in the next statement.’ ... but it was not always the same ... In a group of 6 one or two people will ... Be very difficult to work with ... Will relax ... When it comes to their turn they
feel others should be there for them ... The group will assist the out liers ... But tell them that they should change their behaviour ... But it depends with groups others will just say today we are just relaxing ... Those who do not work with others they face a lot hardships like this other girl she ended up failing ... Everything was upside down and no one bothers to assist ... But some usually they change after having that experience ... We felt bad after she failed and we ended up assisting her ...

Learning environmental challenges
*supervisors uncompromising
*Experiential learning
*student – clinical instructor interrelationships
*Social problem and illness in the family members

Even though they worked as team the students discovered that there were some colleagues who were difficult to work with. These will not do anything for anyone they will relax as if there nothing going whilst others are running around for a colleague. But to the groups surprise the expert some to give them the full support. Now depending with group mates the group will divide some who will ignore them or those who will give them the help and tell them to change their behaviour. It was discovered those who usually not join others and work usually face a lot of challenges during their assessments and usually fail with the group feeling for them and exonerating them in the next round. As revealed in the next statement.’... but it was not always the same ... In a group of 6 one or two people will ... Be very difficult to work with ... Will relax ... When it comes to their turn they feel others should be there for them ... The group will assist the out liers ... But tell them that they should change their behaviour ... But it depends with groups others will just say today we are just relaxing ... Those who do not work with others they face a lot hardships like this other girl she ended up failing ... Everything was upside down and no one bothers to assist ... But some usually they change after having that experience ... We felt bad after she failed and we ended up assisting her ...

The participant indicated that there a lot of challenges found in the training environment which interferes with the easiness with which the student could access follow ups in developing and refining the competences. The student seems not to understand what competence development means and the role of the procedures they do in it. The issues of competence development is an issue of quality assurance determined by the input+ process= output. The few midwives who are available are still thriving to produce quality graduates amid the challenges. They do not sign for procedures which they have not witnessed.

With still students being manipulative to cover
up their face to suit Failing to achieve their goal. As revealed in the following statement. ‘...Not every procedure you do maybe sign ... Except those supervised and the sister... Have told you to enter it. But ... There is shortage and ... Not always possible the sisters are short staffed ... There are few qualified midwives compared to the work and students ... Maybe ... You will be working ... Doing some bookings ... Sister is not there to observe you closely ... You did about seven patients ... Then you are wanting just two or three because you... Only... Get signatures for mothers who were 28/40 and above ....you say I have been working the whole day sister just sign for these two ... That I can ... Have procedures in my booklet...

The participant highlighted some of the environmental challenges which might make the student to feel that the student might think that they are being treated unfairly when they discover that the supervisors do not compromise the quality of the program. There are some circumstances which will left them with no option but to operate with what they have. At the same time this make the student to learn about some of the circumstances which they might operate within and how they go about to help clients in such situations. Hence you do your best under such situations but quality is compromised. The problem comes now that the students may think they can take advantage of such situations which they call sister must understand my plight stressing themselves unnecessarily when they actually know the correct process of securing a signature. The sister will give a promise which is so obvious that they will not fulfil maybe to give the student time to reflect on what happens in such situations and is part of experiential learning. If the student would want to be sincere with themselves they will see that when the pack is not complete some manual manipulations involved in in developing manual dexterity associated with such a procedure would not develop hence they would not be as competent as defined by ICM. As revealed from the following statement.’... She has supervised for example when you are booking a patient in the antenatal clinic should be there when you take history do the physical examination, do the abdominal examination, then give the health education... Antenatal clinic is busy ... Can be impossible for ... Sister to ... Doing a follow up ... Are working alongside ... Sister ... You ... Cover as workforce ... Not given time to learn ... Working with this midwife ... Whole day ... Expect them to understand your plight of signatures ... Around four whilst you are preparing to go home ... Say sister may you sign the procedures ...
The participant noticed that the challenges in the learning environment which are either directly related to the student or ore the clinical instructor problems which interfere with competences development. With the students are those issues which cause anxiety. Such as those related to multiple roles. These are social problems and illness in the family. And related with interpersonal relationships like fearing the clinical instructors as alluded to previously. As revealed in the following statement.’... maybe ... Social problems or problems with clinical instructors which I have already said or ... One of your family members is not feeling well ... You can’t go home you want study with ... Colleagues ...

<p>| Student – student relationship building | However some individuals will never change their bad nature even if they are shown compassion by others and if it’s not in them they will not be able to do the same for others. Like the participant said such individuals who are not able to assist others have typical characteristics which was observed by their colleagues which is described in the following statement. Some of their characteristics match those of difficult supervisors. As revealed in the following statement.’... Usually such people will show pride after ... They will say ... Did a small mistake ... But as colleagues we will see the stress they will be trying to hide and help them ... After they pass they never change but the other colleagues will just say if this girl be cooperating ... They were also rude in such a way that if they are doing an abdominal palpation wrongly and you try to correct them they will say that’s the way I do it ... Were not able to work well with others ... Was rough now ... Difficult to correct and they usually had an answer to justify whatever they were doing ... They were also selfish ... In ANC it was very busy and we would not go for tea ... You will find they will go and eat and when ... You ask them to take over so that you also go ... They will refuse ... They go without giving a thought about others ...’ |
| Student – ward supervisor interactions | The participant revealed that student at time were mischievous and they would go for tea one hour. The sister will call them for reprimanding and they usually readily apologize as they are reminded that they should be responsible adult. Besides going away for too long from the clinical area makes them lose learning opportunities but there was... |
| Student-supervisor relationships | The student if they would be given a choice of the type of supervisors they would want in the clinical area, they would prefer those whom the call nice in that they smile for students and willing to teach students and those who are always serious. The students think their description suits most tutors whilst the serious supervisors suits clinical instructors most. As supported by the following statement. ‘... Those who are nice... Can smile for a student... Willing to teach... Always serious but most of the tutors from my own point of view, they were the same. I think maybe because they are trained to work with students unlike clinical instructors who are rough. It was about their characters and attitude towards students.' |
| Student–clinical instructor interactions | During an assessment encounter clinical instructors can get angry and release their emotional feelings in a nasty way on the student. Different perceptions may cause someone clinical instructors go off rage and pass unpleasant. Comments to the student. ‘... Let me give this scenario of an assessment... Went did my assessment in... In first floor then... I was supposed to go and finish up the assessment in ground floor... I told the clinical instructor that she will meet me down stairs... Then she started screaming at the top of her... How can you say down stairs its ground floor... Being shouted at for just saying down stairs instead of saying ground floor...’ |
| Student–clinical instructor interrelationships | When the clinical instructor passes nasty comments to the student they respond emotionally. The student will become nervous and this will through them off balance and they will fail to continue the assessment. As revealed in the following statement. ‘... Being shouted at for just saying down stairs instead of saying ground floor... And your examination is in progress ...’ |</p>
<table>
<thead>
<tr>
<th>Student – tutor interrelationships</th>
<th>The student if the clinical instructor says the following statements to them they call it verbal abuse. And some of the comments which the student is not ready to repeat as revealed in the following statement. ‗...On my second attempt the tutor... Just said meet me down stairs... Was like that woman was screaming when I said down stairs... She started abusing me verbally you are stupid... You are not even intelligent you are dull now look at yourself if you can even pass a simple procedure did you even go to school you reason like someone who does not think... Who does not have brains... And imagine you are doing your examination you become distressed... Anxious and... Confused... Confused cockroach you are told... Some of the comments I can say... ‗... You are doing a delivery and they see that you are not doing it... Some will just tell to step aside take over and keep quiet and then call you after the procedure to explain to you why they took over and ask what were you doing don‘t be confused don‘t panic you will be fine do not be afraid of those babies...‘and or Someone will say I couldn‘t comment in front of the patient... Some will softly no you shouldn‘t be afraid that‘s the delivery you are doing well I also conducted my first delivery... You are actually doing better than what I did you will be fine... or But if it really... Putting the patient life at risk the qualified will take over... They say step aside... Let me show you or let me finish it... Seems as if you not yet master it you will try another one next time... They will push you aside... or Take over quietly and you will be surprised as to what is going on... Supervisors they anticipate problems... They will be just on standby... It could be you delivered a flat baby... Will automatically take over...</th>
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<tr>
<td>Student – supervisor relationships</td>
<td>The participant has described different ways of how a supervisor would respond to a student who is not performing to standard. There are those supervisors who would take over no say anything to you and then call you later to give you feedback explaining their action to you and reassure you as well, as revealed from the following several statements. ‗... You are doing a delivery and they see that you are not doing it... Some will just tell to step aside take over and keep quiet and then call you after the procedure to explain to you why they took over and ask what were you doing don‘t be confused don‘t panic you will be fine do not be afraid of those babies...‘and or Someone will say I couldn‘t comment in front of the patient... Some will softly no you shouldn‘t be afraid that‘s the delivery you are doing well I also conducted my first delivery... You are actually doing better than what I did you will be fine... or But if it really... Putting the patient life at risk the qualified will take over... They say step aside... Let me show you or let me finish it... Seems as if you not yet master it you will try another one next time... They will push you aside... or Take over quietly and you will be surprised as to what is going on... Supervisors they anticipate problems... They will be just on standby... It could be you delivered a flat baby... Will automatically take over...</td>
</tr>
<tr>
<td>Being emotional</td>
<td>The participant highlighted some of the environmental challenges which might make the student to feel that the student might think that they are being treated unfairly when they discover that the supervisors do not compromise the quality of the program. There are some circumstances which will leave them with no option but to operate with what they have. At the same time this make the student to learn about some of the circumstances</td>
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</table>
which they might operate within and how they go about to help clients in such situations. Hence you do your best under such situations but quality is compromised. The problem comes now that the students may think they can take advantage of such situations which they call sister must understand my plight stressing themselves unnecessarily when they actually know the correct process of securing a signature. The sister will give a promise which is so obvious that they will not fulfil maybe to give the student time to reflect on what happens in such situations and is part of experiential learning. If the student would want to be sincere with themselves they will see that when the pack is not complete some manual manipulations involved in in developing manual dexterity associated with such a procedure would not develop hence they would not be as competent as defined by ICM. As revealed from the following statement:’... She has supervised for example when you are booking a patient in the antenatal clinic should be there when you take history do the physical examination, do the abdominal examination, then give the health education... Antenatal clinic is busy... Can be impossible for ... Sister to ... Doing a follow up ... Are working alongside ... Sister ... You ... Cover as workforce ... Not given time to learn ... Working with this midwife ... Whole day ... Expect them to understand your plight of signatures ... Around four whilst you are preparing to go home ... Say sister may you sign the procedures ... We did together ... She will say ... Am tired I will sign tomorrow ... When check the duties that sister is not there...'“

| ICM education standards | The participant highlighted some of the environmental challenges which might make the student to feel that the student might think that they are being treated unfairly when they discover that the supervisors do not compromise the quality of the program. There are some circumstances which will left them with no option but to operate with what they have. At the same time this make the student to learn about some of the circumstances which they might operate within and how they go about to help clients in such situations. Hence you do your best under such situations but quality is compromised. The problem comes now that the students may think they can take advantage of such situations which they call sister must understand my plight stressing themselves unnecessarily when they actually know the correct process of securing a |
| *Professional standards* |  |
| *Professional standards* |  |
signature. The sister will give a promise which is so obvious that they will not fulfil maybe to give the student time to reflect on what happens in such situations and is part of experiential learning. If the student would want to be sincere with themselves they will see that when the pack is not complete some manual manipulations involved in developing manual dexterity associated with such a procedure would not develop hence they would not be as competent as defined by ICM. As revealed from the following statement: ‘... She has supervised for example when you are booking a patient in the antenatal clinic should be there when you take history do the physical examination, do the abdominal examination, then give the health education... Antenatal clinic is busy... Can be impossible for... Sister to... Doing a follow up... Are working alongside... Sister... You... Cover as workforce... Not given time to learn... Working with this midwife... Whole day... Expect them to understand your plight of signatures... Around four whilst you are preparing to go home... Say sister may you sign the procedures... We did together... She will say... Am tired I will sign tomorrow... When check the duties that sister is not there...’

Student being manipulative

The participant highlighted some of the environmental challenges which might make the student to feel that the student might think that they are being treated unfairly when they discover that the supervisors do not compromise the quality of the program. There are some circumstances which will left them with no option but to operate with what they have. At the same time this make the student to learn about some of the circumstances which they might operate within and how they go about to help clients in such situations. Hence you do your best under such situations but quality is compromised. The problem comes now that the students may think they can take advantage of such situations which they call sister must understand my plight stressing themselves unnecessarily when they actually know the correct process of securing a signature. The sister will give a promise which is so obvious that they will not fulfil maybe to give the student time to reflect on what happens in such situations and is part of experiential learning. If the student would want to be sincere with themselves they will see that when the pack is not complete some manual manipulations involved in developing manual dexterity associated with
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given time to learn ... Working with this midwife ... Whole day ... Expect them to understand your plight of
signatures.... Around four whilst you are preparing to go
home... Say sister may you sign the procedures ... We
did together ... She will say ... Am tired I will sign
tomorrow ... When check the duties that sister is not
there...’

| Student clinical instructor interaction | It has also emerged that the clinical instructors do random checks to verify on student’s booklets and usually find some procedure which the students have entered and 24hours have elapsed and not signed for. The students asked to account for these and make them feel as if the clinical instructor is saying they are not honest. The clinical instructor does not tell the student that they are not honest but that what students that is what the student perceives them to be saying. However the students will never blame themselves for their plight but project it on the clinical instructor and the ward sister. But deep down in their conscience they know that what they are saying is true. They did not do the follow up but the work as they themselves clearly say it which they would want to substitute for a follow up. And it backfires making them stressed. The clinical instructor only follows the regulations and that’s what they will be basing the inspection on as they seek clarification of the deficits identified in the student’s booklet and then the student takes it as accusations and naming them challenges. As revealed in the following statement: ‘... When check the duties that sister is not there ... You had entered those procedures... Practical book ... Becomes a problem the clinical instructor ... See your practical books ... Why are these procedures not signed for as ... Someone who is not honest ... Student will have done the work something like that... Was not nice at all for some of our colleagues... Those procedures are going to be nullified ... Are supposed to be signed for within 24 hours ...’

| *verification of follow up procedures | Student perception toward the verification process
| *Student perception toward the verification process | *Professional standards
| *Students expressing emotions | *Students being manipulative
| Student –clinical instructor interaction | *Student perception toward
| *Learning environmental challenges | *Enforcing training regulations
| *Students’ perceived clinical instructor sinister motives | *signature obsession

The students knew what the clinical instructor would come to the wards to do spot checks on the students. This is when they will be checking the student booklets for accurate
documentation to facilitate the skill of record keeping in midwifery. The students were aware of the fact that whatever was happening in the booklet was their responsibility; They were expected to enter correct procedures and have then signed on time. As revealed in the following statement: ‘... Clinical instructors were monitoring progress ... Accurate documentation or record keeping ... It’s your responsibility as a student to enter correct procedures ... Have them signed on time ...’

The clinical instructors when they get to the clinical area as they will be doing their spot checks on the procedure booklet students expect them to be supporting them. To the student frustration the clinical instructor do not act as expected which the student perceive as clinical instructors to be working in collaboration with ward sisters to frustrate their effort. As they would be protecting their relationships at the student's expense. The clinical instructors instead will turn around and attach the student instead of resolving the so called problem frustrating students the more. As revealed from the following statement: ‘...Our tutors ... Ask what ... Problems ... we are encountering in the clinical area ... Those ... Brave would mention ... signatures ... If the clinical comes in the wards and tell them ... I am having ... Problem with getting a signature with sister so and so ... no action was taken ... they will ... Say ... I was once a student I know what happens ... They didn’t say much to ... Ward sisters ... They ... Want to keep friendship ... With those sisters...’

The clinical instructors in their endeavour on checking student how the follow ups are going and the quality of record keeping and documentation. The will also make the student ordeal worse as they will cancel some of the procedures which will not be meeting the expected criteria further frustrating the student further as cancellation of some the availability with what I think reducing the number of accepted procedures they will be accumulating. This is revealed in the following Maybe for them to nullify the procedures you would have left out ... Things which matters for example ... The date ... Important for them to see when the procedure is done ... The procedure ... Not signed for ... You don’t ... when the procedure is to be signed for ... And why ... is not signed for ... I think ... Are ... Those things they were looking for ...and ... Mostly that's what they ... Tell you when they nullify the procedures...
The participant indicated that there are a lot of challenges found in the training environment which interferes with the easiness with which the student could access follow ups in developing and refining the competences. The student seems not to understand what competence development means and the role of the procedures they do in it. The issues of competence development is an issue of quality assurance determined by the input+ process= output. The few midwives who are available are still thriving to produce quality graduates amid the challenges. They do not sign for procedures which they have not witnessed. With still students being manipulative to cover up their face to suit failing to achieve their goal. As revealed in the following statement. 

"...Not every procedure you do maybe sign ... Except those supervised and the sister ... Have told you to enter it. But ... There is shortage and ... Not always possible the sisters are short staffed ... There are few qualified midwives compared to the work and students... Maybe ... You will be working ... Doing some bookings ... Sister is not there to observe you closely ... You did about seven patients ... Then you are wanting just two or three because you ... Only ... Get signatures for mothers who were 28/40 and above ... you say I have been working the whole day sister just sign for these two ... That I can ... Have procedures in my booklet..."

The clinical instructors when they come to check on the student booklets when they do their usual routine checks as they enforce the training regulation of supervision and keeping of records. They still stick the rules of entering the procedure in the student booklet without paying attention the emotional aspect of the student. The student narrated their perceived thoughts about the clinical instructor and ward supervisor sinister motives. Since the students are obsessed by the signature issue they do not even see anything and label everyone an enemy. As revealed in the following statement: 'Clinical instructors will ... Be on your neck ... Asking how many procedures do you have and asking ... What are you doing ... You should do your procedures under supervision ... Get them signed for on time and ... Sister ... I am not going to sign I did not supervise you ... Will sign after tea ... I will not sign because of this and that ... At the end of the day when ... Practical books are checked it will be as if ... Student is not doing her procedures and ... Was very unfair for the student...'
The students knew what the clinical instructor would come to the wards to do spot checks on the students. This is when they will be checking the student booklets for accurate documentation to facilitate the skill of record keeping in midwifery. The students were aware of the fact that whatever was happening in the booklet was their responsibility; They were expected to enter correct procedures and have them signed on time. As revealed in the following statement: 'Clinical instructors were monitoring progress … Accurate documentation or record keeping… It’s your responsibility as a student to enter correct procedures… Have them signed on time…'

The participants during their training they will be given feedback in different forms. The feedback on problems affecting the whole group for example on use of booklets. When the feedback was about your performance they will identify where you are going wrong correct you by showing the student the correct way of doing procedures. The supervisor will identify the student’s weaknesses and strengths and assist the student in working in refining their skills. The students also get report written for them in each word where they will discuss the report and the student signs. Feedback can be also given follow ups in forms of shouting. The feedback is in forms of verbal and written feedback. 'As revealed in the following statement: '… Pertaining to the booklets … Will call, you as class … Let you know if the problem involves every one or during procedures … May correct you as you do the procedure … They will show you where you are doing it wrongly … The weaknesses and strength as they supervise … Would call for a meeting in class … Whole group for example the rate of failure has gone up … Ask you that why are you failing … Progress report … Writing is they will call you discuss about the contents of the report … You sign … The report and the concerns … It have been discussed with you after follow up … Will give you the feedback … The procedure and that’s when they will be shouting at you … Think it was a form feedback…'

The students felt that among the clinical instructors and tutors no one ever trusted or support them in any case involving student and assessors. The problem of lack of student support usually comes so evident when the student fails their assessment. The rule of thumb when the student fails their assessment they are supposed to the group tutor and make
| **lack of student support** | a report and the reason of their failure. The student perceives everyone not to trust what they say since they are always challenged to tell the truth on what really caused their failure. Because of perceived lack of student trust among the supervisors the student does not show the pain they are going through for failing the assessment. As they feel that there is no reason of sharing their story if no one believes you. They actually lament that being a student is not easy. As revealed ion the following statement.'... Clinical instructors ... Never trust the students ... Just stand alone ... If there is a case of the assessment ... I observed if a student fails ... Goes to the tutor in charge and report... Nobody will trust the student ... The tutors ... Always say to the student ... Tell the truth ... So ... Nobody ... Will ever support you such that other students who have problems would just decide ... When you go to ... School to report ... You have failed ... Just wear a bold face and just say ... I am ok yet you will be burning inside ... There is no reason to tell your story when nobody will support you ... Being a student is not easy ...' |
| **perceived lack of student** | *Being a student is not easy* |
| *Being a student is not easy* | |
| |

## Appendix 14: Open Coding

<table>
<thead>
<tr>
<th>Transcript</th>
<th>Empirical data</th>
<th>Memo: relationship between code and empirical data</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERVIEWER:</strong> MAY YOU PLEASE TELL ME ABOUT YOUR ROLE AS A CLINICAL INSTRUCTOR IN COMPETENCE DEVELOPMENT OF THE STUDENTS</td>
<td>Doing the right thing ... I mean coming up with the right trolley setting up the right equipment and maybe improvising using the right ... Resources that can be used to improvise and make sure the student does the procedures correctly ... It will be the student doing the procedure and the clinical instructor correcting where the student is going wrong.</td>
<td>The participant reveals that the role of the clinical instructor is the assist the student to correlate theory into practice. This ensures that the student does the procedure according to professional standard. During the student-clinical instructor interaction the student will be doing the procedure whilst the clinical instructor support the student through, guidance supervision, evaluation and giving feedback. The clinical instructor will correct the student where they are going wrong during the procedure. This is revealed in the following statement. Doing the right thing ... I mean coming up with the right trolley setting up the right equipment and maybe improvising using the right ... Resources that can be used to improvise and make sure the student does the procedures correctly ... It will be the student doing the procedure and the clinical instructor correcting where the student is going wrong...</td>
<td>Being interactive</td>
</tr>
<tr>
<td><strong>INTERVIEWEE:</strong> AAH MY IS EEEEH AS A CLINICAL INSTRUCTOR MY ROLE IS TO ENSURE THAT THE STUDENT THE STUDENT IS DOING THE RIGHT THING AND WHEN I AM SAYING THE RIGHT THING I MEAN COMING UP WITH THE RIGHT TROLLEY SETTING UP THE RIGHT EQUIPMENT AND MAYBE IMPROVISING USING THE RIGHT THINGS OR RESOURCES THAT CAN BE USED TO IMPROVISE AND MAKE SURE THE STUDENT DOES THE PROCEDURES CORRECTLY OR THE PROPER WAY AND IT IS LIKE MOSTLY IT WILL BE THE STUDENT DOING THE PROCEDURE AND THE CLINICAL INSTRUCTOR CORRECTING WHERE THE STUDENT IS GOING WRONG AAH NOT DOING THE PROPER THINGS</td>
<td></td>
<td></td>
<td>*Student – clinical instructor **Being in the clinical area ***Learning ICM core competences ****Being supportive *****Correlating theory and practice ****Being an evaluator ***Being given feedback ****Timing *Training environment challenges</td>
</tr>
</tbody>
</table>
Appendix 15 – Comparing memo to memo

<table>
<thead>
<tr>
<th>MEMO 1</th>
<th>MEMO 2</th>
<th>MEMO 3</th>
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<tbody>
<tr>
<td>Gave a definition of ICM as an organisation, function supportive and</td>
<td>The participant defined ICM as an organisation accountable for what is</td>
<td>The participant indicated that they have heard about ICM defined as a</td>
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<tr>
<td>regulatory functions. As revealed in the following statement: ‘...ICM is</td>
<td>happening among midwives. In terms of monitoring midwifery trends</td>
<td>board responsible for guiding and leading midwifery practice. The</td>
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<td>an international organisation that supports midwives ...giving ...</td>
<td>influencing their work, discern their grievances when they face</td>
<td>midwives are expected to be and affiliate member of the association</td>
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<td>Regulations it ... Grievances.... Have and solve them ... Talks about</td>
<td>difficulties. As ICM has already developed global standards to support</td>
<td>so that they will be able to follow the midwife on the practices and</td>
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<tr>
<td>the competences the midwife should acquire...</td>
<td>midwives as an autonomous profession, with stipulated competences and</td>
<td>are concerned with midwifery ethics and practices. They represent and</td>
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<td></td>
<td>able to manage and control their own problems and speak with one voice</td>
<td>advocate for midwives when something goes wrong. As revealed in the</td>
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<td></td>
<td>through ICM. As revealed in the following statement: ‘... An</td>
<td>following statement: ‘... Head that it is a board governing midwifery</td>
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<td></td>
<td>organisation which is responsible for supervising midwives ...</td>
<td>practice ... the midwife is supposed to register with them so that</td>
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<td></td>
<td>Designed to monitor midwives on their work.... Observe their</td>
<td>they will follow up on you on what you are doing if you are doing</td>
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<td></td>
<td>grievances ... When they face some challenges</td>
<td>things the correct ... and they are the ones who govern the midwives</td>
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<td></td>
<td></td>
<td>... Giving them on what you are supposed to ... Not supposed to do ...</td>
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<td></td>
<td></td>
<td>Who stand for midwives when something goes wrong...’</td>
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Appendix 16: Field notes
R': Tell me what you know or have learnt about the ICM.

I have discovered that the value individuals place on something is based on the participant’s knowledge about the subject of concern. Hence for me to be able to come up with what value the participants had on ICM I had to find out what the participants knew or have learnt about ICM.

Language used in reflecting level of knowledge possessed

From the participants’ responses, I observed that students use a specific language when asked on a knowledge related question as well as going through information retrieval process. The language used I observed that it probably shows that the individual had interpreted the question, actually knows what the question wants and then decide whether they have the required information to answer the question or not. Hence, individuals seem to interpret the question and then refer to themselves in relation to the degree of knowledge they feel they have to contribute towards the question. As a result, this will determine whether the students will express confidence if they think they can provide adequate information or express lack of confidence if they think they have bits and pieces of information or express frustration if they do not have the information at all to answer the question.

Basing on such findings then the individual will now make a decision on whether they have enough information or not or whether they have bits and pieces only. Hence, the participants revealed ranges of responses, which revealed whether they have enough knowledge, or not on continuum of not knowing to knowing. However most participants as they assimilated what they knew about ICM, the words ‘I think’ preceded their response to the question to show how knowledge defines the individual’s position in terms of knowing or not knowing regarding the subject of discussion hence mirror of the participant’s position of knowing about ICM. These observations, made me believe that having an insight that one has knowledge on the subject of discussion makes the individual feel confident hence boosting their self-esteem. This conclusion, I reached at it after observing how Stella puffed her self up when she responded to the question, which I paused to her. I thought that puffing up the shoulders is a posture related to showing that she is confidence in what she was saying as the puffing up of shoulders happened at the same time with the words ‘I know about ICM’ before elaborating on the roles ICM plays in the midwifery profession. Revealing that there is a positive relationship between having knowledge and self-esteem, Stella confidently stipulated the roles of ICM, which included representing midwifery associations, celebrations of the Midwife’s day at their training, regulating midwifery training and scope of practice, developing the ICM core competences among others; however, they could not remember these core competences. The statement reveals those students who have developed confidence in themselves are able to tell the difference between what they know and what they do not know. The participant started by revealing what they know at the beginning of their statement and what they do not know at the end. This actually is a form of organisation of information and an issue of self-evaluation and positive feedback emphasising on the strengths and weaknesses of individuals. I have observed that some individuals would confidently claim that they have the information on about the ICM only to realize that they have most of it but not all of it as they start sharing it. When the individual reaches a point where they realize that they have exhausted their resources as information flow start dwindling. Hence, I observed that at a point, she mentioned that she was not sure of the ICM core competences the voice lowered and the puffed shoulders dropped which I related to erosion of confidence. At this point, the individual start to doubt their ability as they give bits and pieces of information and stop without stating their knowledge status. However they did not indicated that they had exhausted what they had to say, they just kept quiet. Hence, I concluded that individuals who claim to know about a subject they have pride they do not announce it that they no longer have knowledge but leaves it for the inquirer to judge. As revealed in the following statement

‘P’: I know about ICM … they represent issues of the midwives … But the country has to register and be … Affiliated to it … As I was training, we were told about the board that it is the one, which defines who the midwife. is the theory and practice as well as the scope of practice of the midwife. As I was training we were lucky to have the midwife's day being celebrated at our institution … we … Learnt a lot about ICM and it made us aware of the different programs … they do … the advantages of the body to us as midwives but … I have forgotten most of it … I have heard about the ICM core competences … I think if I am not mistaken it’s all about how competent a midwife should be after they qualify though I am not sure about them … I heard of ICM … that it is … stipulated these competences for midwives...’ [Stella.]

I have also observed that those individuals though they will give detailed information on what they want declared to know there is a part of that piece of information they do not know. These start by expressing their confidence about the area. However, end up with a low-key note where they will express that the individual will show stress for failing to give that part of information to the expectation of the inquirer. This also indicate that students store their information in patterns and retrieve it as such when asked for provided the students has mastered it very well. Nevertheless there were some who indicated that they knew more than enough and gave a detailed account of each of these ICM core competences including what the midwife is expected to do on each of them. I also observed that the students have strengths in different area which they will declare with confidence that they know it but when they are dealing with areas they are not sure of their confidence is deflated. As revealed in the following statement by Susan.

‘... I know something like ICM core competences ... had to do with competences of midwives…’ Provision of pre-conceptual care: ‘... Antenatal Natal care: ‘... Had to do with Provision of care during labour … Provision of Post-natal care: ‘... Sometimes about the baby: ‘... Should be able to provide post abortal care: ‘...but do not know much. About post abortal care. ’[Susan]
Appendix 17: Manchester Ethical Clearance

Faculty of Medical and Human Sciences
The University of Manchester
Oxford Road
Manchester M13 9PT
+44(0)161 306 0100 www.manchester.ac.uk
Secretary to Research Ethics Committee 1
Email: katy.boyle@manchester.ac.uk Phone: 0161 275 1360
Ref: ethics/15357

Mrs Unice Goshomi
PhD Student
School of Nursing, Midwifery and Social Work
University of Manchester
M13 9PL
ugoshomi@yahoo.com
19 October 2015

Dear Mrs Goshomi

Study title: Ref 15357: A mixed method study to explore competence based practice of midwives in Zimbabwe.

Research Ethics Committee

Thank you for attending the University Research Ethics Committee meeting held on 10th September 2015 to discuss the above study. I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form and supporting documentation, as submitted to and approved by the Committee.

This approval is effective for a period of five years. If the project continues beyond that period an application for amendment must be submitted for review. Likewise, any proposed changes to the way the research is conducted must be approved via the amendment process (see below). Failure to do so could invalidate the insurance and constitute research misconduct.

You are reminded that, in accordance with University policy, any data carrying personal identifiers must be encrypted when not held on a secure university computer or kept securely as a hard copy in a location which is accessible only to those involved with the research.
Reporting Requirements:

You are required to report to us the following:

1. Amendments
2. Breaches and adverse events
3. Notification of Progress/End of the Study

Feedback

It is our aim to provide a timely and efficient service that ensures transparent, professional and proportionate Ethical review of research with consistent outcomes, which is supported by clear, accessible guidance and training for applicants and committees. In order to assist us with our aim, we would be grateful if you would give your view of the service that you have received from us by completing a feedback sheet https://survey.manchester.ac.uk/pssweb/index.php/197138/lang-en.

We hope the research goes well.

Yours sincerely,

Katy Boyle

Secretary to University Research Ethics Committee 1
Appendix 18: MRCZ clearance

Medical Research Council of Zimbabwe
Josiah Tongogara / Mazoe Street
P. O. Box CY 573
Causeway
Harare

APPROVAL LETTER

Ref: MRCZ/A/2031

04 April, 2016

Unice Goshomi
House Number 10197
Magodo Road
Budiriro
Harare
Zimbabwe

RE: A MIXED METHOD STUDY TO EXPLORE COMPETENCE-BASED PRACTICE OF MIDWIVES IN ZIMBABWE

Thank you for the above titled proposal that you submitted to the Medical Research Council of Zimbabwe (MRCZ) for review. Please be advised that the Medical Research Council of Zimbabwe has reviewed and approved your application to conduct the above titled study. This is based on the following documents that were submitted to the MRCZ for review:

a) Study proposal
b) Consent Form (English) Version 1, dated 16/03/16
c) Data Collection tools

APPROVAL NUMBER: MRCZ/A/2031

This number should be used on all correspondence, consent forms and documents as appropriate.

• APPROVAL DATE: 04 April, 2016
• TYPE OF MEETING: Full Board
• EXPIRATION DATE: 02 April, 2017

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices 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 Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices.
• MODIFICATIONS: Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).
• TERMINATION OF STUDY: On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices.
• QUESTIONS: Please contact the MRCZ on Telephone No. (04) 791792, 791193 or by e-mail on mrcz@mrcz.org.rw.

Other:
Please be reminded to send in copies of your research results for our records as well as for Health Research Database.
You’re also encouraged to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study.

Yours Faithfully

[Signature]

MRCZ SECRETARIAT
FOR CHAIRPERSON
MEDICAL RESEARCH COUNCIL OF ZIMBABWE

PROMOTING THE ETHICAL CONDUCT OF HEALTH RESEARCH
Date: 30 June 2015

Mrs U Goshomi

RE: APPROVAL FOR MRS U GOSHOMI TO CARRY OUT AT STUDY TITLED “EXPLORATION OF COMPETENCE BASED PRACTICE OF MIDWIVES IN ZIMBABWE”.

Following our discussion where you were asking for permission to carry out a study titled as mentioned above, I hereby agree in principle that you carry out the study as soon as you provide us with the details supported by ethical clearance from the University of Manchester and Medical Ethics Council for Zimbabwe. Meanwhile may I have the details of your study protocol?

We will be very happy working with you realizes your academic endeavors.

Yours faithfully

Mr P Ndarukwa

MPH/DHS/DStats/DPM/ESP/GCP/QMCPHR/BScN/RMN/RGN

For: CHIEF EXECUTIVE OFFICER

Board Members: Professor M. Mbizvo – Chairman, Dr. W.B. Mujaji, Mr. S. Margolis, Mr E. Makomo, Mrs. M. Musunda, Dr. O. Moyo - Chief Executive Officer

Cc Principal Tutor
23 November, 2015
The Clinical Director
Attention: The Principal Tutor
Mpilo Central Hospital Ethics
Vera Road Mnilkazi
P.O. Box 2096
Bulawayo, Zimbabwe.

Dear Sir/Madam

Re: Seeking for permission to carry out a research study at your institution at the School of Midwifery on student midwives January group of 2015.

I am currently on a Doctor of Philosophy programme in midwifery with the University of Manchester intending to conduct a research project related to my studies on student midwives completing training in December 2015.

I am seeking permission from your office to allow students at your institution to participate in my study: "A mixed method study to explore competence based practice of midwives in Zimbabwe". Please find attached the research proposal for the purpose.

The study has already been approved by the Harare Hospital ethics committee as one of the study sites and the University of Manchester Research Ethics Council as the study institution. I am also seeking for your permission to facilitate access to the school of midwifery and be able to collect the required data for my study.

Thank you for your support

Yours Sincerely

Unice Goshomi –PhD student
E-mail: unice.goshomi@postgrad.manchester.ac.uk
Cell: 0772184458.

Professor Dame Tina Lavender at tina.lavender@manchester.ac.uk
Doctor Carol Bedwell at carol.bedwell@manchester.ac.uk
Doctor Christina Mudokwenyu-Rawdon @ christineraudon@gmail.com
Appendix 21: JREC clearance

Joint Research Ethics Committee
For The University of Zimbabwe,
College of Health Sciences and
Parirenyatwa Group of Hospitals

JREC Office No. 4, 5th Floor College of Health Sciences Building
Telephone: +263 4 7081480 791631 Ext 2241/2242
Email: jrec.office@gmail.com/jrec@medsch.uz.ac.zw, website: www.jrec.uz.ac.zw

APPROVAL LETTER

Date: 21st March 2016
JREC Ref: 249/15

Name of Researcher: Unice Gashomi
Address: Department of Ophthalmology

RE: A Mixed Method Study To Explore Competence Based Practice Of Midwives In Zimbabwe.

Thank you for your application for ethical review of the above mentioned research to the Joint Research Ethics Committee. Please be advised that the Joint Research Ethics Committee has reviewed and approved your application to conduct the above named study. You are still required to obtain MRCZ approval and if required by the nature of your study, RCZ approval as well, before you commence the study.

- APPROVAL NUMBER: JREC/245/15
- APPROVAL DATE: 21st March 2016
- EXPIRY DATE: 10th March 2017

This approval is based on the review and approval of the following documents that were submitted to the Joint Ethics Committee:

a) Completed application form
b) Full Study Protocol
c) Informed Consent in English and/or appropriate local language
d) Data Collection tool.

After this date the study may only continue upon renewal. For purposes of renewal please submit a completed renewal form (obtainable from the JREC office) and the following documents before the expiry date:

a. A Progress report
b. A Summary of adverse events.
c. A DSMB report
• MODIFICATIONS:

Prior approval is required before implementing any changes in the protocol including change in the informed consent.

• TERMINATION OF STUDY

On termination of the study you are required to submit a completed request for termination form and a summary of the research findings/results.

Yours sincerely

[Signature]

Professor M.M Chidzonga
JREC Chairman
Appendix 22: Data sites entry process
Data collection sites entry Process 06/12/2017

Hospital B

15-07-2015: Went to Parirenyatwa Group of Hospital School of midwifery to see the principal tutor whom I had communicated with in relation to my study previously an gave me a positive response. When I got there she asked me to go and see the Clinical Director's secretary who will tell the process to follow

16-07-2015: Went to Parirenyatwa Group of Hospitals administration and booked an appointment with the Clinical Director to seek permission for entry into the school of midwifery maternity hospital. The secretary asked me to draft a letter addressed to the Clinical Director indicating my intentions of wanting to see him. I wrote the letter and then left it with the secretary who asked me to come back on the 20-07-2015 for the feedback.

20-07-2015: Went back to see the secretary to the Clinical Director to receive my feedback. I was given the feedback by word of mouth that the institution does not allow any student from an international university to carry out a study in their institution. I asked for a written response and was told that her word of mouth is actually what I needed. As I was leaving the Clinical Director’s office I met the Principal Nursing Officer and actually we knew each other very. I narrated my story to her gave her my overview of the study to which she showed some interest. After which she asked me to leave my proposal for her to go through it for a detailed understanding and then see how best she could present my case again to the Clinical Director the following day. She reassured me and asked me to return to her office the following day for a feedback

21-07-2015: Went back for the feedback from the Principal Nursing Officer who was happy to tell me that the Clinical Director had now accepted me to carry out my study. She advised me to submit 3 files with study protocol and other documents which were listed on their ethical clearance form, UREC review results inclusive.

But there was another form which was created because of the problems researchers were getting of accessing to the departments after receiving the ethical clearance from the institution review board. It was then resolved that the heard of the department should indicate that they would allow the researcher to use their department before they send their ethics application to avoid the inconvenience. Unfortunately the form was not added to the checklist of the Institutional Ethics Review Board (IERB) checklist but the secretary was supposed to give it to the applicant after getting the concurrence of the clinical director to proceed with the IERB application.

After I received the UREC clearance document which I was waiting for to complete this process I went to submit my application.

I got the form to the chairperson of the Obstetrics and Gynaecology department and the Head of the school of midwifery to indicate that they had no problems with me using their departments for my study. The Obstetrics and Gynaecology chairperson was supposed to indicate that he had no problems with me entering their maternity department and use patients for my study. The Head of the school of midwifery was supposed to allow me to get access to the students and carry my study in the clinical area. This was not a headache for me as I knew the obstetrics and gynaecology chairperson him before since we worked together before. I phoned him to book an appointment with him which was instantly. Went to his office and gave him an overview of my study after which he asked me to leave my study protocol with him to go over it over it and come back to him in 3 days’ time. As for the head of the midwifery school we had communicated earlier on and had no problems with me carrying out my study on her students but only wanted the Clinical Director to concur and then she would commit herself. I finally got these two signatures on 25-10-2015. I gathered these together with my study protocol and created three files. These were submitted to the Clinical Director who was to call an ethics committee to review them within 5 working days. I received positive response.

On 31-10-2015 went to the Medical Research Council of Zimbabwe (MRCZ) where I attempted to submit for ethical clearance but they would not accept my documents. The reason being that I needed to be cleared again by the Joint Research Ethics Committee for the University of Zimbabwe college of Health Sciences and Parirenyatwa Group of Hospitals (JREC) after the IERB clearance. A requirement for all researchers those who want to carry out a study at Parirenyatwa Group of Hospitals.
Got a checklist for the JREC requirements on line prepared the documents and submitted them to JREC ON 3-11-2015. I was phoned on 15-11-2015 that my application request was declined since neither of my supervisors either working for Parirenyatwa Hospital or the University of Zimbabwe college of Health Sciences then I was doomed.

I went to give this feedback to Christine who is my country supervisor. She then phoned a friend who works for the University of Zimbabwe college of Health Sciences asking her to come to our rescue of which she agreed. But she was out of the country and will be back in two weeks and also needed clearance from the chairperson of the department. The process was completed by 04-12-2015. I finally resubmitted the application on 11-12-2015 but they were closing for the Christmas holiday on 18-12-2015 and opening on 09-01-2016.

I got a response with corrections on 3 February- 2016. I worked on the corrections and resubmitted the on the 10-02-2016 and received the response back on 28-02-2016. But the secretary could not take my corrections since my documents were in are flat file instead of accessible files which I went and corrected and sent back the corrections on 01-03-2016.

After which I approached the MCRZ and presented my concern and narrated my ordeal to them and ask if they could not assist me in any way.

Medical Research Council of Zimbabwe

They asked me to forward the application to MRCZ without the JREC letter of approval since I had the IERB approval from Parirenyatwa Hospital I took me four days to prepare for the documents they needed to accompany the application for ethical clearance using the checklist I downloaded from their Website which I did on 05-03-2016. I received my approval with some corrections 24-03-2016 and which I did and send back on the 04-04-2016 and I was asked to bring my data collection instrument for the approval stamp which I managed to do on the same day.

HOSPITAL: A

At some hospitals there are no IERBs. As a result the MRCZ acknowledges the Clinical director’s decision as the head of the clinical area to decide whether they will take the research or not. They should at least show that they agree for you to carry your research in their institution. Similarly the Director the head of the department in which you are going to do your study should also concur to your study.

At School A Central Hospital there is no an IEB of which they are covered by the MRCZ but the Chief executive Officer has the final say as the head of the institution. The process at this institution was smooth I booked the clinical director and the CEO and they organised to see me the following day to talk about my study. They asked me to give them time to go through the study protocol after which they would come back to me. I received a favourable response from the two of them.

HOSPITAL D

Faced challenges with the study site and dropped the site and opted for another site with a similar characteristics

HOSPITAL: C

My option B

The principal tutor of the school was in Harare on some business and then I went see and explained my case to her. She then asked me to send my then asked me to send the research protocol to her, the institution Clinical Director, and her secretary. She will later then phone her clinical director and speak to him about the issue. She spoke to me on the phone telling me that her clinical director has no objections to me carrying out my study at her institution. I then travelled to Bulawayo. At workshop there were three midwives who suited the criteria of the data collectors whom I wanted I then spoke to them on the logistics of the study and trained then for data collection from 13 hours to 1830 hour since they were not among the trained data collectors and it was cost effect convenient to train these data collectors because of distance and the nature of the study. I sent the letter to seek permission to carry out the study at Hospital C Hospital on 23-11-2015 and this was granted on 24-11-2015 with no problems.
Appendix 23: Application Amendments for University Research Ethics Applications
Please email the completed form and ANY supporting documentation that has been amended (PIS, consent form, e.t.c) to research.ethics@manchester.ac.uk

Amendment Details

<table>
<thead>
<tr>
<th>Investigator</th>
<th>UNICE GOSHOMI</th>
</tr>
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<tbody>
<tr>
<td>Title of Ethics Application</td>
<td>A MIXED METHOD STUDY TO EXPLORE COMPETENCE BASED PRACTICE OF MIDWIVES IN ZIMBABWE</td>
</tr>
<tr>
<td>University Reference Number</td>
<td>Ref 15357</td>
</tr>
<tr>
<td>UREC Committee that Reviewed Application (as detailed on approval letter)</td>
<td>Research Ethics Committee 1</td>
</tr>
</tbody>
</table>

| Details of Proposed Changes | 1. Change of one research site – Harare Central Hospital to Mpilo Central Hospital (Zimbabwe).  
  2. Timing of data collection at time point one from Midwives trained at Parirenyatwa, Central Hospital and Chitungwiza central hospitals after completing their summative evaluation at the hospital before they sit for their states final examination. To Midwives trained at Parirenyatwa, Central Hospital and Chitungwiza central hospitals after the students had written their state final examination but before receiving those results. |
| Rationale (short) for Changes | 1) I experienced challenges which were beyond my control in access to Harare Central Hospital. Although I was initially granted ethical approval, subsequent gatekeeper issues have led me to consider a similar research site. To mitigate the challenge the researcher sought permission with Mpilo central Hospital which was granted. Harare Central hospital which is a tertiary institution located in Greater Harare but have similar characteristics with Mpilo Central Hospital a tertiary institution situated in Matabeleland province. 2) Due to the delays in securing ethical clearance in some of the institutions I foresee the data being collected at point one after the student had written their state final examination but before receiving those results hence have changed the protocol to reflect the changes. However collecting data after the students have written the examinations will not cause any changes in the purpose of the data collection. In this view the data collected at time point one will be strengthened since the students would have a feeling of accomplishing their study program when they have finished the hospital based examinations and wrote their state final examination. During this time they would have corrected all the identified weak areas improved their confidence and improved on their competences. The changes are reflected in red on the ethical application form items 9, 11.6, 16, 17 and 29, Participant information sheet and the quantitative data collection instruments. |
| Have the change(s) been subject to an internal risk assessment? Please provide details | Yes |

For Office Use Only

<p>| Are changes major/minor? |  |
| UREC Secretary Comments (minor changes only) |  |</p>
<table>
<thead>
<tr>
<th>Approved by UREC Secretary (Electronic Signature) (minor changes only)</th>
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<td>Date</td>
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<td>UREC Chair Comments (major changes only)</td>
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Appendix 24: Amendment Approval from ethics

Katy Boyle <katy.boyle@manchester.ac.uk>

To: ugoshomi@yahoo.com

Cc: Tina.Lavender@manchester.ac.uk

Jan 25, 2016 at 4:06 PM

Dear Unice

RE. Your amendment application relating to 'A mixed methods study to explore competence based practice of midwives in Zimbabwe', Ref 15357.

I am pleased to say that your application was given a favourable ethical opinion, and the amended supporting documentation is recorded as the approved version. Please ensure that you use this updated documentation.

Best wishes

Katy Boyle

Project Officer to the Associate Dean for Research, Secretary to UREC1

Faculty Research Office, Faculty of Medical and Human Sciences
Appendix 25 Distress Protocol

It is possible that a participant may become distressed either during the interview or when taking part in the 360° assessment. The emotional distress or anxiety will be identified when the participant becomes weepy, restless or visibly shaking. A distress protocol will be applied as follows: The researcher will stop the assessment initially and ask them how they are feeling and give them support. If the participant is being assessed, they are taken to a quiet place to allow them to recover. If the participant wishes to continue then the assessment or interview will be continued as appropriate. If the participant does not wish to continue then the interview of assessment will be discontinued. Counseling is already put in place to address the participants who will get distressed either in the interview or during the 360° assessed competence. The midwife is either referred to a hospital based counselor or is given the phone number of the prearranged counselor or the counselor will be contacted to give emergence counseling services. Mr Pisirai Ndarukwa phone number +263773012397. If necessary, the researcher will inform the head of school or department.
## Appendix 26: Lone Worker Risk Assessment Form

<table>
<thead>
<tr>
<th>Date: (1) 24-11-2015</th>
<th>Assessed by: (2) Unice Goshomi</th>
<th>Checked / Validated* by: (3)</th>
<th>Location: (4) School of Nursing, Midwifery and Social Work, University of Manchester</th>
<th>Assessment ref no (5) NMSW/RA/</th>
<th>Review date: (6) 6/12 30-12-2015</th>
<th>Date Modified (6) NOT APPLICABLE</th>
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Task / premises: (7)

Research Project: A MIXED METHOD STUDY TO EXPLORE COMPETENCE BASED PRACTICE OF MIDWIVES IN ZIMBABWE
<table>
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<tr>
<th>Activity (8)</th>
<th>Hazard (9)</th>
<th>Who might be harmed and how (10)</th>
<th>Existing measures to control risk (11)</th>
<th>Risk rating (12)</th>
<th>Result (13)</th>
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<tr>
<td>Business Travel</td>
<td>Journeys in Car</td>
<td>Research Staff <em><strong>Journey travel at peak time risk of high volume of traffic on the road</strong></em> /journey travel out of normal working hours risk of breakdown/injury/accident due to adverse weather/other traffic/low light conditions</td>
<td>Researchers’ handbook covers insurance information Start and finish time, destination and route logged in shared calendar or similar. PI/appointed staff member is made aware of arrangements .</td>
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<td>Activity</td>
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<td>Recommendation</td>
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<td>Interviewing/Data Collection</td>
<td>Psychological Distress</td>
<td>Risk from physical/verbal abuse from participant</td>
<td>Ensure appropriately qualified health professionals with adequate experience. Adequate training e.g. Good Clinical Practice. Regular debriefs with PI. Counselling offered as needed. The study will be fully explained to participants by the researcher in addition to the use of a participant information sheet.</td>
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Low A
<p>| Confidentiality is maintained, personal information not given out and the Patient Information Sheet directs Participants to the PI and gives only the School Number, and no personal information. |  |
| The majority of data collection will take place within a hospital environment, where data collection is outside of this, the researcher will adhere to the lone |</p>
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<td>-------------</td>
</tr>
<tr>
<td>Interviewing/Data Collection</td>
<td>Participant’s Distress</td>
<td>Participant</td>
<td>Participants are student midwives/newly qualified midwives. A distress policy has been agreed, should any of the participants experience distress during the data collection process and counselling is available.</td>
<td>Medium</td>
<td>A</td>
</tr>
<tr>
<td>Visit to residential property</td>
<td>Personal Safety</td>
<td>Research staff</td>
<td>Detailed information on lone working on SNMSW Research Intranet. Lone Worker Unit can be assigned from Research Directorate (contact <a href="mailto:Stacey.Body@manchester.ac.uk">Stacey.Body@manchester.ac.uk</a>) if needed. If Lone Working unit is not used, Research Staff will call appointment staff member/PI at time of entry to property.</td>
<td>Medium</td>
<td>A</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------</td>
<td>---------------</td>
<td>---------------------------------------------------------------</td>
<td>--------</td>
<td>---</td>
</tr>
<tr>
<td>Physical/verbal abuse from patient/relative/other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
giving details of approximate time of length of interview and will call again upon leaving the property.

Neighbourhood being visits has been assessed to determine the likelihood of personal attack.

A list of high risk areas is held for locations where lone working visits will not be made in the hours of darkness.
Research staff should be aware of any social or cultural tensions in the area.

Visits are by appointment and for a fixed date and time. Before the visit a check is made to determine the correct name and address is provided.

Where (following assessment) there are concerns regarding safety in an area,
appointments will be made to meet with the participant in the hospital setting at a time convenient to the participant.

Visit log is made with PI via shared calendar or similar so that whereabouts of Research Staff is known at all times.

<p>| Please identify additional risks | e.g. injury due to moving and | Researcher | Attend Trust moving and | Medium | A |</p>
<table>
<thead>
<tr>
<th>Activity (8)</th>
<th>Hazard (9)</th>
<th>Who might be harmed and how (10)</th>
<th>Existing measures to control risk (11)</th>
<th>Risk rating (12)</th>
<th>Result (13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>relevant to your project below:</td>
<td>handling participants</td>
<td>handling training</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Action plan (14)**

<table>
<thead>
<tr>
<th>Ref No</th>
<th>Further action required</th>
<th>Action by whom</th>
<th>Action by when</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lone Worker risk assessment to be reviewed and modified as project develops in line with any changes</td>
<td>UG</td>
<td>As needed, review at least 6/12.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lone worker to be given training/training information for use of Lone Worker Device (contact <a href="mailto:Stacey.body@manchester.ac.uk">Stacey.body@manchester.ac.uk</a>)</td>
<td>UG</td>
<td>Training completed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shared calendar or similar set up and filled in regularly informing PI/appointed research staff member of any visits</td>
<td>UG</td>
<td>At commencement of study</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assessment of residential areas ensuring high risk areas are identified</td>
<td>UG</td>
<td>At commencement of study and as required.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Escalation procedure devised with PI if not using Lone Worker Device</td>
<td>UG</td>
<td>At commencement of study</td>
<td></td>
</tr>
</tbody>
</table>
Notes to accompany General Risk Assessment Form

This form is the one recommended by Health & Safety Services, and used on the University’s risk assessment training courses. It is strongly suggested that you use it for all new assessments, and when existing assessments are being substantially revised. However, its use is not compulsory. Providing the assessor addresses the same issues; alternative layouts may be used.

(1) **Date**: Insert date that assessment form is completed. The assessment must be valid on that day, and subsequent days, unless circumstances change and amendments are necessary.

(2) **Assessed by**: Insert the name and signature of the assessor. For assessments other than very simple ones, the assessor should have attended the University course on risk assessments (link to STDU).

(3) **Checked / validated** by: delete one.

**Checked by**: Insert the name and signature of someone in a position to check that the assessment has been carried out by a competent person who can identify hazards and assess risk, and that the control measures are reasonable and in place. The checker will normally be a line manager, supervisor, principal investigator, etc. Checking will be appropriate for most risk assessments.

**Validated by**: Use this for higher risk scenarios, e.g. where complex calculations have to be validated by another “independent” person who is competent to do so, or where the control measure is a strict permit-to-work procedure requiring thorough preparation of a workplace. The validator should also have attended the University’s risk assessment course or equivalent, and will probably be a chartered engineer or professional with expertise in the task being considered. Examples of where validation is required include designs for pressure vessels, load-bearing equipment, lifting equipment carrying personnel or items over populated areas, and similar situations.

(4) **Location**: insert details of the exact location, i.e. building, floor, room or laboratory etc.

(5) **Assessment ref no**: use this to insert any local tracking references used by the school or administrative directorate.

(6) **Review date**: insert details of when the assessment will be reviewed as a matter of routine. This might be in 1 years’ time, at the end of a short programme of work, or longer period if risks are known to be stable. Note that any assessment must be reviewed if there are any significant changes – to the work activity, the vicinity, the people exposed to the risk, etc.
(7) **Task / premises:** insert a brief summary of the task, e.g. typical office activities such as filing, DSE work, lifting and moving small objects, use of misc. electrical equipment. Or, research project [title] involving the use of typical laboratory hardware, including fume cupboards, hot plates, ovens, analysis equipment, flammable solvents, etc.

(8) **Activity:** use the column to describe each separate activity covered by the assessment. The number of rows is unlimited, although how many are used for one assessment will depend on how the task / premises is sub-divided. For laboratory work, activities in one particular lab or for one particular project might include; use of gas cylinders, use of fume cupboard, use of computer or other electrical equipment, use of lab ovens, hot plates or heaters, use of substances hazardous to health, etc.

(9) **Hazard:** for each activity, list the hazards. Remember to look at hazards that are not immediately obvious. For example, use of a lathe will require identification of the machine hazards, but also identification of hazards associated with the use of cutting oils (dermatitis), poor lighting, slipping on oil leaks, etc. The same activity might well have several hazards associated with it. Assessment of simple chemical risks (e.g. use of cleaning chemicals in accordance with the instructions on the bottle) may be recorded here. More complex COSHH assessments e.g. for laboratory processes, should be recorded on the specific COSHH forms (link).

(10) **Who might be harmed and how:** insert everyone who might be affected by the activity and specify groups particularly at risk. Remember those who are not immediately involved in the work, including cleaners, young persons on work experience, maintenance contractors, Estates personnel carrying out routine maintenance and other work. Remember also that the risks for different groups will vary. E.g. someone who needs to repair a laser may need to expose the beam path more than users of the laser would do. Vulnerable groups could include children on organised visits, someone who is pregnant, or employees and students with known disabilities or health conditions (this is not a definitive list).

For each group, describe how harm might come about, e.g. an obstruction or wet patch on an exit route is a hazard that might cause a trip and fall; use of electrical equipment might give rise to a risk of electric shock; use of an ultraviolet light source could burn eyes or skin.

(11) **Existing measures to control the risk:** list all measures that already mitigate the risk. Many of these will have been implemented for other reasons, but should nevertheless be recognised as means of controlling risk. For example, restricting access to laboratories or machine rooms for security reasons also controls the risk of unauthorised and unskilled access to dangerous equipment. A standard operating procedure or local rules (e.g. for work with ionising radiation, lasers or biological hazards) will often address risks. Some specific hazards may require detailed assessments in accordance with specific legislation (e.g. COSHH, DSEAR, manual
handling, DSE work). Where this is the case, and a detailed assessment has already been done in another format, the master risk assessment can simply cross-reference to other documentation. For example, the activity might be use of a carcinogen, the hazard might be exposure to hazardous substances, the existing control measures might all be listed in a COSHH assessment. Controls might also include use of qualified and/or experienced staff who are competent to carry out certain tasks; an action plan might include training requirements for other people who will be carrying out those tasks.

(12) **Risk Rating**: the simplest form of risk assessment is to rate the remaining risk as high, medium or low, depending on how likely the activity is to cause harm and how serious that harm might be.

The risk is **LOW** - if it is most unlikely that harm would arise under the controlled conditions listed, and even if exposure occurred, the injury would be relatively slight.

The risk is **MEDIUM** - if it is more likely that harm might actually occur and the outcome could be more serious (e.g. some time off work, or a minor physical injury.

The risk is **HIGH** - if injury is likely to arise (e.g. there have been previous incidents, the situation looks like an accident waiting to happen) and that injury might be serious (broken bones, trip to the hospital, loss of consciousness), or even a fatality.

Schools or administrative directorates may choose to use other rating systems. Typical amongst these are matrices (of 3x3, 4x4, 5x5 or even more complex) which require the assessor to select a numerical rating for both “likelihood that harm will arise” and “severity of that harm”. These may give a spurious sense of accuracy and reliability – none are based on quantitative methods. There are methods of estimating risk quantitatively, and these may be appropriate for complex design of load bearing structures and the like. Advice on methods of risk assessment is available from HSS. Whatever system of assessment is adopted, it is **essential** that the assessor has received suitable training and is familiar with the meaning of the terms (or numbers) used.

(13) **Result**: this stage of assessment is often overlooked, but is probably the most important. Assigning a number or rating to a risk does not mean that the risk is necessarily adequately controlled. The options for this column are:

- **T** = trivial risk. Use for very low risk activities to show that you have correctly identified a hazard, but that in the particular circumstances, the risk is insignificant.

- **A** = adequately controlled, no further action necessary. If your control measures lead you to conclude that the risk is low, and that all legislative requirements have been met (and University policies complied with), then insert A in this column.

- **N** = not adequately controlled, actions required. Sometimes, particularly when setting up new procedures or adapting existing processes, the risk assessment might identify that the risk is high or medium when it is capable of being reduced by methods
that are reasonably practicable. In these cases, an action plan is required. The plan should list the actions necessary, who they are to be carried out by, a date for completing the actions, and a signature box for the assessor to sign off that the action(s) has been satisfactorily completed. Some action plans will be complex documents; others may be one or two actions that can be completed with a short timescale.

U = unable to decide. Further information required. Use this designation if the assessor is unable to complete any of the boxes, for any reason. Sometimes, additional information can be obtained readily (e.g., from equipment or chemicals suppliers, specialist University advisors) but sometimes detailed and prolonged enquiries might be required. E.g. is someone is moving a research programme from a research establishment overseas where health and safety legislation is very different from that in the UK.

For T and A results, the assessment is complete.

For N or U results, more work is required before the assessment can be signed off.

(14) Action Plan. Include details of any actions necessary in order to meet the requirements of the information in Section 11 ‘Existing measures to control the risk’. Identify someone who will be responsible for ensuring the action is taken and the date by which this should be completed. Put the date when the action has been completed in the final column.
## Appendix 27: Data Analysis Process - Classical Grounded Theory

<table>
<thead>
<tr>
<th>OPEN CODING</th>
<th>Empirical Data</th>
<th>Relationship Between Empirical Data And Emergent Code (Memo)</th>
<th>Emergent Code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERVIEWER:</strong> INTERVIEWER: WHAT CAN YOU TELL ME ABOUT YOUR TRAINING</td>
<td>I think it was the first day when we started training there were the highlights that what midwifery is as defined ... the ICM ... ethics in midwifery as outlined by ICM</td>
<td>The participant recalls learning about ICM as they remember that the term midwife was defined by the ICM and the other functions of ICM and stipulating ethics for midwives. As revealed in the following statement. ‘...I think it was the first day when we started training there were the highlights that what midwifery is as defined ... the ICM ... ethics in midwifery as outlined by ICM....’</td>
<td>Being Socialised Into the Midwifery Profession</td>
</tr>
<tr>
<td><strong>INTERVIEWEE:</strong> I THINK IT WAS THE FIRST DAY WHEN WE STARTED TRAINING WHEN WERE THERE WE WERE GIVEN THE HIGHLIGHTS THAT WHAT MIDWIFERY IS AS DEFINED BY THE ICM AND ETHICS IN MIDWIFERY AS OUTLINED BY ICM</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SELECTIVE CODING</th>
<th>DELIMITING DATA</th>
<th>MEMO</th>
<th>Emergent Conceptual Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERVIEWER:</strong> MAY YOU TELL ME MORE ABOUT ICM</td>
<td>It’s quite a lot its only that it running out ... I know ... they represent issues of the midwives ... But the country has to register and be... Affiliated to it</td>
<td>Students when they learn they are expected to store and retrieve the information they learn and be able to retrieve the information from they have learnt it. The recalling and presenting information is associated with</td>
<td>Information Processing Knowledge</td>
</tr>
<tr>
<td><strong>INTERVIEWER:</strong> IT HAS TO DO WITH MIDWIVES ITS QUITE A LOT ITS ONLY THAT IT RUNNING OUT BUT I KNOW UUUM THEY REPRESENT ISSUES OF</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
THE MIDWIVES AND AAAA THAT WHAT I CAN REMEMBER BUTS ITS QUITE A LOT AND IS GOING OUT BUT THE COUNTRY HAS TO REGISTER AND BE AFFILIATED TO IT AAAH WHAT ELSE CAN I SAY I AM FORGETTING BUT I KNOW I WILL TELL YOU MORE ABOUT IT IF IT COMES

measuring the student’s level of knowledge. Information processing can be interfered with if the student is overloaded they can fail to store the information and forget about it As revealed in the following statements,’ … It’s quite a lot its only that it running out … I know …they represent issues of the midwives … But the country has to register and be… Affiliated to it…”

THEORETICAL CODING Memo To Memo Memo Relationship between concepts
INTERVIEWER: TELL ME MORE ABOUT ICM
INTERVIEWEE: UMMM I DONT REALLY REMEMBER BUT ALL I KNOW IS THAT THE PRINCIPAL TUTOR USUALLY USED TO TALK ABOUT IT ESPECIALLY DURING HER LESSONS SHE REALLY USED TO HIGHLIGHT ABOUT IT

MIDWIVES ITS QUITE A LOT ITS ONLY THAT IT RUNNING OUT BUT I KNOW UUUM THEY REPRESENT ISSUES OF THE MIDWIVES AND AAAA THAT WHAT I CAN REMEMBER BUT ITS QUITE A LOT AND IS GOING OUT BUT THE COUNTRY HAS TO REGISTER AND BE AFFILIATED TO IT AAAH WHAT ELSE CAN I SAY I AM FORGETTING BUT I KNOW I WILL TELL YOU MORE ABOUT IT IF IT COME (C32)

INTERVIEWEE: UUUM WHAT I KNOW IS UMMM IS IT AN ASSOCIATION THAT REPRESENTS MIDWIVES AND THE WELFARE OF MIDWIVES AND ALSO ONE OF ITS CORE VALUES IS TO EEEE THAT MIDWIVES ARE PRACTISING ACCORDING TO THE CORE VALUES AND...

...I dont really remember but all I know is that the principal tutor usually used to talk about it.

It’s quite a lot its only that it running out ... I know ...they represent issues of the midwives ... But the country has to register and be... Affiliated to it

It an association that represents midwives and the welfare of midwives ... midwifery regulations ... maintaining the standards and competences that are expected ... the confederation is that ... aims to bring out new ... international standards of midwifery and I guess maybe through the research that they do. Ah I can’t remember

The student is able to show how much they know about a concept by giving full detailed information depending on the nature of the concept it can either be defined or functions or purpose can be given among others as revealed in the following statement and students can have different levels of knowledge… It an association that represents midwives and the welfare of midwives ... core values ... midwifery regulations ... maintaining the standards and competences that are expected ... the confederation is that ... aims to bring out new ... international standards of midwifery and I guess maybe through the research that they do or the student may fail to say anything and the reasons very it could be either the teaching method or organisation of information it appears that the topic was talked about in passing and not allocated

Determinants information recalling
*Teaching method
* organisation of information
*Timing of teaching
*Amount of information retained
ACORDING TO THE REGULATIONS AAA MIDWIFERY REGULATIONS AND AS WELL AS MAINTAINING THE STANDARDS AND COMPETENCES THAT ARE EXPECTED AND ALSO TO AHH BUT THE OTHER THING THAT I LEARNT IS THAT THE CONFEDERATION IS THAT THE CONFEDERATION AIMS TO BRING OUT NEW UUUM LIKE TO WAHT CAN I SAY UMM THEY ALSO SERVE TO MANTAIN THE STANDARDS OF MIDWIFERY FOR ALL COUNTRIES TO MEET THE INTERNATIONAL STANDARDS OF MIDWIFERY AND I GUESS MAYBE THROUGH THE RESEARCH THAT THEY DO AAH THIS IS WHAT I CAN REMEMBER (C29)

time ......I don’t really remember but all I know is that the principal tutor usually used to talk about it.. Or it could be the student failed to cope with information and failed to retain it but developed rough ideas of it ... It’s quite a lot its only that it running out ... I know ...they represent issues of the midwives ... But the country has to register and be... Affiliated to it...

<table>
<thead>
<tr>
<th>WRITING THEORY</th>
<th>UP THE</th>
<th>MEMOING</th>
<th>MEMO</th>
<th>THE PRODUCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memo to memo and literature review, advice</td>
<td>Read literature on theories to</td>
<td>The main category</td>
<td>Being socialised</td>
<td></td>
</tr>
<tr>
<td>from supervisory team and discussion with friends</td>
<td>situate my theory for example Cognitive, behavioural: Founded information processing, skill acquisition and development learning theories, Learning styles, facilitating learning etc.</td>
<td>into the midwifery profession</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Transcript</strong></td>
<td><strong>Selective Coding</strong></td>
<td><strong>Theoretical coding</strong></td>
<td><strong>Theory Write up</strong></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------</td>
<td>------------------------</td>
<td>--------------------</td>
<td></td>
</tr>
<tr>
<td>Line by line coding</td>
<td><strong>Being aware of ICM Functions</strong>&lt;br&gt; *ICM education standards&lt;br&gt; **midwifery education standards&lt;br&gt; ***Midwifery curriculum&lt;br&gt; ***Pre-registration education&lt;br&gt; *Regulation and legislation&lt;br&gt; **Writing licensure examination&lt;br&gt; **Midwifery practice&lt;br&gt; **Ethics for midwives&lt;br&gt; ***Defining a midwife&lt;br&gt; ***Autonomous practice&lt;br&gt; ***Scope of midwifery practice&lt;br&gt; Aims of the ICM&lt;br&gt; Vision of ICM&lt;br&gt; Knowing ICM&lt;br&gt; **Hearing&lt;br&gt; ***Timing&lt;br&gt; ****Recalling ICM core competences</td>
<td><strong>ICM core competences the compelling force</strong>&lt;br&gt; THE COMMUNIQUE&lt;br&gt; Knowing the drivers of the profession&lt;br&gt; ICM the driving force</td>
<td>Being interactive</td>
<td></td>
</tr>
</tbody>
</table>

| | **Being aware of ICM core competences**<br> *Learning ICM competences<br> **Functions of ICM core competences<br> ***Regulating midwifery practice<br> ****Antenatal care competences | | |

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**Appendix 28 - The main category: being interactive writing up the theory**
<table>
<thead>
<tr>
<th>Labour care competences</th>
<th>Postnatal care competences</th>
<th>Baby care competences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>&quot;Regulating Midwifery education</strong>** Learning Antenatal care skills**</td>
<td><strong>&quot;Antenatal care Theory</strong></td>
<td><strong>&quot;Antenatal care Practice</strong></td>
</tr>
<tr>
<td><strong>&quot;Learning Labour care skills</strong></td>
<td><strong>&quot;Labour care Theory</strong></td>
<td><strong>&quot;Labour care Practice</strong></td>
</tr>
<tr>
<td><strong>&quot;Learning Postnatal cares skills</strong></td>
<td><strong>&quot;Postnatal Theory</strong></td>
<td><strong>&quot;Postnatal Practice</strong></td>
</tr>
<tr>
<td><strong>&quot;Learning Baby care skills</strong></td>
<td><strong>&quot;Baby care Theory</strong></td>
<td><strong>&quot;Baby care Practice</strong></td>
</tr>
<tr>
<td><strong>&quot;Regulating Midwifery profession</strong></td>
<td><strong>&quot;Midwifery Theory</strong></td>
<td><strong>&quot;Midwifery Practice</strong></td>
</tr>
<tr>
<td><strong>&quot;Midwifery Education</strong></td>
<td><strong>&quot;Midwifery Practice</strong></td>
<td><strong>&quot;Midwifery Education</strong></td>
</tr>
<tr>
<td>Perception towards ICM CORE COMPETENCIES</td>
<td>Perceiving the compelling force</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>---------------------------------</td>
<td></td>
</tr>
<tr>
<td><em>Legislation and regulation importance</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Purpose of the ICM regulation standards</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Perceived function of ICM in the midwifery profession</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Perceived importance of regulatory function of ICM</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Being a midwife</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Perceived health benefits for patients</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main stakeholders in training</th>
<th>BIO PSYCHOSOCIAL BEINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical instructor</td>
<td>Main stakeholders</td>
</tr>
<tr>
<td>Student</td>
<td>Building</td>
</tr>
<tr>
<td>Ward supervisor</td>
<td>relationships</td>
</tr>
<tr>
<td>Tutor</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Building relationships among stakeholders</th>
<th>3.0) UNCERTAINTY</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Being a student</em></td>
<td>3.1) Learning ICM core competencies</td>
</tr>
<tr>
<td><em>Being a ward supervisor</em></td>
<td>3.2) Being supported</td>
</tr>
<tr>
<td><em>Being a clinical instructor</em></td>
<td>3.3) Being evaluated</td>
</tr>
<tr>
<td><em>Being a tutor</em></td>
<td></td>
</tr>
<tr>
<td><strong>Behaviours</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Perceptions</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Attitudes</strong></td>
<td></td>
</tr>
</tbody>
</table>

<p>| <em>Learning ICM core competences</em> | 3.0) UNCERTAINTY |
| <strong>Being in the classroom</strong>      | 3.1) Learning ICM core competencies |
| <em><strong>Learning midwifery theory</strong></em> | 3.2) Being supported |
| <strong><strong>ANC care theory</strong></strong>         | 3.3) Being evaluated |
| <strong><strong>LW care theory</strong></strong>          |                   |</p>
<table>
<thead>
<tr>
<th>Core Competences</th>
<th>3.4) Being given feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby care theory</td>
<td></td>
</tr>
<tr>
<td>Baby care theory</td>
<td></td>
</tr>
<tr>
<td>Learning midwifery care skills</td>
<td></td>
</tr>
<tr>
<td>ANC care core competences</td>
<td></td>
</tr>
<tr>
<td>ANC care core skills</td>
<td></td>
</tr>
<tr>
<td>LW care core competences</td>
<td></td>
</tr>
<tr>
<td>LW care skills</td>
<td></td>
</tr>
<tr>
<td>PN care core competences</td>
<td></td>
</tr>
<tr>
<td>PN care skills</td>
<td></td>
</tr>
<tr>
<td>Baby care core competences</td>
<td></td>
</tr>
<tr>
<td>Baby care skills</td>
<td></td>
</tr>
<tr>
<td>Being in the clinical area</td>
<td></td>
</tr>
<tr>
<td>Being attached to specific clinical areas</td>
<td></td>
</tr>
<tr>
<td>Being in ANC</td>
<td></td>
</tr>
<tr>
<td>being in ANC</td>
<td></td>
</tr>
<tr>
<td>being in LW</td>
<td></td>
</tr>
<tr>
<td>being in PNW</td>
<td></td>
</tr>
<tr>
<td>being in special baby care unit</td>
<td></td>
</tr>
<tr>
<td>Practising midwifery care skills</td>
<td></td>
</tr>
<tr>
<td>ANC care skills</td>
<td></td>
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<tr>
<td>LW care skills</td>
<td></td>
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<tr>
<td>PN care skills</td>
<td></td>
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<tr>
<td>Baby care skills</td>
<td></td>
</tr>
<tr>
<td>Being supported</td>
<td></td>
</tr>
<tr>
<td>Being evaluated</td>
<td></td>
</tr>
<tr>
<td>Formative</td>
<td></td>
</tr>
<tr>
<td>Summative</td>
<td></td>
</tr>
<tr>
<td>self evaluation</td>
<td></td>
</tr>
<tr>
<td>Mentor evaluation</td>
<td></td>
</tr>
<tr>
<td>Being given feedback</td>
<td></td>
</tr>
<tr>
<td>Being emotional</td>
<td></td>
</tr>
<tr>
<td>Being in conflict</td>
<td></td>
</tr>
</tbody>
</table>
| Challenges in training environment | 4.0) Beingscenery  
4.1) Training institution  
4.2) Challenges in the training environment |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>*Developing midwifery skills</td>
<td></td>
</tr>
<tr>
<td><strong>Professional standards</strong></td>
<td></td>
</tr>
<tr>
<td>*<strong>Lack of supervision</strong></td>
<td></td>
</tr>
<tr>
<td>**<strong>Lack of resources</strong></td>
<td></td>
</tr>
<tr>
<td>*****Quality of professional skills</td>
<td></td>
</tr>
<tr>
<td>*Being in a training institution</td>
<td></td>
</tr>
<tr>
<td><strong>Being at Parirenyatwa</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Being at CCH</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Being at Mpilo</strong></td>
<td></td>
</tr>
</tbody>
</table>

Uncertainty

The communique

Being Scenery

Being interactive

Biopsychosocial Beings
Appendix 29: Antenatal assessment midwifery assessment form ZIMBABWE

NAME OF STUDENT: MR. /MRS. / MISS ……………………………………………………………

HOSPITAL: ……………………………………. GROUP: …………………….. DATE: ……………………..

ASSESSORS: (I): ………………………………………. (II): …………………………………………………

EXPERIENCE REQUIREMENTS CONFIRMED: YES/NO

THE STUDENT:

Professional Appearance: ………………………………………………………………………

Poise and Confidence: ………………………………………………………………………

<table>
<thead>
<tr>
<th></th>
<th>EX</th>
<th>VG</th>
<th>VG</th>
<th>G</th>
<th>G</th>
<th>P</th>
<th>F</th>
<th>F</th>
<th>F</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

1. THE MOTHER
   a) AWARENESS OF PHYSICAL AND PSYCHOLOGICAL NEEDS THROUGHOUT

2. MANAGEMENT
   *(i) HISTORY TAKING

*(ii) ROUTINE INVESTIGATION

* (iii) GENERAL EXAMINATION

*(iv) ABDOMINAL EXAMINATION

*(v) RECORDING OF FINDINGS

*(vi) REPORTING OF FINDINGS

*(vii) HEALTH EDUCATION AND FAMILY PLANNING

2. ORALS
   a) KNOWLEDGE OF ANY FOUR CONDITIONS AND RISK FACTORS RELATED TO THE PREGNANCY

   (i)

   (ii)

   (iii)
b) KNOWLEDGE OF ANY FOUR DRUGS RELATED TO THE
ABOVE CONDITION OR RISK

(i) 
(ii) 
(iii) 
(iv) 
(v) 

COLUMN TOTALS:

5. COMMENTS

MAXIMUM MARK : 200

TOTAL: ...........................................

FINAL PERCENTAGE:  MARK X 100 = %200

SIGNATURES: ........................................

...........................................................

ASSESSOR (1)  ASSESSOR (2)

...........................................................

...........................................................

STUDENT  DATE
Appendix 30: Labour Ward Assessment Form Zimbabwe

<table>
<thead>
<tr>
<th></th>
<th>EX</th>
<th>VG</th>
<th>VG</th>
<th>G</th>
<th>G</th>
<th>P</th>
<th>F</th>
<th>F</th>
<th>F</th>
<th>F</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>8</td>
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<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3.</td>
<td>MANAGEMENT OF THE FIRST STAGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a)</td>
<td>AWARENESS OF PHYSICAL AND PSYCHOLOGICAL NEEDS THROUGHOUT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td>HISTORY TAKING AND ADMISSION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c)</td>
<td>FETAL MONITORING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d)</td>
<td>MATERNAL MONITORING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e)</td>
<td>ABDOMINAL EXAMINATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f)</td>
<td>VAGINAL EXAMINATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g)</td>
<td>PELVIC ASSESSMENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h)</td>
<td>INDIVIDUALIZED NURSING CARE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i)</td>
<td>RECORDING OF FINDINGS</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>j)</td>
<td>REPORTING OF FINDINGS</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>MANAGEMENT OF the SECOND STAGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a)</td>
<td>AWARENESS OF PHYSICAL AND PSYCHOLOGICAL NEEDS, CONTROL OF PATIENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b)</td>
<td>PREPARATION OF LABOUR WARD, DELIVERY TROLLEY, SUCTION AND RESUSCITATION EQUIPMENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### OBSERVATIONS

- **d)** DELIVERY
  - *(I)* HEAD
  - *(II)* SHOULDERS AND TRUNK
  - *(III)* ATTENTION TO INFANTS AIRWAY AND CORD
  - *(IV)* CARE OF THE NEWBORN
  - *(V)* IDENTIFICATION OF NEWBORN
  - *(VI)* RECORDING AND REPORTING OF APGAR SCORE

### MANAGEMENT OF THIRD STAGE

- **a)** DELIVERY OF PLACENTA AND CONTROLLED TRACTION
- **b)** EXAMINATION FOR LACERATIONS
- **c)** EXAMINATION OF NEWBORN

<table>
<thead>
<tr>
<th></th>
<th>EX</th>
<th>VG</th>
<th>VG</th>
<th>G</th>
<th>G</th>
<th>P</th>
<th>F</th>
<th>F</th>
<th>F</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

- **d)** EXAMINATION OF PLACENTA AND MEMBRANES AND ESTIMATION OF BLOOD LOSS
- **e)** CLEARING UP, HANDLING AND DISPOSAL OF EQUIPMENT
- **f)** RECORDING
- **g)** REPORTING
- **h)** TRANSFER OF PATIENT AND HANDOVER

### ORALS

- **a)** MANAGEMENT OF EMERGENCIES
B) KNOWLEDGE OF ANY FOUR CONDITION OR RISK FACTOR RELATED TO LABOUR

(i) 

(ii) 

(iii) 

(iv) 

b) KNOWLEDGE ON ANY FOUR DRUGS IN COMMON USE UNDER EACH OF THE FOLLOWING SUBHEADINGS

(i) ANALGESIA

(ii) OXYTOCIC

(iii) HYPOTENSIVE

(iv) DRUGS USED IN NEONATAL RESUSCITATION

COLUMN TOTALS

6. COMMENTS

MAXIMUM MARK : 360

TOTAL: .............................................

FINAL PERCENTAGE: \( \text{MARK} \times \frac{100}{360} = \% \)

360

7. SIGNATURES: ..............................................................

..............................................................

ASSESSOR (1) \hspace{1cm} ASSESSOR (2)

..............................................................

..............................................................

STUDENT \hspace{1cm} DATE
Appendix 31: Neonatal Assessment form Zimbabwe

NAME OF STUDENT: MR. /MRS. / MISS

HOSPITAL: ........................................... GROUP: ...................... DATE:

ASSESSORS: (I): ...................................... (II):

EXPERIENCE REQUIREMENTS CONFIRMED: YES/NO

THE STUDENT:

Professional Appearance: .................................................................

Poise and Confidence: .................................................................

<table>
<thead>
<tr>
<th>EX</th>
<th>VG</th>
<th>VG</th>
<th>G</th>
<th>G</th>
<th>P</th>
<th>F</th>
<th>F</th>
<th>F</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

5. THE MOTHER
   a) AWARENESS OF PHYSICAL AND PSYCHOLOGICAL NEEDS THROUGHOUT
   b) INDIVIDUALIZED CARE
   c) ROUTINE POSTNATAL EXAMINATION
   d) SUPERVISION OF BREASTFEEDING
   e) RECORDING OF FINDINGS
   f) REPORTING OF FINDINGS

3. THE BABY
   a) DAILY CARE AND OBSERVATIONS
   b) PREPARATION OF ARTIFICIAL FEEDS AND CALCULATIONS
   OF FLUID AND NUTRITIONAL REQUIREMENTS
   * c) ADMINISTRATION OF BACILLE-CALMETTE – GUERIN VACCINE (BCG)
   * d) RECORDING OF FINDINGS
* (c) REPORTING OF FINDINGS

4. HEALTH EDUCATION AND FAMILY PLANNING

5. ORALS
   a) KNOWLEDGE OF ANY FOUR ASPECTS RELATED TO THE
      PUERPERIUM
      (v)
      (vi)
      (vii)
      (viii)

   b) KNOWLEDGE OF ANY FOUR ASPECTS RELATED TO THE
      INFANT
      (v)
      (vi)
      (vii)
      (viii)

   COLUMN TOTALS

8. COMMENTS

   TOTAL: ......................................

   FINAL PERCENTAGE: \( \text{MARK} \times 100 = \frac{\text{MARK}}{200} \times 100 \) %

9. SIGNATURES:

   ASSESSOR (1) .....................................
   ASSESSOR (2) .....................................

   STUDENT ....................................... DATE
## Appendix 32: Observational Checklist

### Antenatal care assessment

<table>
<thead>
<tr>
<th>Tasks to be engaged in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide quality antenatal care to maximise health during pregnancy, and that includes early detection and treatment or referral of selected complications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correctly carry out a booking and ongoing history during each antenatal visit Correctly carry out, record and report on the findings: Vital signs Blood Pressure Height, Weight, Urinalysis, Correctly perform, record the findings of the physical examination and explain findings to the woman Correctly assess maternal nutrition and its relationship to fetal growth and give appropriate advice on nutritional requirements of pregnancy Correctly perform a complete abdominal assessment including measuring fundal height, lie, position and presentation. Correctly assess fetal growth and listen to fetal heart rate, palpate uterus for fetal activity and interpret and record the findings. Correctly calculate the estimated date of delivery. Correctly present client education about normal pregnancy progression, danger signs and symptoms and measures to reduce common discomforts of pregnancy Correctly identify deviations from normal during pregnancy and initiate referral process for conditions that require higher levels of intervention Record all documentation accurately</td>
</tr>
</tbody>
</table>

---

### Labour assessment

<table>
<thead>
<tr>
<th>Tasks analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide high quality, culturally sensitive care during labour, conduct a clean and safe birth and handle selected emergency situations to maximise the health of women and their newborns.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management of the first stage of labour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correctly carry out admission procedure Correctly perform and document the findings of vaginal examination Correctly perform and document the findings of digital pelvic assessment</td>
</tr>
</tbody>
</table>
Correctly time and assess the effectiveness of uterine contractions
Correctly administer, record and control drugs used in the first stage of labour
Correctly monitor progress of labor using the partograph
Timeously provide adequate hydration, nutrition and non-pharmacological comfort measures during labor
Correctly and promptly identify abnormal labour patterns and initiate appropriate and timely intervention and referral
Accurately document and report on the first stage of labour
Management of the second stage of labour
Correctly administer a localanaesthetic to the perineum when the episiotomy is anticipated, or perineal repair is required.
Correctly perform an episiotomy if needed
Correctly conduct the second stage of labor with appropriate hand manoeuvres for vertex, face and breech presentations
Correctly assess, record and report on the APGAR rating of the new born
Correctly institute immediate life-saving interventions in obstetrical emergencies such as prolapsed cord, mal-presentations or fetal distress
Correctly administer, record and control drugs used during labour
Management of the third stage of labour
Correctly conduct the physiologic management of the third stage of labour
Correctly conduct active management of the third stage of labour
Correctly perform fundal massage to stimulate post-partum uterine contractions
Provide appropriate environment for mother and infant to promote breastfeeding and maternal-infant bonding
<table>
<thead>
<tr>
<th>Postnatal Assessment</th>
<th>Task analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correctly estimate and record blood loss</td>
<td></td>
</tr>
<tr>
<td>Correctly inspect vagina and cervix for lacerations and repair episiotomy if needed</td>
<td></td>
</tr>
<tr>
<td>Postnatal Assessment</td>
<td>Task analysis</td>
</tr>
<tr>
<td>Provide comprehensive, high quality, culturally sensitive postpartum care for women.</td>
<td>Post–natal care</td>
</tr>
<tr>
<td></td>
<td>Correctly admit the mother and baby to the post-natal ward</td>
</tr>
<tr>
<td></td>
<td>Correctly assess, record and report on the progress of mother and baby in the puerperal period</td>
</tr>
<tr>
<td></td>
<td>Correctly initiate, supervise and facilitate breastfeeding</td>
</tr>
<tr>
<td></td>
<td>Correctly provide care for the new born during the post-natal period including education of the mother on bathing, cord care and eye care</td>
</tr>
<tr>
<td></td>
<td>Correctly administer, control, record the drugs and their action, given to the mother and the baby during the post-natal period</td>
</tr>
<tr>
<td></td>
<td>Correctly administer and document the BCG vaccine</td>
</tr>
<tr>
<td></td>
<td>Correctly document the discharge of mother and baby.</td>
</tr>
<tr>
<td></td>
<td>Correctly perform the post–natal visit examination and documentation</td>
</tr>
<tr>
<td></td>
<td>Correctly present appropriate health education</td>
</tr>
<tr>
<td>Neonatal assessment</td>
<td>Task analysis</td>
</tr>
</tbody>
</table>
Appendix 33: Visual Analogue Scale for Self-assessed Confidence Measurement (Student).

A mixed method study to explore competence based practice of midwives in Zimbabwe

Visual Analogue Scale for Self-assessed Confidence Measurement (Student)

The Ministry of Health and Child Care have revised the midwifery curriculum to strengthen midwifery education and meet the ICM global standards for training midwives making midwives trained in Zimbabwe congruent to midwives trained anywhere else in the world. Consequently there is a need to assess whether the revised curriculum is achieving its goal of producing competent and confident midwives. In this regard the aim of this longitudinal mixed methods study will be to explore midwives’ preparation for practice to the level defined by ICM core competences in Zimbabwe. To achieve the goal there is a need to evaluate midwives competences when students have sat for their state final examinations and before receiving those results, when they receive those results and after working for 3/12 after qualification. Your names should not appear anywhere on this schedule and the information gathered will only be shared for the purpose of this research and kept under strict confidentiality.

You are kindly requested to assess your confidence using the following visual analogue scale on a continuum of not confident to confident by ticking in the box where you think reflects your confidence in carrying out the listed tasks.

School of midwifery: ---------  Sex: ---------  Age---------

Participant ID: -----------
<table>
<thead>
<tr>
<th>Place of residence during training</th>
<th>Residence,</th>
<th>Non-Residence,</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Areas worked in prior to midwifery training</td>
<td>Medical</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surgical</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paediatrics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>maternity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>rural Health Centre,</td>
<td></td>
</tr>
<tr>
<td>Type of Health institution worked in Prior to Midwifery training</td>
<td>Private Clinic/Hospital,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urban Clinic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>District Hospital</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provincial Hospital,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Central Hospital</td>
<td></td>
</tr>
<tr>
<td>Responsibilities held before Midwifery Training</td>
<td>Sister-in-Charge</td>
<td></td>
</tr>
<tr>
<td>Whom do you stay with During Training</td>
<td>Spouse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In-laws</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mother</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Father</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sister</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brother</td>
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<td>Visual Analogue Scale</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Ante-natal care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>carrying out a booking history</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing a physical examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing an abdominal examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giving client-centered health education.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of the First Stage of Labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admitting a patient in labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using a partogram to mage a patient in the first stage of labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing vaginal examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing a digital pelvic assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of the second stage of labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing an episiotomy if needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conducting a delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APGAR SCORE rating of the new-born</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of the third stages of labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>active management of the third stage of labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placenta examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimating and record blood loss</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-delivery observations: mother and baby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post –natal care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admission of the mother and baby to the post-natal ward</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment of the progress of mother and baby in the puerperal period</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neonatal care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>resuscitation of the newborn and documentation of actions taken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>initial examination of the new-born</td>
<td></td>
<td></td>
</tr>
<tr>
<td>continuing care of the new-born</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 34: Visual Analogue Scale for 360° assessed Competence Measurement (Ward supervisor / senior midwife, Peer and Clinical Instructor)

The Ministry of Health and Child Care have revised the midwifery curriculum to strengthen midwifery education and meet the ICM global standards for training midwives making midwives trained in Zimbabwe congruent to midwives trained anywhere else in the world. Consequently, there is a need to assess whether the revised curriculum is achieving its goal of producing competent and confident midwives. In this regard, the aim of this longitudinal mixed methods study will be to explore midwives’ preparation for practice to the level defined by ICM core competencies in Zimbabwe. To achieve the goal the need to evaluate midwives competencies when students when waiting to write their state final examinations, when they receive those results and after working for 3/12 after qualification. Your names should not appear anywhere on this schedule and the information gathered will only be shared for the purpose of this research and kept under strict confidentiality.

You are kindly requested to assess the participant’s competence using the following visual analogue scale of 1-10 on a continuum of not competent to competent by ticking in the box where you think reflects the participant’s competence in carrying out the listed tasks.

School of Midwifery: --------- Sex: --------- Age---------

Participant ID---------------------
<table>
<thead>
<tr>
<th>Place of residence during training</th>
<th>Residence,</th>
<th>Non-Residence,</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Areas worked in prior to midwifery training</td>
<td>Medical</td>
<td>Surgical</td>
</tr>
<tr>
<td>Type of Health institution worked in Prior to Midwifery training</td>
<td>Private Clinic/Hospital,</td>
<td>Urban Clinic</td>
</tr>
<tr>
<td>Responsibilities held before Midwifery Training</td>
<td>Sister-in-Charge</td>
<td>Matron</td>
</tr>
<tr>
<td>Whom do you stay with During Training</td>
<td>Spouse</td>
<td>In-laws</td>
</tr>
<tr>
<td></td>
<td>Not competent</td>
<td>0</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------------</td>
<td>---</td>
</tr>
<tr>
<td>Visual Analogue Scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ante-natal care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>carrying out a booking history</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing a physical examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing an abdominal examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giving client-centered health education.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of the First Stage of Labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admitting a patient in labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using a partograph to image a patient in the first stage of labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing vaginal examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing a digital pelvic assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of the second stage of labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing an episiotomy if needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conducting a delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APGAR SCORE rating of the new-born</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of the third stages of labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>active management of the third stage of labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placenta examination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimating and record blood loss</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-delivery observations: mother and baby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-natal care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admission of the mother and baby to the post-natal ward</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment of the progress of mother and baby in the puerperal period</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neonatal care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>resuscitation of the newborn and documentation of actions taken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>initial examination of the new-born</td>
<td></td>
<td></td>
</tr>
<tr>
<td>continuing care of the new-born</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Constructs (observed confidence and self-assessed competence and confidence)

<table>
<thead>
<tr>
<th>Conceptual Definitions</th>
</tr>
</thead>
</table>

### Operationalisation of the variables / attributes - Type of Measures (observed measures)
1) observation checklist
2) self-report/ self-rating

### Competence

**The combination of skills, knowledge, attitudes, values and abilities that underpin effective and/or superior performance in a profession/occupational area (ICM, 2010, 2013).**

**ICM core competences**

The basic and essential competencies required from a

### Outcome measures (The end result of the observed activities in antenatal, labour, postnatal and neonatal care activities or performance accomplishments)

<table>
<thead>
<tr>
<th>A) Competence score</th>
<th>0-80</th>
</tr>
</thead>
<tbody>
<tr>
<td>B) Confidence score</td>
<td>0-80</td>
</tr>
</tbody>
</table>

- Not competent to competent
- Not confident to confident

<table>
<thead>
<tr>
<th>C) Direction of the relationship (positive or negative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Values of the variables in increase at the same time in a positive relationship</td>
</tr>
</tbody>
</table>

In a negative relationship indicate that while the value one of the other variable is increasing the value of the other is decreasing.
midwife for first level entry to midwifery practice (ICM, 2010, 2013).

Labour Care:
Evidence based care and support given to a labouring woman in relation to her birthing plan made during the antenatal period. The support is on choice of place of delivery, pain relief and informed decisions the woman and her birthing companion make throughout labour. The care includes monitoring, identifying complications, treat and refer timely the mother supervisor, senior midwife and clinical instructor).

**Self-report- Participant** (Davis et al, 2006, Zell, 2014, Moercke and Eika, 2002) The student to generate the competence score they will measure themselves against the amount of help needed to perform the listed tasks using the a scale of 1-10

1) Needs someone to offer assistance on some aspects as they do it (not competent)
2) Need to consult someone on some aspects as they do it (some competence)
3) just need someone to be there for support whilst they do it (fairly competent)
4)They can do it on their own (competent)

### D) Strength of relationship
-1 Negative relationship
0- No relationship
+1 Positive relationship

### E) Nature of relationship
- Linear
- Curvilinear
- No relationship

### F) Hypotheses 1 and 2
1) Failed to be rejected or
2) Rejected

### G) Correlation matrix

### H) Scatter plots graph
and baby during the first second and third stages of labour (NICE, 2014)

**Post-natal care:**
Evidence based care offered to mothers and their babies from 24 hours post-delivery up to six weeks. The package includes monitoring, identifying and managing complications and refers timely before life threatening complications occur. During this period breastfeeding, family planning, hygiene, and information on danger signs warranting seeking

<table>
<thead>
<tr>
<th>Scale Interpretation</th>
<th>1-2 (not competent)</th>
<th>3-5 (some competence)</th>
<th>6-8 (fairly competent)</th>
<th>9-10 (competent)</th>
</tr>
</thead>
</table>

The clinical instructor, the ward supervisor and the senior midwife will assess the actual competences using a checklist of expected behaviours to be achieved at end of training (Stewart, 2000) using a given criteria for the program (see appendix) for actual competence score the total mark to be achieved will be 200 marks. To come up with the competence score the clinical instructor will use the actual assessment grading system as follows

00-40% (1-not competent)
immediate care for mother and baby promoted. The care is offered at the facility, home or community (Khanal, 2011; warren et al,2010; Sines et al, 2007)

Neonatal care:
Evidence based care before and during pregnancy, clean delivery practices, temperature maintenance, eye and cord care, and early and exclusive breastfeeding on demand day and Night.

- 50-60% (2- some competence)
- 70-80 % (3- fairly competent)
- 90-100 % (4- competent).

Items on competence Measurement scale
- Antenatal care – 4 items
- Labour Care- 11 items
- Postnatal 2 items
- Neonatal care 2

Total 20 item
Therefore 20x4( maximum score per item = 80 scores
| Confidence | Perceived ability or belief in one's ability, skills and experience to offer care to pregnant mothers during antenatal period, labour, postnatal and new-born.  
**Observation**  (Ward supervisor, senior midwife, clinical instructor)  
**Self-report**  (Participant) using the 360° assessment |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Early detection of problems or danger signs (with priority for sepsis and birth asphyxia) and Appropriate referral and care seeking. Treatment of key problems such as sepsis and birth asphyxia (WHO, 2010)</td>
<td></td>
</tr>
</tbody>
</table>
knowing what to do when mistakes come to light and therefore is also about problem solving and decision making.

http://www.skillsyouneed.com/ps/confidence.html#ixzz3aKVITkIW


To generate a confidence score a scale of 1-10 will be used determining the perceived help needed in to carry out the listed skills

| 1 | Feels needs someone to offer assistance on some aspects while doing it (not confident) |
| 2 | Feels need to consult someone as they do it (some confidence) |
| 3 | Just need someone to be there for support whilst they do it (fairly confident) |
| 4 | They can do it on their own (confident) |

Scale Interpretation

1-2 (feels not confidence)
3-5 (feels has some confidence)  
6-8 (feel is fairly confident)  
9-10 (feels is confident)  

Items on confidence measurement scale  
Antenatal care – 4 items  
Labour Care - 11 items  
Postnatal 2 items  
Neonatal care 2  
Total 20 item  
Therefore 20x4 (maximum score per item = 80 scores

| Participant characteristics | Age, training school gender experience before midwifery training, place of work before midwifery training | Age (23 years and above), in gender (male or female), experience (2 years and above), place of work before training (Central, province, district or rural health centre) | Frequency mean mode, percentiles |
Appendix 36: Data collection workshop

Data collection workshop – Held on 23-11-2015 at Chitungwiza School of Nursing and Midwifery for Unice Goshomi study

Study Title: A longitudinal mixed method to explore competence development among midwives in Zimbabwe.

Purpose of the workshop: To train data collectors and familiarise them with the study objectives for the study.

Number of workshop attendees: 3 Clinical Research Associates, 9 Data Collectors, Country supervisor, and the researcher.

Objectives of the workshop

By the end of the workshop participants should be able to:

1) Understand the purpose of the study and its logistics
2) Review qualitative data collection methods related to the present study
3) Appreciate ethical principles in research
4) Discuss ethical principles related to the study.
5) Familiarise with the data collection instruments for the study
6) Be able to collect quality and reliable data for the study
7) Handle the collected data in confidentiality
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>0800-0900</td>
<td>Opening Remarks and self-introductions</td>
<td>UG</td>
</tr>
<tr>
<td>0900-0930</td>
<td>Objectives of the workshop</td>
<td>UG</td>
</tr>
<tr>
<td>0930-1000</td>
<td>Agenda/purpose</td>
<td>UG</td>
</tr>
<tr>
<td>1000-1030</td>
<td>Tea</td>
<td>ALL</td>
</tr>
<tr>
<td>1030-1200</td>
<td>Quantitative Data collection</td>
<td>DISCUSSION ALL</td>
</tr>
<tr>
<td>1200-1300</td>
<td>Quantitative Data Collection Instruments</td>
<td>UG</td>
</tr>
<tr>
<td>1300-1400</td>
<td>Lunch</td>
<td>ALL</td>
</tr>
<tr>
<td>1400-1500</td>
<td>Research Ethics Principles</td>
<td>UG/PN</td>
</tr>
<tr>
<td>1500-1515</td>
<td>Tea</td>
<td>ALL</td>
</tr>
<tr>
<td>1515-1615</td>
<td>Group work on ethics principles related to present study</td>
<td>GROUP PRESENTATIONS AND DISCUSSION</td>
</tr>
<tr>
<td>1615-1700</td>
<td>Summary</td>
<td>UG/DOCTOR RAWDON</td>
</tr>
</tbody>
</table>
### Appendix 37: Code Book

<table>
<thead>
<tr>
<th>ProdUrban</th>
<th>ProdPProd</th>
<th>ProdProt</th>
<th>ProdPrepC</th>
<th>ProdRespon</th>
<th>ProdSpeSp</th>
<th>ProdStStayW</th>
<th>ProdStStayWt</th>
<th>ProdStStayWf</th>
<th>ProdStStayWf</th>
<th>ProdStStayWf</th>
<th>ProdStStayWf</th>
<th>ProdStStayWf</th>
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<th>ProdStStayWf</th>
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<th>ProdStStayWf</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>2</td>
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<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Appendix: 38 Predictors of assessors' competence scores at time 3

In addition to finding predictors of the student's self-assessed confidence at time 3, after 3 months of clinical practice, it may be important to complete the picture and find which variables predict the student's competence at time 3 as assessed by each of the ward supervisor/senior midwife, peer and clinical instructor, and to compare the findings. The analyses were performed for predictors corresponding to those considered in the regression models of Section 7.8 of Chapter 7.

AX.1 Predictors of ward supervisor/senior midwife's competence score at time 3

Table AX.1 shows a breakdown of the student's competence score as assessed by the ward supervisor/senior midwife at time 3 by gender and by school of midwifery. As with the self-assessed confidence scores, female students had a higher mean and median score for their competence scores (183.8 and 191.33 respectively) compared with male students (163.0, 160). School C students again had a higher mean and median score (191.2, 194.25) than School A students (150.2, 154.33). As for confidence scores at time 3, distributions of the ward supervisor/senior midwife's competence scores at time 3 differed by the gender of the student (p=0.016) and school (p<0.001).

Table AX.1 Ward supervisor/senior midwife's competence score at time 3 by gender and school of midwifery

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Mann-Whitney Z=</th>
<th>p=0.016</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>15</td>
<td>43</td>
<td>-2.41</td>
<td>0.016</td>
</tr>
<tr>
<td>Mean</td>
<td>163.0</td>
<td>183.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>29.1</td>
<td>18.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>160</td>
<td>191.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>119.5 to 200</td>
<td>124 to 200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School of midwifery</th>
<th>School A</th>
<th>School C</th>
<th>Mann-Whitney Z=</th>
<th>p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>18</td>
<td>40</td>
<td>-5.72</td>
<td>0.001</td>
</tr>
<tr>
<td>Mean</td>
<td>150.2</td>
<td>191.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>17.4</td>
<td>12.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>154.33</td>
<td>194.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>119.5 to 186</td>
<td>124 to 200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table AX.2 shows Kendall's correlations of the ward supervisor/senior midwife's competence score at time 3 with their competence scores at times 1 and 2, age and years of experience post-RGN qualification. There was a significant medium positive correlation between the competence scores at times 1 and 3 (Kendall’s correlation=0.22, p=0.015) and a stronger positive correlation between the competence scores at times 2 and 3 (Kendall’s correlation=0.37, p<0.001). These were stronger than the negative correlations between the competence score at time 3 and either age or years of experience post-RGN qualification, which were similar to the correlations with the student's confidence score at time 3.

<table>
<thead>
<tr>
<th>Table AX.2 Kendall’s correlations of students’ self-assessed confidence score at time 3 with other numerical variables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coefficient</strong></td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Ward supervisor/senior midwife's competence score at time 1</td>
</tr>
<tr>
<td>Ward supervisor/senior midwife's competence score at time 2</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Years of experience post-RGN qualification</td>
</tr>
</tbody>
</table>

A multiple regression model was fitted to predict the ward supervisor/senior midwife's competence score at time 3 from the their competence scores at time 1 and time 2, school of midwifery, and the gender, age and years post RGN qualification of the student (Table AX.3). The regression model was significant (ANOVA p<0.001), explaining 69.3% of the variance in the ward supervisor/senior midwife’s competence score at time 3. Adjusted for other variables, only whether the student was from School C (p<0.001) was associated with the ward supervisor/senior midwife’s competence score at time 3, with the mean adjusted competence score at time 3 49.78 higher for School C than for School A.

<table>
<thead>
<tr>
<th>Table AX.3 Multiple regression of ward supervisor/senior midwife’s competence score at time 3 (n=55)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coefficient</strong></td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Constant</td>
</tr>
<tr>
<td>Ward supervisor/senior midwife’s competence score at time 1</td>
</tr>
<tr>
<td>Ward supervisor/senior midwife’s competence score at time 2</td>
</tr>
<tr>
<td>School C</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Age</td>
</tr>
</tbody>
</table>
The results of such a model should be interpreted with caution as the sample size of 55 was small for linear regression models, as discussed in Section 7.7.2. The amount of variance explained was relatively large at 69.3%, and the lack of significance for the ward supervisor/senior midwife's competence scores at time 1 and time 2 was unexpected, given that their Pearson correlations in the regression output with the score at time 3 were significant (r=0.38, p=0.004; r=0.74, p<0.001). The Pearson correlation between midwifery school and the competence score at time 3 was very large and significant (r=0.84, p<0.001); many analysts would exclude independent variables from a regression where r>0.80 but there was no evidence of multicollinearity from tolerance values (all were > 0.10). In the light of the high correlations and unexpected results, it would be safer to treat these regression results as unreliable and refer instead to the unadjusted results in Tables AX.1 and AX.2.

**AX.2 Predictors of peer's competence score at time 3**

Table AX.4 shows a breakdown of the student's competence score as assessed by the peer at time 3 by gender and by school of midwifery. As with the self-assessed confidence scores, female students had a higher mean and median score for their competence scores (179.7 and 188 respectively) compared with male students (160.4, 161). School C students again had a higher mean and median score (187.8, 189) than School A students (145.6, 152). As for confidence scores at time 3, distributions of competence scores at time 3 differed by school (p<0.001), but the analysis by gender of the student just failed to be statistically significant (p=0.054) even though the medians were appreciably different.
Table AX.4 Peer's competence score at time 3 by gender and school of midwifery

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Mann-Whitney Z=-1.93, p=0.054</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>15</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>160.4</td>
<td>179.7</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>30.4</td>
<td>18.7</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>161</td>
<td>188</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>100 to 194</td>
<td>125 to 197</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School of midwifery</th>
<th>School A</th>
<th>School C</th>
<th>Mann-Whitney Z=-5.79, p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>18</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>145.6</td>
<td>187.8</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>17.1</td>
<td>10.9</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>152.25</td>
<td>189</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>100 to 164</td>
<td>125 to 197</td>
<td></td>
</tr>
</tbody>
</table>

Table AX.5 shows Kendall's correlations of the peer's competence score at time 3 with their competence scores at times 1 and 2, age and years of experience post-RGN qualification. There were significant medium-to-large positive correlations between the competence scores at times 1 and 3 (Kendall’s correlation=0.41, p<0.001) and times 2 and 3 (Kendall’s correlation=0.40, p<0.001). These were much stronger than the negative correlations between the competence score at time 3 and either age or years of experience post-RGN qualification, which were similar to correlations with the student’s confidence score at time 3.

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>p</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer's competence score at time 1</td>
<td>0.41</td>
<td>&lt;0.001</td>
<td>58</td>
</tr>
<tr>
<td>Peer's competence score at time 2</td>
<td>0.40</td>
<td>&lt;0.001</td>
<td>55</td>
</tr>
<tr>
<td>Age</td>
<td>-0.08</td>
<td>0.383</td>
<td>58</td>
</tr>
<tr>
<td>Years of experience post-RGN qualification</td>
<td>-0.18</td>
<td>0.058</td>
<td>58</td>
</tr>
</tbody>
</table>
A multiple regression model was fitted to predict the peer's competence score at time 3 from their competence scores at time 1 and time 2, school of midwifery, and the gender, age and years post-RGN qualification of the student (Table AX.6).

**Table AX.6 Multiple regression of peer’s competence score at time 3 (n=55)**

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>95% CI</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>138.86</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer’s competence score at time 1</td>
<td>-0.02</td>
<td>-0.31 to 0.27</td>
<td>-0.15</td>
<td>0.881</td>
</tr>
<tr>
<td>Peer’s competence score at time 2</td>
<td>0.02</td>
<td>-0.41 to 0.46</td>
<td>0.11</td>
<td>0.916</td>
</tr>
<tr>
<td>School C</td>
<td>40.64</td>
<td>19.10 to 62.19</td>
<td>3.79</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Female</td>
<td>3.79</td>
<td>-6.02 to 13.60</td>
<td>0.78</td>
<td>0.441</td>
</tr>
<tr>
<td>Age</td>
<td>0.31</td>
<td>-0.96 to 1.58</td>
<td>0.49</td>
<td>0.628</td>
</tr>
<tr>
<td>Years of experience post-RGN qualification</td>
<td>-0.90</td>
<td>-2.30 to 0.50</td>
<td>-1.29</td>
<td>0.203</td>
</tr>
</tbody>
</table>

Adjusted $R^2=0.671$, ANOVA $F=19.36$, df=6 and 48, $p<0.001$

The regression model was again significant (ANOVA $p<0.001$), explaining 67.1% of the variance in the peer’s competence score at time 3. Adjusted for other variables, only whether the student was from School C ($p<0.001$) was associated with the peer’s competence score at time 3, with the mean adjusted competence score at time 3 40.64 higher for School C than for School A. However, as with the regression model for the ward supervisor/senior midwife's competence at time 3, there were doubts about the reliability of the regression model, and it would be safer to treat the regression results as unreliable and refer instead to the unadjusted results in Tables AX.4 and AX.5.

**AX.3 Predictors of clinical instructor's competence score at time 3**

Table AX.7 shows a breakdown of the student's competence score as assessed by the clinical instructor at time 3 by gender and by school of midwifery. As with the self-assessed confidence scores, female students had a higher mean and median score for their competence scores (183.8 and 192 respectively) compared with male students (162.7, 154.67). School C students again had a higher mean and median score (192.1, 193.5) than School A (147.7, 144.33). As for confidence scores at time 3, distributions of competence scores at time 3 differed by school ($p=0.007$) and gender of the student ($p<0.001$).
Table AX.7 Clinical supervisor's competence score at time 3 by gender and school of midwifery

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
<th>Mann-Whitney Z= -2.68, p=0.007</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>15</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>162.7</td>
<td>183.8</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>27.7</td>
<td>20.3</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>154.67</td>
<td>192</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>113.5 to 196.5</td>
<td>135.5 to 200</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School of midwifery</th>
<th>School A</th>
<th>School C</th>
<th>Mann-Whitney Z= -5.67, p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>18</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>147.7</td>
<td>192.1</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>15.7</td>
<td>10.6</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>144.33</td>
<td>193.5</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>113.5 to 190</td>
<td>135.5 to 200</td>
<td></td>
</tr>
</tbody>
</table>

Table AX.8 shows Kendall's correlations of the clinical instructor's competence score at time 3 with their competence scores at times 1 and 2, age and years of experience post-RGN qualification. There were significant medium positive correlations between the competence scores at times 1 and 3 (Kendall's correlation=0.31, p=0.001) and times 2 and 3 (Kendall's correlation=0.33, p<0.001). These were again much stronger than the negative correlations between the competence score at time 3 and either age or years of experience post-RGN qualification, which were similar to correlations with the student's confidence score at time 3.
Table AX.8 Kendall’s correlations of clinical supervisor's competence score at time 3 with other numerical variables

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>p</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical instructor's competence score at time 1</td>
<td>0.31</td>
<td>0.001</td>
<td>58</td>
</tr>
<tr>
<td>Clinical instructor's competence score at time 2</td>
<td>0.33</td>
<td>&lt;0.001</td>
<td>55</td>
</tr>
<tr>
<td>Age</td>
<td>-0.12</td>
<td>0.218</td>
<td>58</td>
</tr>
<tr>
<td>Years of experience post-RGN qualification</td>
<td>-0.09</td>
<td>0.352</td>
<td>58</td>
</tr>
</tbody>
</table>

A multiple regression model was fitted to predict the clinical instructor's competence score at time 3 from the their competence scores at time 1 and time 2, school of midwifery, and the gender, age and years post RGN qualification of the student (Table AX.9).

Table AX.9 Multiple regression of clinical instructor's competence score at time 3 (n=55)

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>95% CI</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>150.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical instructor's competence score at time 1</td>
<td>-0.07</td>
<td>-0.32 to 0.18</td>
<td>-0.54</td>
<td>0.590</td>
</tr>
<tr>
<td>Clinical instructor's competence score at time 2</td>
<td>-0.01</td>
<td>-0.38 to 0.36</td>
<td>-0.07</td>
<td>0.948</td>
</tr>
<tr>
<td>School C</td>
<td>46.25</td>
<td>29.22 to 63.28</td>
<td>5.46</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Female</td>
<td>4.79</td>
<td>-4.16 to 13.74</td>
<td>1.08</td>
<td>0.287</td>
</tr>
<tr>
<td>Age</td>
<td>0.27</td>
<td>-0.95 to 1.49</td>
<td>0.44</td>
<td>0.660</td>
</tr>
<tr>
<td>Years of experience post-RGN qualification</td>
<td>-0.53</td>
<td>-1.85 to 0.79</td>
<td>-0.81</td>
<td>0.421</td>
</tr>
</tbody>
</table>

Adjusted $R^2=0.713$, ANOVA F=23.32, df=6 and 48, p<0.001

The regression model was again significant (ANOVA p<0.001), explaining 71.3% of the variance in the clinical instructor's competence score at time 3. Adjusted for other variables, only whether the student was from School C (p<0.001) was associated with the clinical instructor's competence score at time 3, with the mean adjusted competence score at time 3 46.25 higher for School C than for School A. However, as with the regression models for the ward supervisor/senior midwife's competence and the peer's competence at time 3, there were doubts about the reliability of the regression model; it would be safer to treat the regression results as unreliable and refer instead to the unadjusted results in Tables AX.7 and AX.8.

AX.4 Summary of findings on predictors of assessors' competence score at time 3
Analysis of the predictors of assessors’ competence scores at time 3 indicated that there were problems with regression analyses due to high correlations between variables. The summary here is based on unadjusted associations between the competence scores and other variables. Because the three assessors' competence scores were highly correlated, it was not surprising that the showed similar associations with other variables. The competence scores given by the ward supervisor/senior midwife, peer and clinical instructor at time 3 were each associated with the gender of the student (female students having higher scores than male students) and the midwifery school (students from School C having higher scores than students from School A), and positively correlated with competence scores at times 1 and 2.