AN INVESTIGATION INTO THE CLINICAL PRACTICUM EXPERIENCE OF ALS PARAMEDIC STUDENTS AND THEIR PREPAREDNESS FOR PROFESSIONAL PRACTICE

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Declaration

This is to certify that the work is entirely my own and not of any other person, unless explicitly acknowledged (including citation of published and unpublished sources). The work has not previously been submitted in any form to the Durban University of Technology or to any other institution for assessment or for any other purpose.

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Abstract

Clinical practicum remains an integral part of training and a vital component of the emergency medical care curriculum that takes place in a realistic and complex emergency care environment. Clinical practicum should provide students with the opportunity to combine cognitive, psychomotor and affective skills to develop competencies to prepare the qualifying practitioner for demands of pre-hospital emergency care in the real world.

The aim of this study was to explore the multidimensional aspects of the clinical practicum experience of ALS paramedic students in the Western Cape through the lens of a qualitative research design. The study involved exploring the experience of paramedic students in the clinical practice placement. In addition, the views of paramedic graduates were also explored, to ascertain whether the placement experience adequately prepared them for practice. An analysis of the clinical practice documents utilised in the training of ALS paramedic students was conducted with particular reference to identify correlations with relevant literature. In addition, it was necessary to identify how clinical practice manifested itself, not only in what students and graduates express but also how it was coordinated and conveyed in a professional work related context, against the backdrop of the work integrated learning framework.

Using a case study design, focus group interviews were conducted with final year EMC students from CPUT and CCA students from the Western Cape CEC. This was followed with one on one interview with paramedic graduates. Further to this, clinical practice documents were analysed to triangulate the data.

This study revealed that the clinical practice learning objectives for paramedic students were not adequately achieved and paramedic graduates felt ill prepared for independent practice. These discrepancies were attributed to the complex issues both in theory and practice. The study provided a number of recommendations for improving the clinical training experience, such that paramedic graduates who enter the complex and challenging world of EMC are better prepared.

Dedication

I would like to dedicate this work:

- To my family Shoma, Kia and Reece for their love, support and patience with my absence during hours devoted to this work.

- To my mum Tilly and late dad Bobby for their inspiration and support throughout my academic journey

- To the emergency care practitioners in South Africa, who place their lives at risk to serve others.

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List of Acronyms

AEA	Ambulance Emergency Assistant
ALS	Advanced Life Support
BAA	Basic Ambulance Assistant
BTECH	Bachelor of Technology
CCA	Critical Care Assistant
CHE	Council for Higher Education
CEC	College of Emergency Care
CPUT	Cape Peninsula University of Technology
ECA	Emergency Care Assistant
ECT	Emergency Care Technician
ECP	Emergency Care Practitioner
EMC	Emergency Medical Care
EMS	Emergency Medical Services
HPCSA	Health Professions Council of South Africa
HE	Higher Education
HEI	Higher Education Institution
NECET	National Emergency Care Education and Training
NQF	National Qualifications Framework
WHO	World Health Organisation
WIL	Work Integrated Learning

Glossary of Terms

Advanced Life Support:

Advanced life support is a level of patient care determined primarily by a subset of clinical procedures. These clinical procedures are frequently of an advanced or invasive and technically complex nature.

ALS Skills:

ALS skills are a set of invasive procedural skills determined by the HPCSA scope of practice for ALS paramedics. Examples include advanced airway management, advanced vascular access techniques, synchronised cardioversion, transcutaneous pacing, use of various medications for sedation, arrhythmia control or blood pressure support, and several others (Sanders 2007:10)

Clinical Placement:

The scheduled placements of paramedic students to achieve on the job experience as part of the EMC clinical curriculum. Clinical placement develops the student as a professional through observation, participation and completion of tasks that demonstrate proficiency.

Clinical Practicum:

Clinical practicum is a period of work that provides the student with the opportunity for practical experience in the real world as part of an academic program.

Critical Care Assistant:

A nine to 12-month short course offered at Provincial Government Emergency Care Training Colleges. This is the highest qualification in a three-tiered hierarchy of short courses and leads to registration with the Health Professions Council of South Africa as an emergency care provider.

Emergency care providers:

Emergency care providers are personnel that provide prehospital emergency care in South Africa. There are three levels of emergency care providers, namely basic, intermediate and advanced. For the purposes of this research the advanced life support providers refers specifically to the CCA and N.Dip EMC practitioners registered with the HPCSA.

Emergency Medical Care:

Provision of treatment to patients in need of urgent medical care through performing prehospital medical procedures (Sanders 2007:13)

Emergency Medical Service:

A service comprised of a despatch call centre, emergency and rescue vehicles, suitably qualified personnel that exist to provide pre-hospital emergency medical care to a defined geographic population.

Experiential Learning:

Experiential learning is EMC student learning and reflecting from direct clinical experience in emergency care training.

Health Care Facilities:

A Health Care Facility is a facility which contains staff and medical equipment that provides medical care to patients in need of medical treatment. There are

various levels of such facilities that vary from community health centres to specialized hospitals.

HPCSA:

The Health Professions Council of South Africa (HPCSA) is a statutory body, established in terms of the Health Professions Act No. 56 of 1974 and is committed to protecting the public.

National Diploma Emergency Medical Care:

A three-year qualification registered with South African Qualifications Authority that prepares graduates for work at an ALS level in the pre-hospital emergency care environment. This qualification is associated with registration with the Health Professions Council of South Africa as a Paramedic, the equivalent registration as that associated with CCA, defined above.

Paramedic:

The term Paramedic refers to prehospital emergency care providers registered as an ALS practitioner registered with the HPCSA.

Paramedic student:

A student enrolled for studies for an emergency care qualification. For the purposes of this study, paramedic students are referred to as students registered with the Higher Education Institution or the Provincial College of EMC. These students also register with the HPCSA under the ambit of the paramedic student category.

CHAPTER 1

INTRODUCTION

"If he is indeed wise, the teacher does not bid you to enter the house of wisdom, but rather he leads you to the threshold of your own mind." Kahlil Gibran

1.1 Introduction

In South Africa (SA), poor communities are dependent on emergency care services for access to health care. The geographic landscape and health care infrastructure of SA, combined with financial and resource constraints, poses unique challenges to emergency care providers and often results in prolonged pre-hospital patient care (Gunning et al. 2013). The growth in demand for paramedic services is not only seen in the volume of work but also in the critical elements of paramedic practice (Edwards 2011:81). Clinical education plays a pivotal role in developing paramedic practitioners, fit for practice.

Over the past few years there has been a significant change to the scope of paramedic practice, which incorporates advanced life support procedures and patient management strategies (MacFarlane, Loggerenberg and Kloeck 2005:146). The changes in both increased workloads and scope of practice have a direct impact on the education and training of paramedic students.

Paramedics face a myriad of patients in a variety of situations, ranging from resuscitation of critically ill children to mass casualty disasters (Edwards 2011:80). The patients treated by emergency care providers often have more than one medical complaint, compounded by poor medication compliance and poor living conditions. This makes pre hospital diagnosis, in many cases, complex and requires sound disciplinary knowledge, combined with a high level

of clinical skills competency. The need for emergency care providers to think critically, solve problems, communicate, demonstrate compassion for the patient, and respect for other healthcare providers are the issues that underpins paramedic practice (Boyle et al. 2008:5; Michau et al.2009:7). The emergency care profession in SA requires emergency care providers to make independent clinical decisions and treat patients within a broad spectrum of clinical skills to provide emergency medical care, to patients in a variety of emergency situations (Stein 2009:59).

Despite the above constraints, the paramedic profession continues to suffer from low graduate training outputs as well as high attrition of graduate emergency care providers due to international demand (Govender 2010: 211). Due to the nature of the profession in the South African health care setting, the onus is on the training providers to equip potential paramedic graduates with sufficient, good quality knowledge and training in preparation for practice (Govender 2010:211). Part of good quality training is a structured clinical practicum programme, which formulates the link between theory and practice in vocational education (Boyle et al. 2008:3).

Clinical practicum is a vital component of emergency medical care (EMC) students' curriculum and takes place in a complex emergency care context. It provides students with the opportunity to combine cognitive, psychomotor, and affective skills to develop competencies to prepare for independent practice (Anderson 2011:49). In order to develop competency, paramedic students need appropriate guidance and supervision. The supervision of students in clinical practice plays a significant role in influencing student learning knowledge and skills (Kaphagawani and Useh 2013:82). Poor supervision, lack of support and the scarcity of challenging learning opportunities are some of the factors that adversely affect students' preparedness for real world practice (Mntambo 2009).

Apart from learning clinical skills, students experience the responsibilities of professional practice and develop interpersonal skills, which allow them to

socialise into the norms and culture of the profession (Henderson et al. 2011: 87; Courtney-Pratt 2011). Students' experiences during clinical learning have a profound impact on their professional development (Boyle et al. 2008:6). Ralph et al. (2009:440) stated that students should be guided constructively to apply theory to practice and should be mentored effectively to allow for professionalization and graduate preparedness. Holistic learning in clinical practice should be effectively facilitated in order to adequately prepare paramedic students for independent graduate practice.

"In essence clinical practice does not only prepare students for their occupation but also facilitates the formation of professional identities through growth, wisdom, dignity and humanity" (Hakim 2014:13). Besides clinical exposure, clinical practice provides opportunities for students to explore the nature of work, rules, and identities that they will encounter as future professionals.

The World Health Organization (2005) stated that clinical practice prepares students to become competent practitioners, to provide quality healthcare and promote health of the people they serve. Learning in clinical practice is an important component of paramedic education given that EMC is a practice-based profession (Mcall, Lord and Wray 2009:9). The quality of a healthcare professional thus depends largely on the quality of the clinical experience that students receive, in the clinical environment (Anderson, Rich, and Seymour 2011:85 90).

Boyle et al. (2008:7) proposed that students be given opportunities to practice different tasks so as to learn from their mistakes thereby becoming more proficient and confident. Although this suggestion is ideal, the Western Cape has a large number of allied health students in clinical placements, which does not necessarily allow adequate opportunities for this suggestion to be implemented. A prerequisite for effective learning is constructive feedback

(Clynes and Raftery 2008:409). Feedback allows for students to reflect on their actions and ultimately improves confidence.

Despite the importance of clinical placements forming a fundamental component in undergraduate clinical programmes, studies by Levett-Jones and Lathlean (2008), Morris (2007) and Koontz et al. (2010) have highlighted problems surrounding clinical placement experiences, accompanied by concerns about students' competence and confidence to practice. The last decade has seen these concerns being echoed by scholars such as Stein (2009), Mabunda (2008) Tshabalala (2011) and in other allied health care training literature in South Africa. In order to properly examine the constraints experienced around clinical practicum in the South African context, it is fundamental to first understand the practice of EMC.

1.2 Background to Emergency Medical Services

This chapter aims to contextually describe the case study (in this case, the clinical practicum experience of paramedic students in the City of Cape Town), and provide an overview of the research problem and purpose of the research.

Prior to 1970, local authorities in South Africa were responsible for the provision of an ambulance service to the public (RSA NDoH 2011). Municipal boundaries and the apartheid homelands deprived patients of acceptable emergency care treatment and transportation of those living outside the boundaries, towns and cities. Prior to 1994, ambulance services were racially separated and unequally distributed in favour of the white population. Organisations such as St John, Red Cross and The South African First Aid League filled in the void in many parts of the country with ambulances being staffed predominately by volunteers. Training and level of care rendered was basically first aid with only a few larger cities having access to doctors and nurses to treat and care for the critically ill and injured (RSA NDoH 2011).

By the 1980s some Provinces established Provincial Ambulance Training Colleges and trained personnel for basic and intermediate life support level and improved ambulance design with appropriate equipment (Dalbock 1996:118). Nonetheless, there were no national norms and standards for ambulance practitioners and the different Provinces each had their own training strategy, scope of practice, course curricula and ambulance equipment (MacFarlane, et al. 2005:146).

In 1992 the South African Association for Ambulance and Emergency Care Personnel, the Metro Permanent Workgroup and the Minister of Health and Population Development collaborated to establish a National Professional Board for Emergency Care Personnel, thereby allowing registration with the South African Medical and Dental Council (Dalbock 1996:118). This enabled professional status and created unity in South Africa amongst pre-hospital emergency care practitioners. The regulation of training, performance, authority, registration and medical treatment protocol standards were implemented nationally (Dalbock 1996: 118).

After the abolishment of the apartheid government in 1994, steps were taken to remedy the situation and strengthen the ambulance services. Regulations were promulgated making it compulsory for all emergency care practitioners to register with the then South African Medical and Dental Council, and national curricula for emergency care was established (MacFarlane, Loggerenberg and Kloeck 2005:147).

1.3 Emergency Medical Services in the Western Cape

Emergency Medical Services (EMS) in South Africa began transforming since 1977 when a decision was taken that made the provision of ambulance services the responsibility of provincial government (MacFarlane, van Loggerenberg and Kloeck, 2005:145). Pre-hospital care has improved from a transport service that

provided   first aid level of care for the sick, operated by isolated municipalities to a fully-fledged sophisticated emergency care system that provided ground and air response from basic to advanced life support care to patients in urban and rural areas (Dalbock 1996: 118).

The Western Cape Provincial Emergency Medical Services deliver ambulance, rescue and patient transport services from fifty-two ambulance stations in five rural district and four Cape Town divisional EMS services with a fleet of 248 ambulances, and employ 1424 operational personnel (RSA NDoH 2013). Forty-nine percent (n=703) of the operational personnel are trained in Basic Life Support (BLS), forty-three percent (n=611) in Intermediate Life Support (ILS) and eight percent (n=110) in Advanced Life Support (ALS), according to the Western Cape Government Annual Performance Plan (RSA NDoH 2013). Ambulance services attend an average of 538 000 emergency calls per annum, transporting 479 000 patients with an urban priority one response performance of 69% within 15 minutes and rural priority response performance of 89% within 40 minutes. According to the Western Cape Government 2013 Annual Performance Plan, 20% of these calls are classified as priorities and require the dispatch of an advanced life support practitioner (RSA NDoH 2013).

Besides transport by ambulance the Western Cape EMS, provides the Air Mercy Service (AMS) which provides air transfer of acutely ill or injured patients to referral hospitals within the Western Cape Province. In addition to air transport, the helicopter rescue missions resulted in 83 patients being rescued from the wilderness areas or the sea (RSA NDoH 2013).

EMS is generally activated by calling a toll-free emergency number, 10177, or 112 numbers from a cellular telephone (Clarke 1998:368). Emergency calls to the emergency communications centre are triaged by the call taker according to the severity of the emergency. The dispatcher uses this information to determine the priority of the emergency and then allocates EMS resources, depending on their availability and seriousness of the incident.

EMS personnel work in teams of two per ambulance consisting of an intermediate life support (ILS) and basic life support (BLS) provider. Advanced life support emergency care providers either work with a response vehicle or an ALS ambulance that is generally equipped with the necessary equipment such as 12 lead ECG monitors, ventilators, capnographs, pulse oximetery, laryngoscopes etc., aligned with the ALS scope of practice. Advanced Life Support (ALS) practitioners are a scarce resource and are frequently assigned to respond to emergency calls that are deemed to be immediately life threatening.

1.4 Health Professions Council of South Africa

The Professional Board for Emergency Care was established in terms of regulations published under Government Notice No. R 173 of 10 January 1992. As with the other Professional Boards, the PBEC operates as a Standards Generating Body (SGB), developing policy documents to guide the emergency care profession, as well as overseeing education and training outcomes. The Professional Boards are responsible for formulating the rules and regulations of conduct and professional practice, as well as conducting preliminary and professional enquiries. The Health Professions Council of South Africa (HPCSA) publishes the regulations that govern the scope of practice of practitioners and on which guidelines and protocols are based. These regulations legally bind the practitioner to comply with the guidelines and protocols of the Professional Boards (HPCSA 2004).

The HPCSA is a statutory body, established in terms of the Health Professions Act (Act No. 56 of 1974) as amended (Amendment Act 1 of 1998). Its mandate is to protect the public, all consumers of health care services, and to provide guidance on educational, professional, and ethical issues to health practitioners (HPCSA 2004). The HPCSA provides guidance to twelve professional boards in setting health care standards for training and discipline in the professions registered with the Council; thereby ensuring on-going professional competence and fostering compliance with those standards.

1.5 Pre hospital EMS education and training

Emergency medical care training in the Western Cape follows two streams viz. Emergency Medical Care short course training that leads to registration with the HPCSA and formal qualifications registered with SAQA. The regulation of emergency care training falls under the authority of the Professional Board for Emergency Care Practitioners (HPCSA 2004). In this regard the Professional Boards regulates and standardizes education and training outcomes and accredits education and training providers.

1.5.1 Short courses EMC

Over the past few decades, emergency care training in South Africa was fragmented and varied within the different provinces. There were no professional qualifications or a professional board for professional emergency care providers (RSA NDoH 2011). By the late 80s, three levels of training were established and were offered by ambulance provincial training colleges (Lambert 2011:4).

Short courses in EMS include the basic life support course (BLS), intermediate life support (ILS), and the critical care assistant course (CCA). These courses were driven by the national curriculum, were skills based and focused on an ambulance service framework (Stein: 2009).

The scope of practice of these courses was strictly defined and explicitly set out as treatment protocols (Lambert 2011:3). Medical accountability in both training and patient care rendered by EMS lay with a medical doctor. In line with this, rendering ALS invasive skills required the permission of a medical doctor (HPCSA 1999).

As the profession grew, emergency care providers registered independently with the PBEC. During this time the HPCSA also served as the ETQA. The HPCSA is guided by the principles of SAQA, UMALUSI and the CHE and uses strict criteria to accredit provincial ambulance training colleges, to offer short course training (HPCSA 2011). The vast majority of EMS practitioners followed the short course route of training (Clarke 1998:369). Despite these courses being accredited by the HPCSA, they were never registered with the National Qualifications Framework. The certificate achieved through the short course training is non-credit bearing and thus academic articulation to Higher Education is difficult (Stein, Wang and Louw 2012).

1.5.1.1 Basic life support

BLS providers are trained to provide basic life support treatment after a one-month training course (Campbell and Campbell 2010:135). Competent practitioners register with the HPCSA under supervised practice and are not allowed to perform invasive procedures on patients (Delbock 1996:119). BLS practitioners are trained to use ambulance equipment, perform CPR, use automated external defibrillators (AEDs), first aid and basic vehicle extrication, packaging techniques and simple trauma management. Oxygen, Entonox, oral glucose and activated charcoal are the only drugs within the basic life support practitioner's protocols. The minimum recommended industry standards are that every EMS vehicle should be staffed by at least two BLS practitioners (MacFarlane, van Loggerenberg and Kloeck 2005:145).

1.5.1.2 Intermediate life support

Subsequent to several months of BLS experience on the road, an additional 3-month training programme will qualify an intermediate life support practitioner as an ambulance emergency assistant (AEA). In addition to the BLS protocols, AEA practitioners are allowed to nebulize asthmatic patients, insert intravenous lines using crystalloid fluids, administer intravenous glucose and oral aspirin when appropriate, and use a manual defibrillator for treating life threatening arrhythmias (Campbell and Campbell 2010:135). AEA practitioners are

generally limited by protocols when treating patients and should the patient's level of care exceed their scope, ALS practitioners may render further patient treatment.

1.5.1.3 Critical Care Assistant

The Critical Care Assistant (CCA) is the highest level of short course training. Additional ILS real world emergency service experience and an 11-month full-time training course will qualify an advanced life support practitioner (ALS) as a CCA. The ALS practitioner, commonly known as a "Paramedic", has extensive emergency medical protocols designed along the lines of the American Heart Association Guidelines for training in paediatric advanced life support, advanced cardiovascular life support, and advanced trauma life support (MacFarlane, van Loggerenberg and Kloeck 2005:145). Their scope of practice includes advanced airway management, neonatal and obstetric management, interventions such as the use of synchronised cardioversion and the use of 27 different medications, including benzodiazepines, intravenous analgesics and emergency cardiac medication (MacFarlane, van Loggerenberg and Kloeck 2005:145).

1.5.1.4 National Diploma EMC

The National Diploma EMC (NDEMC) in Ambulance and Emergency Technology was the first EMC programme registered with the Department of Higher Education in 1986 and encompassed three years' full-time study and covered medical and rescue components, along with basic science and ancillary subjects (Stein 2009). The medical component was loosely structured, similar to three short courses mentioned above, which resulted in re-curriculation and name change in 1998. The name then changed to the National Diploma Emergency Medical Care (Stein, Wang and Louw 2012). The qualification was registered with SAQA at the NQF level 6.

The academic structure of this programme is based on progression from learning exclusively new, basic clinical information in first year to the integration

and application of existing knowledge in third year. The duration and complexity of clinical learning follows an ascending progression from first year, which includes basic level care through to third year which is predominantly advanced level patient care, encompassing advanced life support skills (Stein 2009:60).

Regardless of the revised curriculum, the clinical platform did not follow the same direction. As the EMC programmes evolved, there was a huge focus on the theoretical aspect of the curriculum with little or no consideration for the clinical practice.

1.5.2 The curriculum and related documents for students' clinical practice

As part of preparation for clinical practice, experiential learning plays a vital role in a student's development as an ALS practitioner. Clinical practice shifts allow the student the opportunity to participate and interact with critically ill patients and professionals responsible for emergency care and treatment within a controlled environment. Clinical learning is coordinated by the ALS programme coordinator at the WCG College as well as CPUT, Department of Emergency Medical Care and involves placing students at EMS and hospitals in the City of Cape Town metropolitan area.

Clinical practical learning in each academic year of study in the National Diploma EMC programme is determined by the prescribed learning outcomes and is also controlled by the Department of Emergency Medical Care at CPUT and the HPCSA. The NDEMC students are required to complete a minimum of four hundred clinical learning hours per year (Stein 2009:59-64). Students are required to complete a prerequisite number of shifts, in order to be legible for programme qualification as per CPUT experiential learner portfolio 2012.

The HPCSA which also serves as the ETQA for Provincial Colleges recommends five months of theory and four months of clinical practicum for the

CCA course curriculum (HPCSA 1996). The HPCSA stipulated that CCA students work 450 hours of clinical practice in various in hospital centres, as well as EMS. Hospital shifts include primary health care facilities, intensive care units (cardiac, thoracic, neurological, and respiratory), trauma and medical emergency centres within the City of Cape Town Metropole area. CCA students conduct maternity, obstetric, neonatal and paediatric in-hospital training. Within EMS students are placed with ALS emergency care providers to work in either response vehicles or ambulances.

During clinical practice students are issued a workbook to document their exposure to skills practice and patient treatment. The workbook contains a register to ensure students complete a certain number of shifts at the various accredited clinical practice learning sites. In addition, students are required to complete a prescribed number of clinical skills and procedures. The workbooks are an essential component of clinical placement learning. The programme coordinator, prior to students entering the final exam, generally assesses the workbooks.

Over the past two years CPUT introduced an electronic data capturing log book for EMC students. CPUT procured the services of Field Internship Student Data Acquisition Project (FISDAP), an American software company that builds educational software for EMS (Page et al. 2004:436). FISDAP is an Internet-based data collection system, used to track EMS student progress with their clinical practice. FISDAP measures experiential learning, organizes shift schedules, and collects data used in multi-institutional educational research (Page et al. 2004:436).

Students record their clinical skills and patient treatment electronically. FISDAP tracks the patient's chief complaint and demographic information, and the scope and nature of the skills performed by the student on the particular encounter

(Page et al. 2004:436). Although various reports and graphs are available, the ability to spark critical thinking in students is yet to be determined. It should be noted that participants selected for this study did not access FISDAP for documenting clinical practice and continued to use the clinical workbook issued by the Clinical Coordinator at CPUT.

While it is important that paramedic students achieve minimal proficiency in critical skills prior to certification, many barriers prevent students from attaining adequate clinical exposure on live patients. Paramedic students have limited opportunities to achieve critical skills (Wang et al. 2004). During placement in the clinical environment student placements are overcrowded with allied healthcare students, which results in competition for achieving skills (Wang et al. 2004).

Despite its importance, the training department does not control student experiences during clinical placements. On the contrary, it is dependent on how often ALS cases actually occur in the EMS system in which students are placed for this purpose (Stein 2009: 60). EMC (paramedic) students from both training institutions undertake clinical placements at various HPCSA accredited clinical learning facilities in the Western Cape. These placements are considered an essential element for paramedic education. Clinical learning forms a bridge between classroom learning and real world practice. It is therefore critical that students are guided constructively during this stage, to achieve the link between cognitive, meta-cognitive and psychomotor knowledge to build their confidence. The lack of opportunity for constructive development of technical and non-technical skills of paramedic competence may lead to sub-optimal quality patient care.

1.5.3 Scope of practice of EMC qualifications

There are a number of qualifications that fall under the banner of ALS scope of practice recognised by the HPCSA, namely the Critical Care Assistant (CCA),

Emergency Care Technician (ECT), National Diploma (N.Dip) Emergency Medical Care and the Bachelor of Technology (B.Tech) Emergency Medical Care. These four advanced life support practitioner qualifications have their own scope of practice. The CCA and N.Dip EMC paramedics practice under the same scope. The ECT has a limited scope of practice and those qualifying as ECTs are recognised as a mid-level worker. The study duration for an ECT is two years. The B.Tech paramedic has the highest scope of practice with specific additional skills such as pre-hospital fibrinolysis and rapid sequence intubation techniques (Campbell and Campbell 2010:135; HPCSA Professional Boards: Emergency Care 2011). The scope of practice for each qualification is summarized in Table 1 (HPCSA Capabilities of Emergency Care Providers 2011).

Table 1 HPCSA capabilities of emergency care providers

CAPABILITY	CCA	N.Dip EMC	ECT	ECP
Airway Management				
Finger sweep	●	●	●	●
Head-tilt-chin-lift	●	●	●	●
Jaw-thrust	●	●	●	●
Suctioning of the airway	●	●	●	●
Airway obstruction removal techniques	●	●	●	●
Use of Magill's forceps	●	●	●	●
Ororpharyngeal airway insertion	●	●	●	●
Nasopharyngeal tube airway insertion	●	●	●	●
Cricoid pressure	●	●	●	●
Orotracheal intubation	●	●		●
Nasotracheal intubation	●	●		●
Blind nasotracheal intubation	●	●		●
Digital endotracheal intubation	●	●		●
Retrograde intubation	●	●		●
Supraglottic extraglottic airway devices	●	●	●	●

insertion				
Orogastric tube insertion	●	●	●	●
Nasogastric tube insertion	●	●	●	●
Needle cricothyroidotomy	●	●	●	●
Surgical cricothyroidotomy	●	●		●
Rapid sequence intubation, only with capnography & ventilator				●
Oxygenation and ventilation				
Oxygen therapy	●	●	●	●
Nebulization (medicated)	●	●	●	●
Use of pulse oximetry	●	●	●	●
Needle thoracentesis	●	●	●	●
Bag valve mask ventilation	●	●	●	●
Bag valve tube ventilation	●	●	●	●
Mechanical ventilation	●	●		●
Use of PEEP	●	●		●
Use of capnography	●	●	●	●
Circulatory Management				
Blood pressure measurement	●	●	●	●
Peripheral intravenous cannulation- > 8 year old patients only	●	●	●	●
Peripheral intravenous cannulation – all age categories	●	●	●	●
External jugular vein cannulation	●	●	●	●
Femoral vein cannulation	●	●		●
Intra-osseous insertion	●	●	●	●
Umbilical vein cannulation	●	●	●	●
Fluid administration	●	●	●	●
Intravenous drug administration	●	●	●	●
Intraosseous drug administration	●	●	●	●
Subcutaneous drug administration	●	●	●	●

Intramuscular drug administration	●	●	●	●
Endotracheal tube drug administration	●	●		●
Drug infusions and use of infusion devices	●	●		●
Use of syringe drivers	●	●		●
Use of non-invasive blood pressure monitors	●	●	●	●
External haemorrhage control including use of tourniquet	●	●	●	●
Use of pneumatic anti-shock garment – legs only	●	●	●	●
Use of pneumatic anti-shock garment – entire	●	●		●
Automated external defibrillation	●	●	●	●
Manual defibrillation (asynchronous)	●	●	●	●
Synchronized cardioversion	●	●		●
Vagal manoeuvres	●	●		●
Central line management	●	●		●
Transcutaneous cardiac pacing	●	●		●
3 Lead ECG monitoring	●	●	●	●
12 Lead ECG monitoring	●	●	●	●
Fibrinolysis				●
ECG Rhythm Analysis				
Normal sinus rhythm	●	●	●	●
Sinus bradycardia	●	●	●	●
Sinus tachycardia	●	●	●	●
Ventricular fibrillation	●	●	●	●
Ventricular tachycardia	●	●	●	●
Asystole/PEA	●	●	●	●
All other emergency cardiac dysrhythmias	●	●		●
Obstetric Management				
Normal vaginal delivery	●	●	●	●
Prolapsed cord management	●	●	●	●
Breech delivery management (scope specific)	●	●	●	●

Mal presentations management (scope specific)	●	●	●	●
Preterm labour management (scope specific)	●	●	●	●
Obstructed labour management (scope specific)	●	●	●	●
Fundal massage	●	●	●	●
Bimanual compression	●	●		●
Tocolysis	●	●		●
General				
CPR (adult, child, infant & neonate)	●	●	●	●
Patient clinical assessment	●	●	●	●
Vital signs assessment	●	●	●	●
Finger prick and blood glucose measurement	●	●	●	●
Cervical spinal clearance	●	●	●	●
Application of cervical collar	●	●	●	●
Application of head blocks	●	●	●	●
Application of spider harness	●	●	●	●
Spinal immobilization using scoop stretcher & long spinal board	●	●	●	●
Spinal immobilization using an extrication device	●	●	●	●
Application of splints including the traction splint	●	●	●	●
Application of vacuum mattress	●	●	●	●
Use of stretchers	●	●	●	●
Urinary catheterization	●	●	●	●
Basic wound care and application of dressings	●	●	●	●
Suturing	●	●		●
Declaration of death: withdrawal of resuscitation efforts	●	●	●	●
Declaration of death: withholding resuscitation	●	●	●	●
Administration of medication as per current	●	●	●	●

HCPSA protocol				
General patient inter-facility transfer	●	●	●	●
Intensive care transfer	●	●		●
Neonatal transfer (non-intubated patients)	●	●	●	●
Neonatal intensive care transfer	●	●		●

As reflected in Table 1, the scope of practice requires ALS emergency care providers to perform invasive and lifesaving procedures in the pre hospital environment. South African ALS emergency care providers have been classified as amongst the best in the world due to the high level of education and their practical exposure (MacFarlane, Van Loggerenberg and Kloeck 2005:146). In addition, South African ALS emergency care providers are registered as independent practitioners with the HPCSA, which allows them to render emergency care and administer medications within their scope of practice (Minnie 2012:28). In order to perform these skills, paramedic graduates should have sound knowledge and be proficient when performing these skills in an emergency situation.

1.5.4 Transformation in emergency care education and training

As mentioned above there are several emergency care qualifications registered with the HPCSA. In an attempt to professionalise emergency care training, in line with other professions, the National Department of Health together with the HPCSA proposed the National Emergency Care Education and Training (NECET) Policy (RSA NDoH 2011). This policy aims to facilitate the normalisation and alignment of emergency care education and training with current educational legislation, national training needs and requirements in order to render quality health care to the population of South Africa. The objective of this policy is to establish a national framework for emergency care education and training. This will ease access, mobility and progression within emergency care education and allow for career progression and to redress the unfair discrimination of the past (RSA NDoH 2011).

The National Department of Health in conjunction with the Professional Board for Emergency Care has proposed a three tier Emergency Care Qualification Framework (ECQF) which is aligned with to the National Qualifications Framework (NQF) and complies with the requirements of the National Qualifications Framework Act of 2008. The ECQF consists of entry level; mid-level and professional level qualifications (Naidoo 2011; RSA NDoH 2011). Table 2 describes the three NQF qualifications, credits and HPCSA registration per category.

Table 2 Emergency care qualifications framework

Description of Qualification	Name of Qualification	NQF Level & Credits	HPCSA Register
1. Entry level Qualification	Higher Certificate in Emergency Care	NQF 5 120 credits	Emergency Care Assistant
2. Mid-level Qualification	National Diploma in Emergency Care	NQF 6 240 credits	Emergency Care Technician
3. Professional Qualification	Professional Bachelor Degree in Emergency Care	NQF 8 480 credits	Emergency Care Practitioner

Recently training and education for the emergency care profession in South Africa has been aligned to conform to the requirements of SAQA and the NQF (Lambert 2011:6). At present, the two tiers from Table 2 of education and training fall within the Higher Education band of the NQF. The first being the two-year Emergency Care Technician (mid-level worker) programme and the second the four-year Professional Bachelor Degree.

Even though the NDoH views the ECT qualification as the "Mid-Level Worker" the qualification is registered under the umbrella of advanced life support (HPCSA 2011). The ECT qualification was registered with SAQA and the first intake of students succeeded in 2007 at provincial ambulance training colleges as well as at selected universities of technology (Lambert 2011). The Western Cape College of Emergency Care was accredited by the HPCSA to offer the ECT qualification in 2010.

The Higher Education Institutions (HEIs) offering Emergency Medical Care programmes are currently in the process of phasing out the three-year National Diploma qualification and implementing the 2-year Diploma in EMC and the four-year Professional degree. The Bachelors in EMC allows for direct articulation into Master's and Doctoral Programmes (Lambert 2011).

Notwithstanding the changes and transformation in emergency care education and training, the 2-year Diploma in EMC and the Bachelor's Degree qualifications entail advance life support clinical decision-making and skills exposure. Therefore, the intended research outcomes will provide a guide to improve clinical exposure and enhance ALS graduates' preparedness for independent practice. In order to contextualize paramedic graduate's preparedness, it is important to note the health status of the Western Cape.

1.6 Burden of disease in the Western Cape

According to the National Department of Health statistics (RSA NDoH 2010) the main causes of the burden of disease in the Western Cape, besides HIV, are related largely to cardiovascular diseases, hypertension, strokes, respiratory diseases and diabetes. In comparison to the rest of the world, violence is a particular problem in the Western Cape, where the injury related mortality rate for men is ten times the global average, while for women it is seven times that average. Substance abuse, particularly alcohol and drug abuse, is one of the most important drivers of the injury burden in the Western Cape as it fuels

crime, violence and road traffic accidents (Kapp, 2008:193; RSA NDoH Burden of Disease 2010).

Prior to the 2010 NDOH statistics, the Saving Mother's Report (2007), a confidential enquiry to maternal deaths, identified that the main causes of maternal deaths were related to complications during delivery, hypertension and obstetric haemorrhage (RSA NDoH 2007). The findings were that 34% of all maternal deaths were avoidable and indicated a significant need for skills training.

Another major health problem related to the Western Cape is the under 5 age mortality. Malnutrition, diarrheal diseases and respiratory infections are the underlying factor and not seen as a direct cause of death in paediatrics (RSA NDoH 2010). Acutely ill children often present with co-morbidity that involves multiple conditions and require acute emergency care intervention. This places a huge demand on the paramedic education curriculum, to provide students with adequate exposure to all aspects of the burden of disease challenges described above.

When dealing with these emergencies, emergency care providers integrate theory with practice and provide treatment within the advanced life support scope of practice. As mentioned in Table 1, the advanced life support skills in South Africa include amongst others, advanced airway management, endotracheal intubation, surgical cricothyroidotomy, circulatory management, twelve lead ECG diagnosis, management of complicated neonatal deliveries, advanced life support resuscitation and the administration of scheduled drugs (HPCSA 2006). Although the scope of practice has been diversified to meet the demands of the South African pre hospital needs, ALS emergency care providers need to be adequately trained to provide effective patient care to improve healthcare.

1.7 Rationale for the study

Based on the health status of the Western Cape, new paramedic graduates are often faced with a myriad of patient presentations ranging from communicable and non-communicable diseases to trauma, within all age groups. Paramedic practice requires independent registration with HPCSA and graduates are often the senior crew administering advanced life support treatment to patients. It is of utmost importance that graduates are prepared for real world practice in order for them to provide effective patient care as well as meaningful contribution to the paramedic profession.

The National Diploma: Emergency Medical Care (NDEMC) programme at CPUT and the CCA programme at Western Cape Government College of Emergency Care (CEC) encompass theoretical, practical and clinical learning outcomes for pre-hospital emergency care at an ALS level. Students in both academic institutions complete clinical learning within Emergency Medical Services and hospital facilities in the Western Cape Metropolitan area, where they should be exposed to both medical and trauma emergency cases that require ALS skills intervention. In order for paramedic students to gain any value from clinical exposure, they must have opportunities to practice clinical decision making in emergencies and be guided constructively to practice appropriate clinical skills to prepare for independent practice.

During clinical placements, students are required to document each patient interaction in a clinical workbook which serves as a record of both patient clinical data and learning activities. Submission of the clinical workbook, documenting specific numbers of clinical skills is a prerequisite for summative examination eligibility. Lecturers generally assess the number of clinical skills performed by the student. This prevents any meaningful understanding of what experiences their students had, during clinical learning. Students are generally placed with a specific senior practitioner for the duration of a 12-hour shift and

will accompany this practitioner in responding to all emergency cases during this period. The Western Cape Provincial emergency services Metropole bases generally have a limited number of ALS emergency care providers on duty. Based on the disproportionate numbers of students to ALS emergency care providers, there are often complaints from students that they are unable to be placed with experienced ALS emergency care providers.

Furthermore, in hospitals students are supervised by doctors or nurse practitioners in charge of the unit. The level of student participation in each case, and the clinical skills performed under supervision are left to the discretion of the supervising practitioner, with the understanding that students should be permitted to obtain as much clinical experience in both patient assessment and treatment as any given situation allows.

The Council for Higher Education (CHE 2011) advocated that HEIs must promote graduates' successful integration into the world of work. In line with this, graduates should make meaningful contributions in the contexts of professional development to the workplace and community. Despite this, informal interview surveys of newly employed paramedic graduates revealed a lack of confidence and competence to practice independently (RSA DoH 2011).

After a thorough review of the literature it was found that empirical research relating to paramedic students' clinical practice experience was conducted primarily in the international context or in allied health fields (Boyle et al. 2008; Levett-Jones and Lathlean 2008; Michau et al. 2009; Newton et al. 2010; Koontz et al. 2010; Rodger et al. 2011). The review reflected that only a few South African studies were conducted within a nursing clinical education context (Mabunda 2008;Tshabalala 2011,Sibiya 2012).

Information available on paramedic student clinical exposure in South Africa is very scarce. Very little research has been conducted and only two published studies were found. The first study conducted by Stein (2009) explored student paramedics' experience with pre hospital cardiac arrest cases and the second study analysed the experience of paramedic students with paediatric emergency cases (Stein 2009). Both these studies were conducted in the Gauteng Province, in South Africa and focused on specific cardiac and paediatric skills exposure of paramedic practice. Limited availability of research information regarding paramedic students' clinical exposure and preparedness for independent practice thus stimulated the need for this research study in the Western Cape.

The researcher postulated that due to a lack of clinical exposure and the lack of structured clinical guidance programmes, students do not develop sufficient clinical skills, hence lack competence and confidence as fresh graduates prepared for independent practice. Cape Peninsula University of Technology NDEMC and Western Cape College of Emergency Care paramedic students' clinical practicum experience is the focus of this case study.

1.8   Aim of the study

The aim of this study was to explore the multidimensional aspects of the clinical practicum experience of paramedic students in the Western Cape and to make recommendations for its improvement.

1.9   Research objectives

- To explore the clinical practice placement experience of ALS paramedic students.
- To investigate the views of paramedic graduates regarding whether the placement experience adequately prepared them for practice.

- To evaluate the clinical practice documents involved in the training of ALS paramedic students.
- To provide recommendations for the inclusion of new knowledge and skills to enhance the ALS paramedic clinical curriculum.

1.10 The conceptual framework for the study

According to Miles and Huberman (1994:18) the conceptual framework sets the parameters for the study, identifies inclusion and exclusion criteria in terms of the study participants' expert knowledge and in so doing provided the researcher with the opportunity to gather general constructs into intellectual "bins". In addition, the framework served as an anchor for the study and is referred to at the stage of data interpretation, which is further discussed in Chapter 4 (Baxter and Jack 2008:558).

1.10.1 Rationale for choice of conceptual framework

The conceptual framework for this case study was guided by the Work Integrated Learning Good Practice Guide (CHE 2011). According to the framework, a profession is made up of three different fields, namely the academic field, educational field and professional practice. The academic field provides a scientific basis for the profession; the educational field is the arrangement of knowledge from the academic field and requires strategies of learning and assessments. Professional practice refers to knowledge learnt in the classroom that can be applied to the profession when preparing graduates for the world of work (CHE 2011).

According to Engel-hills et al. (2010) effective training cannot occur in isolation. In order for students to become independent practitioners, they require academic knowledge of emergency medical care and students must be guided constructively in class and during clinical placements. Once they understand these basic foundations, students will be able to apply cognitive and metacognitive knowledge into professional practice (Engel-hills et al.2010). The

Figure 1 below illustrates the integration of the three fields brought into alignment advocated by the Work Integrated Learning Good Practice Guide (CHE 2011).
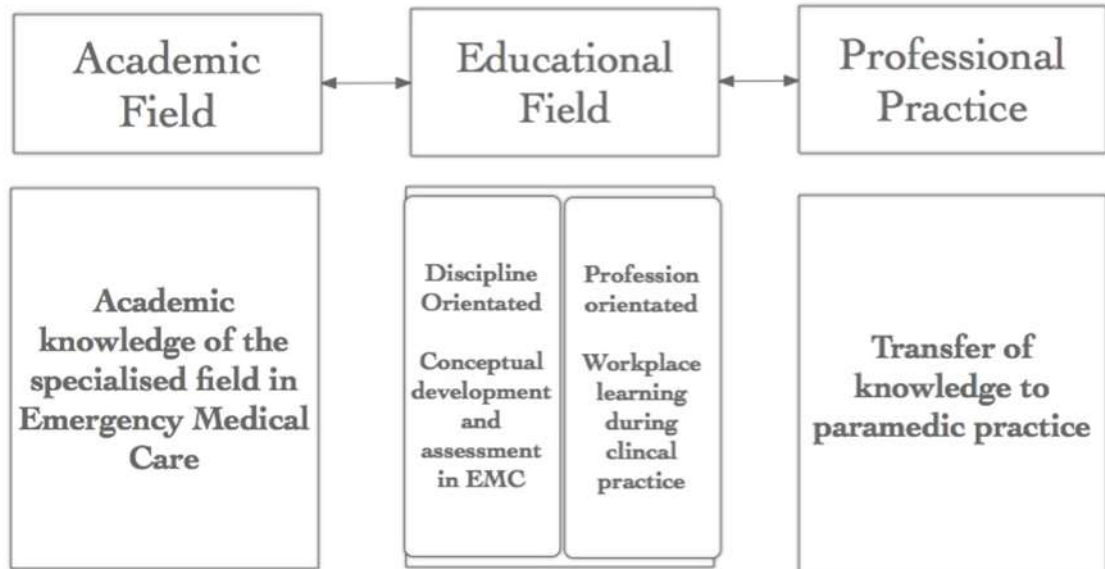
Figure 1 Conceptual framework for work integrated learning (adapted from CHE 2011)

1.10.2 Academic field

The Council for Higher Education (2011: 9) advocated that academic staff in their roles as researchers develop new knowledge and thinking in their field of specialisation. Engel-hills et al. (2010) argued that training programmes that do not provide insights to students in academic and professional fields do not prepare students adequately for professional practice. Therefore, the curricula should enable a better 'fit' between the academic programme and the world of professional practice. Barnett, Perry and Coate (2001) pointed out that teaching and learning and professional education should be based on academic disciplines that form knowledge base of the profession aligned with the world of professional practice.

In developing a curriculum, the principle of alignment, designed by educationalist Biggs (1999), ensures that teaching, learning activities and the assessment tasks directly address the envisioned outcomes in a way, generally not achieved in traditional lectures, tutorial classes and examinations. The author further stated that an aligned curriculum provides students with clear outcomes and that teaching and learning activities must be aligned with the outcome appropriate for the knowledge level of a student.

Garraway and Volbrecht (2007) concurred saying that it is beneficial for students to work with an experienced and knowledgeable preceptor to guide students in a world of professional practice. Building clear linkages between all three fields described in Figure 1, benefits the students learning process (Engel-hills et al. 2010).

1.10.3 Educational field

According the CHE (2011:9) educators should select topics and concepts for their students to study, and devise methods of teaching and assessment that are appropriate for the students' conceptual development.

Academic programmes are bundled in a package of separate academic subjects. This is in contrast to many different ways that knowledge is required and drawn on in practice (Engel-hills et al. 2010). The paramedic training programme comprises of anatomy and physiology, basic science, pharmacology, emergency medical care theory and practice, primary health care as well as law and administration (Louria 2005:19). Knowledge learnt in a classroom does not easily transfer to practice in the workplace in a straightforward and uncomplicated way. In practice, knowledge is tacit and is required in a social way, through mentoring supervision and teamwork (Boyle et al. 2008:2-6). A diverse training level within a profession requires some sort of skills intervention procedures (Garraway and Volbrecht 2007).

During paramedic practice discretionary judgements are required or the work involves unpredictable complex circumstances, thus complex forms of knowledge are needed. According to Ehrenberg and Häggblom (2007) the difficulty is that students' knowledge is generally obtained in the academic field and often fails to apply the relevance of transferring what they have learnt in the literature to the workplace setting (Ehrenberg and Häggblom 2007).

Workplace knowledge is difficult to access, the nature and structure of academic subjects is such that workplace knowledge has to be adapted to the academic context (Garraway and Volbrecht 2007). Although clinical skills are practiced and simulated in a classroom, the authenticity of on-the-job training is different to a classroom setting. Traditionally, paramedic students attend their experiential learning duties in the context of clinical guidance rather than a structured clinical learning programme. Currently, the only student requirement is a checklist in the form of a workbook or portfolio of prescribed number of performed skills and prescribed number of clinical hours that is signed off by assigned senior practitioners.

1.10.4 Professional practice

The work integrated learning approach recommended that students experience a range of professional knowledge domains (CHE 2011). Students should immerse themselves in academic disciplines that form the basis of the future profession. They need to be fully engaged in complex learning processes and also needs opportunities to learn from the professional domain (CHE 2011).

Clinical learning takes place in work environments where paramedic students are placed in these settings for the purposes of learning. Constructive learning involves planning and implementing activities, reflecting and evaluating of the activity and making necessary adjustments for future endeavours (Burdford et al.2014:1-7). Kolb's cycle of learning (1999) seems to be the mainstay of workplace learning that stimulates reflective practice in paramedic education.

The implementation of work integrated learning strategies to prepare graduates for the workplace, involves the modelling of subject knowledge. In order to develop graduate attributes, it is imperative to foster learning that is less didactic and more situated, participative, and 'real world' oriented. This involves the transfer of tacit and explicit knowledge from professionals to students (Garraway and Volbrecht 2007).

Knowledge transfer requires sufficient EMC exposure within adequate timeframes. The time allocated to theoretical and practical learning in each academic year of study in the NDEMC programme is determined by the prescribed learning outcomes and is also controlled by the Department of Emergency Medical Care at CPUT and the HPCSA. The NDEMC students are required to complete a minimum of four hundred clinical learning hours per year (Stein 2009: 59 -64). The HPCSA which also serves as the ETQA for Provincial Colleges recommends five months of theory and four months of clinical practicum for the CCA course curriculum. In addition, students are required to complete a prescribed number of clinical procedures.

As professionals in training they need to be adequately prepared to engage with and contribute to the world of professional practice. This field of the framework asserts that when graduates qualify, they should be ready for professional practice as a fully 'fledged professional' (Garraway and Volbrecht 2011).

1.11 Conclusion

This chapter presented the introduction of the study to give context to the problem, which included the aims and objectives. In addition, the theoretical framework of WIL was discussed to set a backdrop for this case study. The review of literature together with relevant theories of clinical practice is discussed in detail in Chapter two. The details of the research design,

methodology and data analysis procedures utilized for the study are presented in Chapter three.

The findings of this empirical research and the discussion of these findings, underpinned by relevant literature are discussed in Chapter four. The findings are presented as excerpt quotations from the participants to formulate additional understanding and interpretation.

Finally, the study is consolidated in chapter five. The conclusions emanating from the findings are presented, together with recommendations and suggestions for future research opportunities within the EMC field.

Chapter 2

LITERATURE REVIEW

"Give the pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking; learning naturally results." John Dewey

2.1. Introduction

A literature review places the researcher's study into perspective, situating the topic in a larger pool of knowledge to provide a clear understanding of the nature and meaning of the problem that has been identified (De Vos et al. 2011:134; Brink, Van de Walt and van Rensburg 2012: 70).

The purpose of a literature review is to conduct a critical appraisal of scholarly work by determining what is commonly known about a topic, in order to establish a comprehensive picture (De Vos et al. 2011:134). Brink, Van de Walt and van Rensburg (2012: 70) asserted that a literature review helps to refine specific parts of the study such as the conceptual framework, design or data analysis process. According to Creswell (2009:25) a literature review may be used to compare findings of existing studies to show relevance, or support or inform a study and relates to the on-going dialogue in literature, filling in gaps and extending prior studies.

The Work Integrated Learning Good Practice Guide, published by the Council for Higher Education (CHE 2011) delineated the parameters for the review,

particularly as it lent support for specific literature pertaining to undergraduate paramedic clinical practice. These parameters included theoretical underpinnings as well as the support structures to promote students learning. The review of literature was conducted through the Durban University of Technology's Library through offline access. An extensive search was conducted through MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Proquest, Google Scholar, Science Direct, which included some of the data bases which were searched. The following terms were used to search for appropriate literature: paramedic student clinical practice, clinical exposure and ambulance placements, work integrated learning, paramedic student experience, mentorship and preceptor.

The literature review revealed that most studies relating to paramedic students' clinical practice experience were conducted internationally, or in allied health fields. Very little literature and empirical research existed on this topic in the South African context. The review yielded just a few South African studies conducted within a nursing clinical education context. The lack of empirical work related to paramedic students' clinical practice prompted the need for this research study in the Western Cape.

2.2. Paramedic profession

A paramedic is defined as a specifically trained medical technician licensed to provide a wide range of emergency services (Merriam-Webster online dictionary 2011). According to Sanders (2007), emergency care providers provide emergency patient care in the pre-hospital setting and life-saving interventions for victims of acute illness or injury. Critical thinking and problem-solving skills, empathy, the ability to work quickly, make good decisions under pressure together with effective interpersonal communication, and an ability to work within a health care team are fundamental to the paramedic profession (Sanders 2007).

Emergency care providers train intensively to provide invasive life-saving skills in an emergency situation that include endotracheal intubation, intravenous access, fluid and drug administration as well as invasive cardiac skills such as defibrillation, synchronised cardioversion and pacing (HPCSA2006, Sanders 2007). To perform such skills requires scientific knowledge and professional training (Williams, Brown and Onsman 2009). Within the paramedic profession there are different levels of training and qualifications. As mentioned in Chapter one, an ALS paramedic is normally the highest medically qualified practitioner on scene and generally manages mass casualty disaster situations, with multiple seriously injured patients (Crawford, Brown and Bonham 2006).

According to Creuss, Johnson and Creuss (2002:209), a profession appropriate to medical education can be defined as a specific group of individuals' who share a body of knowledge, have some independence over their actions and share a common mandate to serve. Based on their moral standards and competence, the group is given a specific status in society. Further development of the profession relies on maintaining its status, sustaining and improving knowledge as well as its scope of practice.

Joyce et al. (2009:533) described "professional practice" as expertise in a discrete area of specialist knowledge permitting autonomous practice grounded on standardised educational preparation and explicit professional ethics. Emergency care providers already practise in a largely autonomous fashion, and have expertise in a clearly defined specialist area in pre-hospital emergency care and treatment (Mahony 2003). Whilst other health occupations have made the transition to professional status, the paramedic profession is a relatively young field, which has shaped into an academic discipline with its own body of knowledge, its own literature and increasingly its own research base thus providing sound evidence for practice (Lambert 2011**).**

A primary outcome for all professions is that future practitioners should be able to integrate formal knowledge into the field of work (Clapton et al. 2008:334). Schon (1987:6) in particular discussed the predicament that professional schools find themselves in, trying to find a balance between the need to provide the students with standard profession specific skills and knowledge and at the same time prepare them for "indeterminate zones of practice" characterised by '""uncertainty uniqueness and value conflict".

The preparation of emergency care providers to become professionals requires educational training in clinical practice in the context of the real world. Besides clinical exposure, practice placements provide students the opportunity to acquire knowledge and values of the professional subculture (Boyle et al. 2008:1-7). Page (2008:181) concluded that professional socialisation assists in improving graduates' preparedness for real world practice and to deal with the real life pressures of the work environment.

It can therefore be concluded that in order for paramedic students to be adequately prepared for professional practice, students should be provided with a supportive environment to make clinical decisions and have a diverse range of experiences related to the paramedic environment. During this transition, students gain autonomy, confidence and socialize into professional practice.

2.3. The role and importance of clinical learning

Clinical placements are considered an essential element of paramedic education (Boyle et al. 2008:7). According to Rodger et al. (2011:195-202) and Newton et al. (2010:1381), clinical placements afford students the opportunities for skills development, provide a link between academic and workplace learning and assists graduates to socialize into the profession. In addition, clinical placements have been identified by students and health professionals, as the utmost influential learning experience in a students' journey to become a competent health care professional (Kilminster and Jolly 2000).

Clinical placements should effectively achieve the aim of education in the practice environment. These aims include the quantity and quality of learning that is experienced by students and the degree to which the experience is personalized to meet student requirements (Rodger et al. 2011:201). These placements should provide the student with sufficient preparation for professional practice (Newberry 2007). Quality clinical placements are defined in terms of student learning outcomes, and take place in a supportive teaching and learning environment. The most frequently cited definition of a clinical learning environment is one which refers to it as "an interactive network of forces influencing student learning outcomes in the clinical setting" (Dunn and Hansford 1997:1299).

Learning during clinical placements is what experiential learning theory calls 'situated' learning, suggesting a transformation of theory into paramedic practice (Yardley, Teunissen and Dornan 2012). According to Brown et al. (2011) the goal of clinical education is to develop the students' professional skills and knowledge which will be needed in life-long learning and critical thinking. Papp et al. (2003:262-268) argued that clinical practice creates self-confidence and ensures that students are able to make independent clinical decisions. This concurred with Stein's (2009: 59) views that clinical exposure is of crucial importance to empower a practitioner with insight, decision-making and problem-solving skills, and the ability to adapt in a realistic environment. Nahas and Yam (2001) noted that the student going out into the application field enters an unaccustomed and uncontrolled environment.

Despite the importance of clinical placements in forming a fundamental component of undergraduate programmes to provide students the opportunity of developing communication skills and professional socialisation, studies by Levett-Jones and Lathlean (2008) and Koontz et al. (2010) have uncovered problems surrounding clinical placement experience, accompanied by concerns about students' competence and confidence to practice. These concerns were echoed by Mabunda (2008) Tshabalala (2011) in the last decade and in the

context of other allied health literature in South Africa. It is not surprising then that while clinical practice remains undisputed as a key to professional competence, the clinical practice environment may have a profound impact on a students' learning experience (Pratt et al. 2011:1381).

2.4. Clinical practice theories

In order to contextualise the clinical learning of paramedic students, the researcher explored relevant learning taxonomies that relate to health science training. Learning taxonomies are structured learning processes built into an educational programme, which are designed to understand students learning (Anderson 2011:48). According to Mckimm and Swanwick (2009), learning taxonomies that influence paramedic training include Bloom's taxonomy, Miller's pyramid of competence and Kolb's theory of reflective practice. These authors advocated that students must combine cognitive, psychomotor and affective domains to the workplace, to relate theory to practice. Benner (2004) suggested that students learn from foundational theoretical principles and utilize past experiences to guide their actions. As the student progresses from one level to another, the learner's perceptions of situations change. Learning then results from intuitive practice that unfolds during the transition from observing to actively participating (Anderson 2011).

2.4.1. Bloom's Taxonomy

Bloom's Taxonomy has described the cognitive domain of educational activities, as involving knowledge and the development of intellectual attitudes and skills, as levels that range from the simplest behavioural attitudes to the most complex cognitive thinking processes (Boles, Beck and Hargreaves 2005). Bloom classified educational goals to encourage thought processes at six different levels of cognitive ability from the simple recall of knowledge, to the high level abilities of analysis, synthesis and evaluation (Anderson 2011). These levels are seen as very useful for developing the critical thinking skills and enhancing students' learning.

According to Boles, Beck and Hargreaves (2005), students should progress through the academic curriculum from basic knowledge and skills at the start of the programme to a high degree of exposure to disciplinary knowledge, as they progress towards graduation. Clinical learning should relate to the knowledge, which is aligned to the relevant tier of Bloom's taxonomy (Anderson 2011). In order to progress from a student to a professional, there needs to be a paradigm shift from reliance on abstract principles to a concrete understanding of seeing situations as discrete, and related parts to seeing situations and practical problems as part of a whole (Boles, Beck, Hargreaves 2005).

In order to achieve clinical skills competence, Anderson (2011) suggested that the proficiency of clinical skills should follow Blooms principles and prescribed the following five levels: imitation, manipulation, precision, articulation and naturalisation. A student should therefore perform a skill from instruction, reproduce a skill with accuracy and proportion, combine one or more skills in sequence of the harmony and consistency and finally complete skilful tasks competently and automatically (Anderson 2011).

2.4.2. Knowledge domains

An effective clinical practice needs to consider aspects of all the key knowledge domains, comprising of cognitive, psychomotor and affective domains as depicted in Figure 2.

2.4.2.1. Cognitive domain

This domain relates to the learner's knowledge and the development of intellectual abilities and thought processes. In clinical practice this process consists of concept formation; data interpretation; application of principle; and evaluation and reflection of action during patient care. A paramedic formulates provisional diagnosis during the concept formation phase. After obtaining

information about a patient through history taking and physical assessment, the paramedic makes an interpretation of the new information. A paramedic either makes adjustments to initial provisional diagnosis and subsequent treatment or maintains the initial line of clinical management. During reflection a paramedic reflects on treatment rendered, areas of improvement and internalizes this information for future similar cases. Development of the critical thought process is one of the objectives of paramedic clinical practicum; however it relies on competent and motivated involvement of a mentor paramedic, especially during the reflective phase.

2.4.2.2. Psychomotor domain

The psychomotor domain focuses on the process of learning motor skills; which encompasses observation of a clinical skill, manipulation, precision, articulation and naturalization. In paramedic clinical practicum, the psychomotor domain relates to developing specific procedural skills such as endotracheal intubation. In terms of paramedic practice, this domain relates to the HPCSA prescribed advanced life support procedural skills (HPCSA 2006).

2.4.2.3. Affective Domain

The affective domain focuses on the learner's interest, attitudes, and values in the form of acquiring 'soft skills'. These interpersonal skills include ethical behaviour and awareness, communication and professionalism practiced during clinical practicum (Anderson, 2011:48).
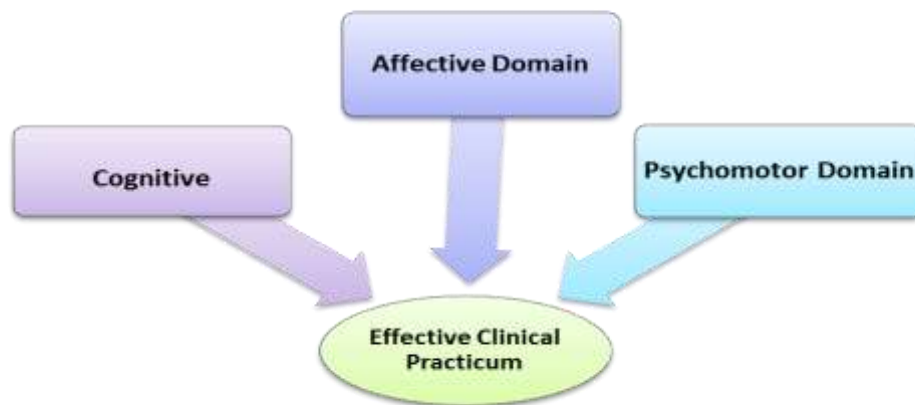
Figure 2.The three domains of Bloom's taxonomy that integrate theory to clinical practicum (McKimm 2009)

2.4.3. Reflective practice and learning styles

David Kolb (1984) viewed students' learning as an individual experience, whereby a student reflects on that experience and reconstructs what has been learnt and applies new learning in future situations. Kolb's experiential learning theory forms the basis for health science education, in that students' learning evolves as they navigate through individual learning experiences. As students' progress through academic and practical curricula, they must become accustomed to the concept of being a healthcare professional. Due to the nature of the paramedic profession, which requires the ability of emergency care provision across a number of health disciplines and variety of environments, the aim of clinical practicum is to provide a diversified experience. Based on the premise of Kolb's theory, a more diverse and richer experience of a paramedic student during clinical practicum will provide greater opportunity for reflection and thus learning.

Kolb (1999) recognized four distinct learning styles, which can be represented schematically by two axes as depicted in Figure 3. The horizontal axis refers to the process of continuum, demonstrating a preference for performing tasks

on one end (Active Experimentation or AE) and for observing at the other end of the scale (Reflective Observation or RO). The vertical axis is referred to as the perception continuum, indicating a preferred learning style based upon feeling at one end (Concrete Experience or CE) and thinking at the other end (Abstract Conceptualisation or AC). The four quadrants are formed by the intersection of the two axes representing four learning styles that are derived from a combination of two preferred learning abilities. Kolb (1999) referred to these four learning styles as the Diverger (combination of CE and RO), Assimilator (combination of AC and RO), Converger (combination of AC and AE), and Accommodator (combination of CE and AE) styles.

In the process of education of paramedic students, abstract conceptualisation (AC) represents theoretical "thinking" processes. This then results in active experimentation (AE), during which students essentially use the knowledge that they gained to formulate a theory on achieving a task, known as the "doing" phase. The outcome of a task, whether positive or   negative, is concrete experience (CE) or "experience" phase of learning (Williams, Brown and Windship 2013).

According to Hauer et al. (2005), post concrete experience (CE) is reflective observation (RO) whereby students reflect on what worked and possibly did not work, which is known as "reflecting". This cycle is a continuous, recurring process, with students frequently making the transition from one phase to another as directed by their learning needs.

In the context of paramedic clinical practicum, willingness of a supervising paramedic to provide opportunity for conducting paramedic skills, such as endotracheal intubation during real life patient care, determines the level of active experimentation and concrete experience. On the other end of the spectrum, the level of exposure to guide reflection during paramedic critical thinking process, will determine the extent of reflective observation and abstract

conceptualization. The extent of learning that can take place during paramedic clinical practicum depends on many extrinsic factors, of which many are out of paramedic students' influence and control.
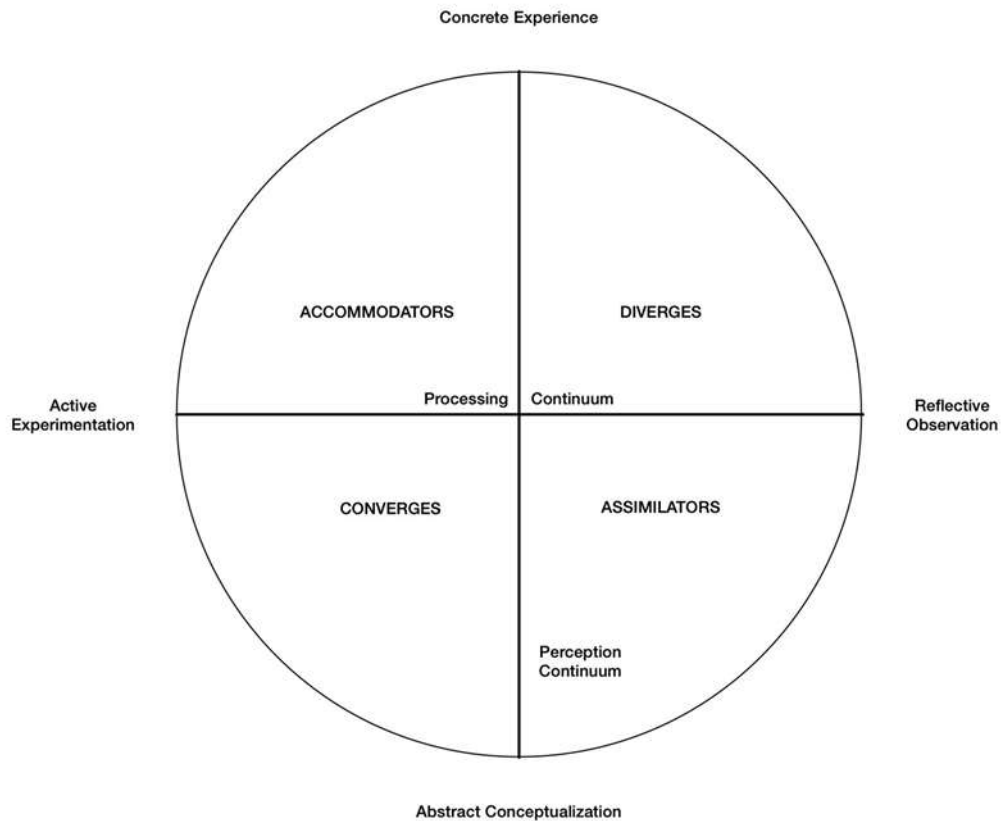
Figure 3 David Kolb's learning styles

2.4.3.1. Miller's Pyramid of competence

Miler's Pyramid of competence provides an alternative view of competence construction, which can be linked to paramedic trainees. In contrast to Bloom's taxonomy, the model asserted integrated assessment of professional competency, which includes cognitive, psychomotor, and affective knowledge and skills. This assessment should be structured hierarchically along the development of professional competence that occurs over time. Miller (1990:65) provided a simple description of the hierarchy of professional competence as a function of growth in understanding. He depicted the hierarchical nature of professional competence as a pyramid of increasing

performance proficiency ultimately culminating in the delivery of good-quality health care (Figure 4).
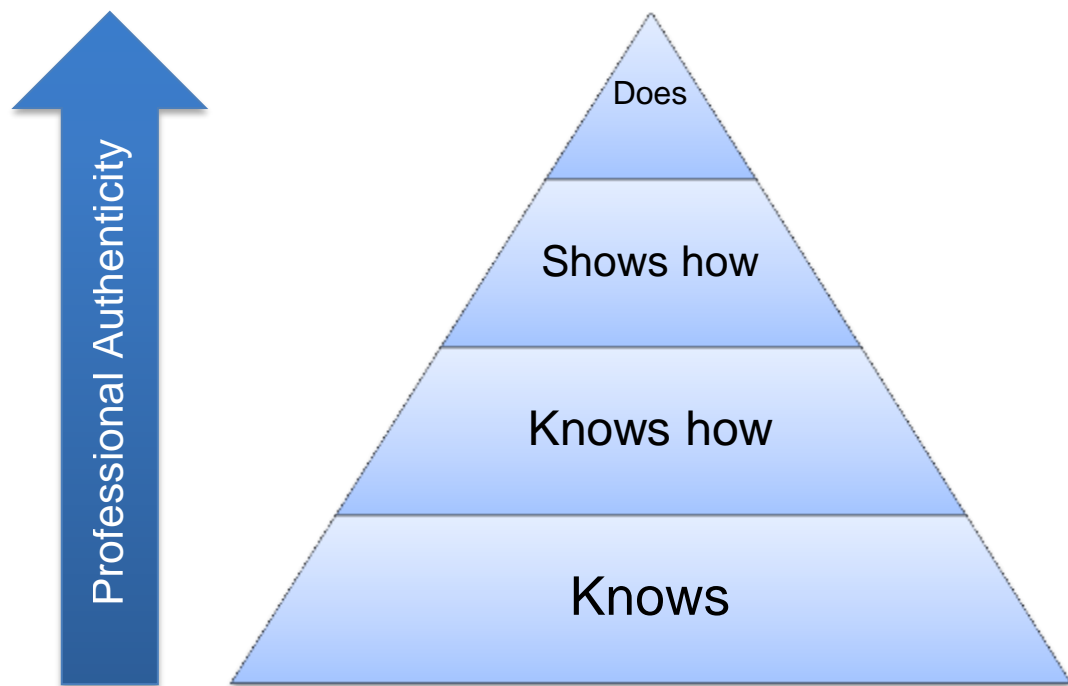
Figure 4 Miller's Pyramid of Competence (Miller 1990)

Miller's pyramid of competence describes each level of performance using a descriptive verb which clearly defines the advancing level of proficiency that must be achieved by trainees as they increasingly take on the role and responsibility of providing appropriate health care (Shumway and Harden 2003: 569).

Although Miller's pyramid is not traditionally described as taxonomy of performance proficiency, from which professional competence may be inferred, it certainly functions as such (Anderson 2011).   Ramani and Leinster (2008)

argued that the simplicity of Miller's pyramid has an enduring application to medical education and forms the framework for the assessment of professional competence. Miller (1990) affirmed that knowledge is embedded in each level of the pyramid.

The first level "knows" forms the base of the pyramid and the foundation of the building of clinical competence. The second level which is "know how" is this knowledge in acquisition, analysis and interpretation of data and a development plan. Third level "shows how" and requires the learner to demonstrate the integration of knowledge and skills into successful clinical performance. The final level "does" requires that the learner demonstrates clinical competence in the real environment (Wass et al. 2001).

The first two levels specifically focus on assessing the knowledge and theoretical constructs that underpin professional tasks. At this level, demonstration of the psychomotor and affective skills required to perform the tasks is not required. Level three and four of the pyramid, however, requires trainees to demonstrate proficiency at performing professional tasks in the clinical field of professional practice. To achieve this outcome, trainees are required to use, in an integrated manner, the specific cognitive, psychomotor and affective skills appropriate to the task (Crossley et al. 2002). The synergy between this outcome and the definition of professional competence provided earlier is apparent.

The key difference between the upper two levels of Miller's pyramid is the physical location, where the task is performed. Level three tasks take place in a simulated clinical environment such as a clinical skills laboratory, while level four tasks take place in the clinical workplace, provided by clinical practicum experience.

Millers competency pyramid (1990) is similar to Bloom's taxonomy in that there is a marked shift, as professionals develop expertise, from being able to demonstrate the knowledge underpinning competence (e.g. knowing theoretically how to examine patients) to 'doing in action,' where knowledge, skills and professional attitudes are synthesized and internalized into a seamless routine that can be carried out in different contexts (Norcini 2007).

Based on the theoretical propositions and the model of Miller's pyramid, the clinical practicum experience of final year paramedic students resides in the top levels of the pyramid, which should provide the opportunity and experience of consolidating the development of professional competence, by application of the comprehensive range of knowledge and skill within real life contexts of patient care. However, the opportunity provided for paramedic students to reach top levels of Miller's pyramid during clinical practicum, is lacking in the paramedic field.

2.5. Multidimensional issues of clinical practice placement experience

2.5.1. Theory practice gap

In the paramedic curriculum, theory is inseparably linked with practice. Theory refers to the knowledge and skills learnt in classroom, whereas practice implies the application of a procedure during clinical practice (Dale 1994). Clinical placements form a fundamental role in professional development for undergraduate paramedic students. The scarcity of clinical placements, patient availability and increased number of students in clinical placements limits training opportunities in real world practice (Hall 2006: 627). According to Boyle (2007) a constrained health system together with a shortage of clinical supervision are some of the factors that affect students, who have to integrate theory with practice.

Levett-Jones (2007) found that simply sending students on clinical placements does not necessarily guarantee learning or clinical competence. Waxman and

Williams (2006) published students' concerns that voiced not having enough clinical experience to make a smooth transition from student to novice paramedic. Similarly, Boyle et al. (2008) found that although clinical placements were a positive experience within the ambulance setting, students reported unproductive downtime, not being given the opportunity to participate in patient care and that the learning environment was not always supportive.

Boyle et al. (2008:28) questioned what paramedic skills and knowledge are being reinforced during clinical placements and whether paramedic clinical placements are as successful as they could be in assisting with the theory-practice gap paradigm. While these studies have importantly added to the body of knowledge in paramedic education there still appears to be gap in the literature relating to clinical placement education and more specifically theory-practice gap.

Likewise, Elcigil and Sari (2007) described the theory practice gap in nursing as the disparity between what has been learnt in the classroom setting and what is practiced in the clinical learning environment. A study by Sharif and Masoumi (2005) reported disparities between what was learnt in class and simulation laboratory and the actual practice in clinical practice. Conflicting practices between what was taught in the class and that of clinical setting resulted in students being confused, stressed and anxious. This resulted in ineffective learning and a lack of preparedness for professional practice (Evans and Kelly 2004; Sharif and Masoumi: 2005). Learning takes place when students apply what was learned in the classroom situation and what was practiced in a simulation laboratory, into the reality.

Theory practice gap has been identified across multiple health disciplines. Clement and Mackenzie (2005) stated that the gap between knowledge and practical application affects professional competence and contributes to poor quality patient care. As per the literature above it is clear, that there are serious challenges with integrating theory to practice. In any situation where the

application is not possible the learning experiences of paramedic students are adversely affected.

2.5.2. Pedagogical approaches to theory practice gap

Several studies have illustrated measures to try and close the theory-practice gap and have suggested the use of pedagogical approaches such as guided reflection and Problem Based Learning as methods for closing the gap (Sharif and Masoumi2005; Ehrenberg and Häggblom 2007).

A study by Mahmud (2013) explored the gap between theory and practice in paramedic education in Malaysia and highlighted the need for a learner-centred approach that uses problem-based learning and constructivist learning. The latter enabled students to master main skills, such as thinking skills, problem-solving skills, and communication skills in clinical practice. The constructivist approach refers to teaching in clinical practice that employs student experiences to create an environment in which students participate in the learning process. Students are encouraged to extrapolate from existing knowledge and relate what they have learnt to the clinical practice realm. Students also reflect on previous experience integrating new knowledge that constitutes transformative learning.

In problem based learning, the case based problem is used as a stimulus to facilitate the acquisition of problem-solving skills and knowledge and the application of knowledge by students. Similarly, Badeau (2010: 252) stated that problem-based learning aims to construct extensive and flexible knowledge base and stimulates critical thinking and cognitive reasoning. It encourages intrinsic motivation and collaborative learning styles.

On the contrary, Levin (2010) argued that problem-based learning may be difficult to implement in large groups and students may not gain a comprehensive knowledge base of the problem which could result in gaps in knowledge. Problem based learning is a reflective process which focuses on both cognitive and affective aspects of learning. It allows students to learn from experience through discussions and meetings with other students under the guidance of the preceptor. Students become independent self-learners thereby developing critical thinking and problem solving skills (Ehrenberg and Häggblom 2007).

2.5.3. Paramedic student's exposure to procedural skills

Students' exposure to clinical procedural skills during clinical placements is an important phase of students' transition during knowledge construction and has been a topic of interest of several studies in the literature. A study conducted at the University of Johannesburg described the exposure of paramedic students to the pre-hospital cardiac arrest cases encountered during clinical learning (Stein 2009: 59). A retrospective analysis of the student's patient report forms as well the electronic learning database was extracted and subjected to descriptive analysis in terms of student exposure and resuscitation related procedures carried out by students between 2001 and 2007. At the time of data analysis 17,507 patient care report forms, were stored in the clinical database over a seven-year period. Of this only 563 (3%) represented cardiac arrest cases.

The results of the study revealed that the average maximum exposure for first and second year students was four cases and the average for third-year students was six cases. Less than half of the students, who were exposed to cardiac arrest cases in any academic year of study, were able to practice basic adult or paediatric resuscitation-related procedures. Relatively few students had any experience of adult or paediatric venous cannulation or management of patients with return of spontaneous circulation. The author concluded that

students' exposure to practice advanced life support skills in cardiac arrest cases, was very low. In line with this finding, exposure to paediatric and adult cardiac arrest cases in the pre-hospital environment was minimal which has implications for skill acquisition and retention.

The frequency of ALS skills exposure was investigated by Wang et al. (2004) who evaluated the effects of cumulative live endotracheal intubation experience and endotracheal intubation proficiency of paramedic students over a two-year period. The findings of their study revealed that students' endotracheal tube success is associated with accumulative live intubation experience.

Similarly, Boyle et al. (2008) concluded that acquisition of procedural skills is a challenge faced by many students in healthcare education. During training paramedic students must acquire proficiency of advanced life support skills in difficult and challenging environments. Real world experience is traditionally gained under the guidance of a qualified registered healthcare practitioner. However, many factors limit opportunities for paramedic students to acquire this type of training and opportunities for students to perform critical skills, either in hospital or in the pre hospital setting is limited.

2.5.4. Task involvement, participation and opportunities for learning

The nature of opportunities for learning is a key factor influencing paramedic student's clinical learning. Smedley and Morey (2010) revealed that together with personalisation, student involvement and the extent in which students participate enthusiastically and responsively in clinical practice activities is an important aspect of developing students' clinical learning.

Students have reported that a lack of active participation in direct patient care impedes their development and confidence (Henderson et al. 2007). On the other hand increased participation characterised by experiences of patients in

their entirety, promotes initiative, confidence, learning, and understanding of the professional role (Lofmark and Wikblad 2001). Despite the importance of direct patient contact Van Hell et al. (2009) found that medical students across eight hospitals in the Netherlands, spent 40% of the time observing, 12% independently participating in consultations, and 6% in directly supervised activities. Students listed 7% of their time as being unproductive. The authors suggested a blended learning approach to improving learning opportunities within the clinical environment.

McCall, Wray and Lord (2009) explored the factors affecting education of paramedic students during clinical practicum through a qualitative case study. Purposive sampling was employed to recruit undergraduate students from the bachelor degree programme of emergency health paramedic students who completed their final clinical placements at Monash University in Australia. Data was collected through focus group discussions. The study highlighted the lack of communication between the training institutions and ambulance service staff, which resulted in poor knowledge of the curriculum and learning objectives of paramedic students. Students were not allowed to practice advanced life support skills and felt that that operational ALS emergency care providers cast them as observers rather than active participators, which impacted negatively on clinical learning. On the contrary, the supervisors felt underprepared for clinical supervision, as they felt threatened by the perceived limits of theoretical knowledge and found it difficult to answer students' questions. Students also felt that clinical placement was seen as an unwanted constraint, on the daily operations of the ambulance service, producing additional burdens of clinical supervision in the midst of high volumes of patient calls. The authors concluded that the collaboration between the training facility, emergency services and students, in terms of defining roles and responsibilities was vital to improving quality education and graduate preparedness.

Similar issues have been identified in nursing literature (Sharif and Masoumi 2005; Mntambo 2009; Hickey 2010). According to Henderson et al. (2012) task

participation is when students are offered opportunities to learn and is involved in providing holistic patient care and not merely doing a list of tasks. Grealish and Ranse (2009) argued that task participation and accomplishment facilitates learning and when students are able to participate and accomplish challenging tasks then theory is translated into practice, hence learning takes place.

On the contrary, Hickey (2010) highlighted the responses from students doing routine tasks and sometimes non-clinical duties saying that they lacked challenging opportunities to learn critical and clinical judgment skills. Similarly, Chuan and Barnett (2012) recommended that although there are a variety of opportunities for students learning, teaching should be prioritized according to the level of expertise or skill students require during their placements. The study concluded that learning in the clinical practice depends on the availability of challenging opportunities. The authors further concluded that students should be encouraged to ask questions and reflect on their experience, as this will improve critical thinking and improve clinical judgement. Henderson et al. (2012) arrived at the conclusion that when students participate in critical and challenging tasks, together with supervision, support and feedback student cognitive development is facilitated and confidence to practice independently is affected.

2.5.5. Clinical supervision and support

Clinical supervision is a dual role of ensuring patient safety while promoting education and supporting students' professional development (Kilminster and Jolly 2000:827). According to Chisari (2009:18) clinical supervision involves validating students' competence in selected clinical procedures, confirming physical assessment findings, administration of medication and correct patient management. Mabuda (2008:32) stated that the aim of clinical supervision is to achieve and creatively develop a high quality of practice through means of focused support and development.

The paramedic field is a discipline in which students mainly learn through observation of role models and are generally socialised into the values and norms of professional practice. A considerable number of supervisory characteristics have been recognised as desirable, to facilitate supervision transversely (Levy et al. 2009; Rodger et al. 2011). Characteristics most commonly associated with effective supervision, include the ability to form positive relationships and rapport with students, the ability to demonstrate clinical competence, good organisation and communication skills, possessing strong leadership and management skills, acting as a role model, who displays enthusiasm and a passion for learning, being consistent and transparent assessment procedures (Levy et al. 2009; Rodger et al. 2011).

Houghton et al. (2012: 1961) conducted a multiple case study to examine the factors that impacted on students' implementation of clinical skills in the practice setting. Data was collected using semi structured interviews (n= 40) and participant observation of students implementing skills in clinical practice. The findings revealed that the factors facilitating students' implementation of clinical skills was support and supervision which built students confidence. Collegial relationships with staff were found as a significant element in students learning and socialisation into the workplace. It was apparent that the nature of the relationship between the learners and staff in practice settings has an influence on the learning experience of students (Houghton et al. 2012).

Despite the importance of effective supervision to enhance clinical learning, a study by Sharif and Masoumi (2005) found the opposite when investigating student nurses' experience about their clinical practice. The authors found that students were not satisfied with the clinical component of their education. They experienced anxiety as a result of feeling incompetent and felt that they lacked professional skills and knowledge to take care of various patients in the clinical setting. Students felt that clinical educators undertake more an evaluation as opposed to supervision. In addition, staff lack teaching experience and could not identify with the needs of students.

In addition, heavy workload and attitudes of staff compromised supervision (Maben et al 2006; Chuan and Barnett 2012). Haggerty et al. (2012) stated that common obstacles to effective supervision include high supervisor workload, problems with consistent and accurate assessment of student competence and undesirable learner characteristics.

Saarikoski (2007) argued that individualised supervision facilitates learning on the premise that one to one relationship, with the mentor or preceptor allows students to express their learning experiences and feelings in practice thus leading to self-confidence, promotes role socialization, professional development and independence, thereby attain clinical competency. Walker et al. (2012) however reported that some students prefer group supervision and cluster facilitation as it promotes their personal and professional growth.

The literature reviewed suggests that students have different preferences in clinical learning. Apart from clinical supervision, the studies have revealed peer support and social support as a vital element in facilitating students learning (Kelly 2011). Students perform better both academically and clinically, if they have social support from peers (Roberts 2008). Students' relationships are important for learning. Students support each other, discuss patient management, share knowledge, skills, and experiences, and are thus socialised into the profession (Bourgeois et al. 2011). In contrast Chuan and Barnett (2012) reported that the lack of peer support in clinical environment was manifested by conflicts, tensions and competitions for opportunities for practice which is detrimental to learning.

In summary, supervision and support benefits the student and the mentor reciprocally when expectations are agreed upon, through effective communication to achieve common clinical interests to improve patient care

(McCarthy and Murphy 2010). It is clear from the literature that clinical knowledge and performance increases, if students are given necessary support in the clinical environment and likewise effective supervisors should be recognized and rewarded for their initiatives.

2.5.6. Mentorship

Wessels (2005:12) defined a mentor as a registered professional who facilitates learning, supervises and assesses students in the workplace and regulates the safety of a student in clinical practice. Mentors are professionally responsible for assessing students' capability to attain the behaviour expected of them. Casey and Clark (2011) stated that mentors guide students in practice; they sign off the achievement of competence in procedures and inculcate tacit rules and guidelines in students, relating to professional behaviour, particularly confidentiality.

Blunt and Conolly (2006) asserted that mentoring serves more than one goal. Mentoring serves the function of personal development, career development and psychological development. The career function of mentoring is a relationship in which the mentor promotes the mentee and assists him or her to move forward in the work place. From the psychological perspective the function of the mentor includes acting as a role model for the mentee, providing unconditional acceptance. This psychological perspective also relates to an emotional relationship at times. This is consistent with the views of Chovwen (2004), that mentoring results in a powerful emotional interaction between two parties and it enables the mentee to develop on a personal, as well as on a professional level with someone that he or she trusts.

According to Miller (2002) two types of mentoring exist, namely, natural mentoring and planned mentoring. Natural mentoring is seen as happening through friendship, collegiality, teaching, and training and counselling. Planned mentoring, on the other hand, occurs through structured programmemes in

which the mentors and participants are chosen and paired through a prearranged process.

Mentoring is also known to different professional attributes and facilitates the socialisation into professional practice (Ramani 2006). A study was undertaken by Kalen et al. (2010) to investigate undergraduate medical students' experiences and perceptions of mentoring. Medical students in the third and fourth years were offered personal mentors for two years. The results showed that mentors provided supportive and emotional support students. Mentors also provided clinical guidance and stimulated critical thinking. This improved their personal development and increased self-confidence.

A study conducted by Cooper (2004:376) explored training and education within the United Kingdom ambulance trust. A qualitative naturalistic inquiry using interviews with a range of ambulance staff (n=44) was conducted. Stakeholder views on training and education were analysed and compared using the constant comparison method. The study highlighted the lack of mentoring due to huge demands placed on ambulance services to meet response times, particularly for acute and life threatening calls, where 75% of calls, had to have been attended to within 8 minutes. Due to the rapid responses and turnaround time to meet these demands, operational ALS emergency care providers were unable to mentor students correctly and students were left vulnerable with no structured supervision. Amongst the findings of the study the key emergent themes included issues of paramedic curriculum, particularly regarding the theory practice gap and the development of a supportive mentorship framework and the need for the development of inter professional collaborative links between training institutions and emergency services.

Similarly, a hermeneutic phenomenology study conducted by Furness and Pascal (2013) in Australia sought to gain the understanding of the perceptions of mentoring in Emergency Medical Care Paramedic training. This interpretive

method allowed the authors to capture the experience of emergency care providers. Interviews were conducted with eight paramedic academics from each of the Universities in the Victoria region, which offer a paramedic programme. All of the participants had experienced mentoring of both paramedic students and academia and provided information relating to their thoughts, perceptions and experiences. The authors concluded that mentoring in paramedic training is uncommon and largely confined to a novice-to expert mentoring framework, with mentoring explicitly linked with that of clinical instruction. Challenges related to mentoring included a negative effect on both the quantity and quality of mentoring experiences. Furness and Pascal (2013) concurred with this view reiterating the importance of collaboration and asserting that role modelling displays educational, professional, and social roles to promote effective clinical learning.

The role of a paramedic is often challenging, dynamic and stressful, with the nature of the work exposing individuals to unpredictable degrees of psychological trauma. These psychological stressors are compounded by a multifarious workplace environment. Mentoring may provide an effective means of offering greater support, education and professional development and improve clinical decision making and independent practice. Unlike other healthcare professionals, ALS emergency care providers either work alone or in pairs, in situations where their practice is frequently challenged, which demands the need for adequate mentorship for growth and development of paramedic students.

2.5.7. Feedback

Feedback is an interactive process which aims to provide learners with insight into their performance. This has been, categorised into two broad categories namely constructive 'negative' or reinforcing 'positive' feedback (Clynes and Raftery 2008:406). According to Eraut (2006) feedback is an analytical reflection of the students' performance and should provide opportunities to improve clinical practice.

In clinical practice feedback can be given at any opportune time formally or informally, thereby ensuring that students retain important information during specific situations, which is an important component for clinical learning and development (Clynes and Raftery 2008). Feedback is essential for students' growth, provides direction, and helps to boost confidence, increases motivation and self-esteem, which allows transition from novice to expert (Eurat 2006). On the contrary Clynes (2000) argued that when students are not given constructive feedback, they compare themselves with more senior colleagues and measure themselves inappropriately resulting in decreased self-esteem and subsequent negative impact on clinical practice.

A study by Clynes and Raftery (2008), which explored the supervision needs of nurses, revealed significant inconsistency in the amount of feedback, praise and positive reinforcement received by students. Feedback on clinical performance was destructive and personal in nature. In addition, it failed to concentrate on skills development and enhanced clinical performance. Some students indicated that praise was rare, but fault finding which has a negative impact on self-esteem and confidence occurred often. Students were informed of mistakes at the end of a placement when they had no opportunity to correct themselves (Clynes and Raftery 2008).

2.5.8. Training of mentors

The existing literature highlights the deficiencies in the feedback component of mentorship to poor preparedness of clinical staff, for the role of a supervisor or mentor (Kaviani and Stillwell 2000; McCarthy and Higgins 2003; Clynes and Raftery 2008). McCarthy and Higgins (2003) stated that assigning a named practitioner to students is no assurance of their supervisory capability to provide effective feedback and thus it cannot be assumed that a clinically competent practitioner will have the necessary skills to give feedback to students. The significance of specific training in providing feedback cannot be undervalued

and the feedback process is poorly addressed or overlooked in clinical practice (McCarthy and Higgins 2003:95).

It is widely recognized that feedback is more likely to be acknowledged and will result in improved practice if the information is aptly presented to the student (Dohrenwend 2002). The effective delivery of feedback is a multifactorial process and begins with preparation of the supervisor in the competent delivery of feedback. Further elements include a rapport with the student, timing of the feedback, the environment, the language and format used and the readiness of the student to receive feedback (Dohrenwend 2002: 44).

Clynes and Raftery (2008) confirmed that supervisors need to be educated and trained in a method of feedback delivery. Formal training should include a period of self reflection in order that any personal attitudes and biases regarding supervision can be acknowledged. A discussion of the personal experience of receiving feedback and identifying positive and negative aspects is also required. The experience of providing supervision to date, with an emphasis on problem solving in the role, should also be explored.

Elcigil and Sari (2007) conducted a study in Turkey to determine the nature of the problems that student nurses experience during their clinical training. The study participants completed experiential learning in different departments of internal medicine, surgery, obstetrics and gynaecology, paediatrics, psychiatry and public health. A total of 24 students participated in the study. Data was collected via three separate focus group interviews, using a semi structured interview guide and was analysed using a qualitative content analysis. The study highlighted the lack of structured evaluation, poor communication, and interpersonal relationship between supervisors and students, which resulted in ill prepared learners that would ultimately impact negatively on professional development (Elcigil and Sari 2007). On the other hand, Clynes (2004) noted that students do not contextualize the concerns highlighted by the supervisor.

These concerns are directed towards ensuring improved clinical performance and quality patient care and should encourage students to reflect on the feedback.

Dohrenwend (2002) stated that when delivering critical feedback, it may be useful to use the ''sandwich'' method. This technique consists of providing negative feedback sandwiched, between two specific pieces of positive feedback, and is primarily effective with junior students or students with low self-esteem. The author further stated that feedback should be highly specific, and descriptive of what actually occurred. Feedback should focus on assessing behaviour and work performance and not the students' character (Dohrenwend 2002). Clynes and Raferty (2008) concurred with the above analogy, by arguing the importance of asking for the students' self-assessment, before giving feedback. This cannot be underestimated as it provides the supervisor valuable understanding into the student's ability to assess his or her own performance. The process of delivering feedback is substantially easier for the supervisor when the student identifies their own practice restrictions.

Feedback on clinical performance is crucial for effective paramedic learning during clinical practice. Awareness and understanding of the basic fundamentals of feedback delivery can aid the process and ensure that both supervisor and student have a positive collaborative experience. Feedback will also assist students to reflect on their practice thereby learning from experience.

2.5.9. Conducive clinical learning environment

A conducive clinical learning environment is one that is supportive, with a good atmosphere and good relationships and is perceived to produce positive learning outcomes (Chuan and Barnett 2012). The clinical learning environment can influence students learning positively or negatively (Frankel 2009). An environment that positively influences learning, has been described as being one where staff are happy, friendly with good morale and attitude, cooperative

and willing to teach and guide students to provide quality patient care (Papastvrou et al.2010; Chuan and Barnett 2012). Students feel confident and motivated to learn in an environment where they are respected. In contrast, relationship tensions between clinical staff and students have been highlighted. These tensions resulted from staff being unfriendly, having bad attitudes towards students, being hostile, and denying students opportunities to learn. In addition, overcrowding and a lack of resources to train, contributed to problems in interaction between staff and students (Mntambo 2009).

Boyle et al. (2008) explored paramedic students' experience during ambulance clinical placements. The study was a cross-sectional study that used a questionnaire to explore the views of Australian paramedic students regarding their reception, by operational emergency care providers and their overall experience in the emergency service placements. The sample consisted of 77 undergraduate students in the first, second and third year of the programme. The findings indicated that 55% of the students were not welcome upon their arrival. Operational emergency care providers remarked that 40% of the students doubted their ability to perform the role of the paramedic. The study concluded that poor relationships and an unconducive learning environment, may lead to frustration and demotivation, thus negatively affecting students' learning in the acquisition of knowledge and skills to become competent practitioners.

Similar learning anxieties were addressed in a study conducted by Mabuda (2006), who explored student nurse experiences during clinical practice in Limpopo Province, in South Africa. They used a phenomenological method, to explore the lived experiences of students during their clinical experience. A purposive sample of 11 participants was selected for interviews. Data was analysed using Teschs' method of qualitative data analysis. The main themes concerning student experiences and clinical learning environment that emerged from the data was a lack of clinical learning support from nurses, a lack or inconsistent opportunities for learning, misaligned theory and practice

integration and poor l interpersonal relations between students, clinical staff and college mentors.

The limitation of the study was that it focused on one of the three nursing campuses from Limpopo Province and its clinical facilities and hence the findings could not be generalised to all campuses within the province. According to Mabuda (2006) a clinical learning environment, should provide teaching and learning opportunities, space, equipment and health and safety requirements. If students are allocated to a facility in large numbers, it affects teaching and learning negatively with inadequate student support. The number of students allocated to unit at any given time should be controlled for effective teaching and learning to be achieved.

Mongwe (2001:108) and Mafalo (2003:39-40) expressed that shortages of staff and equipment could have a severe impact on the health care system and professional integrity could be jeopardised. They asserted that a shortage of staff and work overload leads to stress and burnout in clinical supervision thereby resulting in diminished leadership and mentorship qualities. This has a profound impact on the quality of experiences and learning of students in the clinical learning environment.

Chipchase et al. (2012:465) explored intra professional supervision in an intercultural context using a qualitative case study. The study employed semi structured interviews of students and supervisors before and after a five-week clinical placement education program. Qualitative analysis from semi-structured interviews was used to determine the perceptions and views of students and supervisors after a five-week clinical placement.

The report revealed that allied supervision provided students with valuable clinical experience, within their own profession, as well as other professions in

terms of collaborative health care. In addition, supervision from educators in professions, that deferred from that of students own field, was beneficial and rewarding. Characteristics of a conducive learning environment included supportive supervisors, a positive and realistic environment with inter professional supervision of allied health care staff and learners.

Although the students valued inter-professional supervision, they preferred supervision from someone from their own profession at the site of the placement to enhance learning outcomes. This appeared to be contrary to the goals of inter professional education which aims to prepare graduates to work collaboratively, providing optimal health care services to patients (Chipchase et al. 2012).

2.5.10.   Preparedness for independent paramedic practice

Paramedic graduates in South Africa enter independent practice immediately post qualification. The development of preparedness during clinical practicum is therefore crucial.   Preparedness can be defined as a state of full readiness (Concise Oxford English Dictionary, 11th edition: 631). In the context of this study, it means that paramedic graduates should be competent and prepared to practise, as independent practitioners that are capable of rendering good quality patient care. Schumacher and Meleis (1994: 119) defined transition as a passage or movement from one state to another which has a profound effect of an individual. According to Duchscher (2001:441) this is the phase where graduates undergo a process of learning to acquire skills, knowledge, attitudes and values that are required to be an effective member of a health team. The transition from final year of training into the workforce is therefore a critical time.

Hettich (2000) revealed that 50 to 80% of new graduates leave their job within the first three years in the United States. The possible reasons included the difference in cooperative culture compared to college culture, a lack of cognitive development and competencies for workplace preparedness. This was further

confounded by psychosocial development, motivational issues and interpersonal skills (O'Brian et al. 2013).

A study conducted by Waxman and Williams (2006: 24) at Monash University in Melbourne highlighted that two thirds of final year paramedic students felt ill-prepared for employment and that students were concerned that their education would not be recognised. Similarly nursing graduates are required to have high levels of knowledge and understanding, apply intensive skills as well as managerial skills to work with the patient, as well as within a multidisciplinary team. These changes require a shift in paradigms from the experience of being a student in supervised practice to an independent professional practitioner. Hence it is important that students are equipped with all the skills required to make a successful transition (Burton and Ormrod 2011).

O'Brian et al. (2013) investigated the perceptions of final year paramedic students at Victoria University in Australia, in terms of preparedness for the workforce. A survey with this sample revealed that clinical practice and placement experience in the field was a key to the positive aspects of the student experience and more varied clinical placements in the course can better prepare students for entry into the workplace.

Similarly, Mampunge (2013) explored the experiences of final year nursing students at a public college of nursing in the Eastern Cape, regarding their preparedness to become registered nurses. The aim of the study was to identify gaps and make recommendations with regard to strategies, to better prepare students for the transition for professional practice. The author used an explorative descriptive design as a framework for the study. A purposive sample of final year Baccalaureate nursing students (n=27) was used for the study. Data was collected using focus group interviews. The study highlighted curriculum misalignment, the lack of teaching and student support, together with inadequate equipment and resources that impacted on student preparedness for graduate practice. Mampunge (2013:73) recommended strategies to

promote preparedness of final year nursing students which included continuous feedback on student performance in the form of exit evaluations, writing of progress reports on the part of clinical practice; and the employment of clinical preceptors with clear role specifications amongst the lecturers, ward sisters and preceptors to evade role confusion.

2.5.11. Communication and collaboration

Kirke et al. (2007) noted that good collaboration between stakeholders contributed to a positive clinical learning environment and allowed better transition of graduates into professional practice. Redding and Graham (2006) stated that placement preparation is one of the most challenging tasks for universities. Gallagher et al. (2012) agreed that students' clinical learning experience during placement, is largely influenced by the coordination of workplace learning and depend on the communication between the university and the placement site.

McCall et al. (2009) found that students were frustrated when the supervising staff was unaware of their clinical placement schedule, the student's role in practice, and their learning requirements during placements. Levett-Jones et al. (2006) agreed with this, by reiterating that poor communication between placement sites and universities created problems. These authors further mentioned that clinical teachers are often frustrated when they have limited knowledge about what students had learned prior to placements, together with unclear clinical objectives, and absence of orientation processes to clinical venues.

Henning et al. (2011) identified the need for clearer communication with guidelines for supervisors and students during clinical placements. It has been further argued that formal channels of communication between the placement site and academic institution needs to be established, so that orientation

procedures can be agreed on and processes for addressing emerging issues can be addressed (Rodger et al. 2011).

Page et al. (2008) described collaboration between medical schools in Australia, alluding that traditional communication between medical schools has been competitive and not collaborative, thus stymying opportunities for joint educational ventures between them. The authors recommended several collaborative initiatives which included collaboration with Training providers, Hospitals and Emergency Medical Services to ensure professionalization of a graduate. The reviewed resonates with the work integrated learning good practice guide advocated by the Council for Higher Education (CHE 2011).

Mabuda (2006) findings further strengthened the need for a collaborative approach between administration of clinical practice, education, planning and evaluating clinical learning experiences. In order for students to gain any value from clinical practice, training providers must provide the workplace with specific workplace learning objectives so that the student as well as supervisors or mentors are aware of. The CHE (2011) advocated the need for high quality staff development programmes for academic and industry supervisors, thus promoting reflection and evaluation of programmes to improve clinical practice learning.

2.6. Conclusion

The transition from student to practitioner is challenging, as the values and practices addressed in the classroom are confronted by the realities of practice in workplace processes, procedures and requirements (Newton et al. 2009).

The importance of clinical learning was discussed earlier in this chapter. This was done by providing brief explanations on the theories of knowledge and focussed on the importance of reflective practice in clinical reasoning. Miller's

framework of assessment (1990) in clinical practice was used to outline the importance of clinical competence. Literature review also reflected on the importance of clinical practice environment in shaping student paramedics preparedness for practice. The factors that impact on student experiences include, amongst others, teaching and learning, student support, supervision, collaboration and communication. The following Chapter focusses on the research methodology used to guide this study.

Chapter 3

RESEARCH METHODOLOGY

"We're all instructors to realize that the quality of mental process, not the production of correct answers, is the measure of educative growth something hardly less than a revolution in teaching would be worked." John Dewey

3.1. Introduction

This chapter describes the research paradigm that was used to guide the study. It focuses on the research process for data collection and data analysis. In addition the samples selected are described. Trustworthiness and its relevance to qualitative methodologies is also discussed (De Vos et al. 2011:308).

3.2. Research methodology

Research methodology can be defined as the complete strategy that involves the intersection of philosophy, strategies of inquiry and specific methods employed to complete the research process (Brink, Van de Walt, Van Rensburg 2012: 201; Creswell 2009: 5). It entails reflection on planning, implementing and evaluating the research in order to comply with the standards of truth, objectivity and validity (Brynand and Hanekom 2006:36).

3.3. Research Design

De Vos et al (2011:323-325) described the research design, in particular as the architectural backbone of the study, the overall plan of the study and the structures within which the study is implemented. This is aligned with Burns and Grove (2009) definition of the research design as the plan or blueprint for conducting a study in a logical sequence. In this study, the researcher used a qualitative case study approach to explore the multidimensional issues of paramedic students, during their clinical practicum.

3.3.1. Qualitative research

The research objectives focussed on exploring students' learning experiences and preparedness to practice which influenced the decision to choose a qualitative research approach. According to Creswell (2009:4) qualitative research is a means for exploring and understanding the meaning of individuals or groups ascribed to a social or human problem. The process of research involves emerging questions and procedures and data is naturally collected in the participant setting. Data analysis is inductive building from particulars to general themes, and the researcher makes interpretations of the meaning from the data (Welman, Kruger and Mitchell, 2008: 193).

Creswell (2009) added that qualitative researchers collect data in the field with participants who experience a problem at the particular site. The information is gathered by talking directly to the participants within the context of environments. The researcher therefore has face-to-face interaction with the participants in the natural setting. The researcher then is the key instrument in qualitative research. They collect data by interviewing participants, observing behaviour or evaluating documents (Leedy and Ormrod 2005:135). In some cases, the researcher uses a protocol as an instrument to collect data. This is done by the researcher himself and does not rely on questions or instruments developed by other researchers.

In qualitative research the researcher gathers data through multiple sources viz. interviews, documents or observations and does not rely on one single source of data. The researcher views all data to make sense of it and organises the data into categories or themes that are congruent in all of these data sources (De Vos et al 2011:139). According to Brink, Van de Walt and Van Rensburg (2012: 121) the qualitative research process is inductive whereby researchers build patterns or themes from bottom up, organising the data into abstract units of information until the researcher establishes a comprehensive set of themes. The researcher may interactively collaborate with participants to confirm if themes or abstractions are in fact the actual reality of the experience. The entire

process of qualitative research is therefore focused on learning the meaning that participants hold about a problem or issue (Creswell 2009: 176).

Qualitative researchers often use a theoretical lens to view their studies and frame the study within a context (De Vos et al 2011: 309). Qualitative research is a form of interpretive enquiry; these interpretations cannot be separated from the background, history, context or prior understandings. The researcher develops a holistic picture of the problem and reports multiple perspectives, to identify as many factors involved in the situation so that a larger picture emerges (Welman, Kruger and Mitchell, 2008: 191). Based on the aim of the study which was to explore the experiences of paramedic students during clinical practice, a qualitative case study approach was chosen as the most appropriate mode of inquiry.

3.3.2. Case study

According to Creswell (2009) a case study is a strategy of enquiry in which the researcher comprehensively explores a programme, event or activity of one or more individuals. Cases are bound by time, activity, or location and the researcher collects detailed information using a variety of data collection procedures over a sustained period of time. This definition concurs with Yin's (2009) view that a case study is a strategy of enquiry about organisations, individuals or programmes. On the other hand Baxter and Jack (2008) advised that the issue should not be explored through one lens, but rather a variety of lenses which allows for multiple facets of the phenomenon to be revealed and understood. De Vos et al (2011: 321) argued that the advantages of using a case study method, is that it allows for close collaboration between the researcher and participants. Participants are able to describe their views of reality, which enables the researcher to better understand the participants' actions.

A combined exploratory-descriptive design, utilising a case-study tradition of enquiry, was thus seen as the most appropriate means to explore the contextual conditions confined to the Western Cape that form the experiences of ALS paramedic students in particular (Baxter & Jack 2008; Yin 2003; Creswell 2009). A blended approach was used, because the researcher wanted to gain insight into participants' experiences of the challenges, as well as specific information about these challenges in clinical practice. In so doing, the researcher obtained rich descriptions and deeper meanings of participants' experiences. The case is a single case exploring the multidimensional issues of paramedic students clinical practice placement, with the embedded units of analysis of student placement experience, preparedness of paramedic graduates, and an analysis of the clinical practice documents. The following diagram (Figure 5) represents a schematic representation of the case study in the context of the paramedic-training programme in Cape Town.
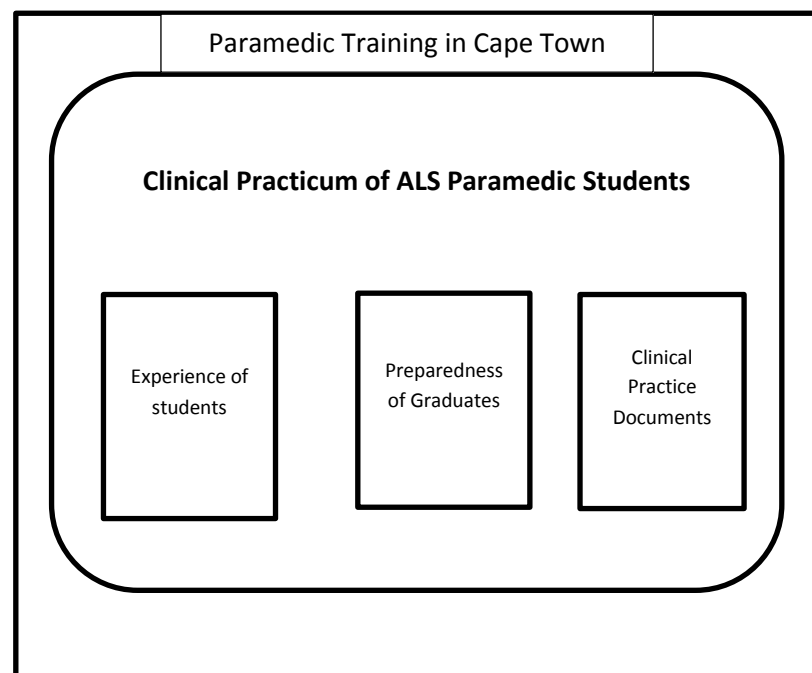
Figure 5 Schematic representation of the research case study

3.3.3. Study setting

The case study was specifically confined to the City of Cape Town, within the Western Cape Province. Western Cape Government College of Emergency Care (WCCEC) and Cape Peninsula University of Technology (CPUT) are the only two institutions in the Western Cape offering advanced life support education and training that allows registration with HPCSA as a paramedic. The scope of practice of the two qualifications is equivalent and therefore requires placement of students at the same clinical facilities. Due to the geographical location these two institutions share a similar clinical platform. These settings were both in pre-hospital Emergency Medical Services and in hospital level 1, 2 and 3 Health Care facilities in the City of Cape Town.

3.3.4. Population

A population is defined as an entire group of people that meets the criteria that the researcher is interested in studying (Welman, Kruger and Mitchell 2008:52; De Vos et al. 2011:223). This concurs with the views of Brink, Van der Walt, and Van Rensburg (2012) who described a study population as the population that the researcher has access to and bears significance to the study. In this study the target population was undergraduate paramedic students registered for their final year of National Diploma EMC and CCA students at the Provincial College in the Western Cape. These students were targeted for participation, as it is presumed that they had already been exposed to different clinical settings and had supposedly covered almost all advanced life support aspects of the 3 year NDEMC programme and the CCA clinical curriculum. These students were thus best positioned to easily reflect on experiences deemed positive and negative throughout their ALS clinical learning practicum.

3.3.5. Sampling strategy

Sampling is a process of selection of participants from a population in order to obtain information regarding a phenomenon; in a way that represents the population of interest (Brink, Van der Walt and Van Rensburg 2012:132). A sample comprises of elements or a subset of the population considered for actual inclusion in the study (De Vos et al.2011: 223). A purposive sampling method was used to conduct the study, which is a common type of sampling method used in qualitative research.

As noted by Brink, Van der Walt and Van Rensburg (2012) purposive sampling is a method based on the researchers' judgement concerning participants who are predominantly knowledgeable about the research question based on their experience. The advantage of purposive sampling is that it allows the researcher to select the sample based on knowledge of the phenomenon being studied (Welman, Kruger and Mitchell 2008:53).

Paramedic students were found to be the best source of rich and valuable information, as it is purported that they have extensive experience with clinical placements. In the context of the aim of the current study, these students are therefore considered experts regarding their own clinical practice experiences. According to Creswell (2009:175) the researcher learns the meaning of what the participants hold about the problem or issue. It is for this reason that purposive sampling was used.

3.3.6. Sampling criteria

Sampling criteria are defined as specific criterion that sets parameters for the sample population and requires the formulation of clearly identified select characteristics necessary for the sample population (De Vos et al. 2011:392). For the purpose of the study, the researcher selected 2 samples hereafter referred to as sample 1 and sample 2. The samples are linked to the objectives and aim of the study.

3.3.6.1. Sample 1

In the process of recruitment of the participants the researcher approached the Head of Departments telephonically, followed by an email describing the proposed research, attached with ethics approval from DUT and a consent letter for the participants (Annexure 1). After obtaining written permission, the researcher contacted the ALS program coordinators at both institutions. Programme coordinators facilitated an invitation to all ALS students. The sample consisted of sixty-three students (n=63) in total.   Programme coordinators provided a list of twenty-four (24) students with their telephone numbers, who completed all ALS clinical shifts and showed interest to participate in the study. Each student was contacted telephonically to confirm participation in the focus group. Due to the large number of students that were interested in participating in the focus interviews, the researcher conducted two separate focus group interviews. A total of twenty (20) students were interviewed. Coincidently, the students that were interviewed comprised of ten males and ten females with an age range from 20 to 42 years.

The inclusion criteria for the sample one was based on the following:

- The participant had to be registered as a student in either the National Diploma emergency care or CCA programme.

- The participant had to be registered with HPCSA as paramedic student in the Western Cape.

- The participant had to have completed the experiential learning block as per HPCSA requirements.

- The participants had to be first-time final year students that did not exceed the stipulated years of training

3.3.6.2. Setting

Data collection was confined to the Western Cape Province, metropolitan area. Focus group interviews took place at the CPUT lecture room in the Department of EMC and WCG College lecture room. Selected venues were convenient for participants and well suited for audio recording. The necessary permission was sought to use these venues. The two sites were familiar to the student populations and provided a close proximity site for selected samples to attend the focus groups. The location was also convenient for the researcher in terms of proximity and ease of access to the sites.

3.3.6.3. Sample 2

Sample 2 consisted of ALS paramedic graduates registered with the HPCSA and employed as ALS emergency care providers. Purposive sampling was the most appropriate sampling technique for selecting students that graduated from CPUT or the WCG College, who were part of the initial focus group. The rationale was that they would be able to provide rich data, relating to their preparedness for paramedic practice. The researcher attempted to contact all of the participants from sample 1, telephonically.

The inclusion criteria for sample two were based on the following:

- The participant must be registered as an advanced life support paramedic with HPCSA

- The participant should be currently employment as operational paramedic or paramedic tutor/Mentor in the Western Cape

- The participant must have been part of the initial student sample

From the initial twenty participants, six relocated out of the Western Cape and could not be contacted and four students were found not yet to be competent with their ALS final examination. A total of ten graduates responded to the invite to participate in this study. This sample comprised of eight males and two females that ranged between 22 and 42 years of age.

3.3.7. Data collection strategy and instruments

Data collection is a process of collecting information from various sources through unstructured or semi structured interviews and observations, documents and visual materials and establishing a protocol for recording information (Creswell 2009: 178). As noted by Yin (2009) the hallmark of case study research is the use of multiple data sources. He argued that this strategy increases data credibility. Baxter and Jack (2008) further added that each data source is a piece of a puzzle that contributes to the understanding of the whole phenomenon. This convergence adds strength to the findings as the various strands of data are braided together. It is for these reasons that the researcher used three instruments to gather and triangulate data, for the study to gain a greater understanding of this case.

3.3.7.1.1. Sample 1: Paramedic students

The researcher used a semi structured interview guide as the tool for data collection for sample 1 in order to gain a detailed description of the participants' experience (see annexure 2). Semi structured interviews allowed the researcher to have a set of predetermined questions in the interview schedule which guided the researcher during the focus group interview process. Although the interview was guided by this schedule, participants were allowed maximum opportunity to describe their experience.

The rationale for choosing this method was that it permitted participants' flexibility as they were able to describe their experience in their own words and also allowed the researcher to explore further issues that emerged from the interview (De Vos et al. 2011:342). In line with this, semi structured interviews are a widely accepted data collection tool in qualitative research and has been used in many qualitative studies, for example Pillay (2008), Christopher (2008) and Minnie (2012).

3.3.7.2. Pilot interview

According to Brink, Van der Walt and Van Rensburg (2012:56) a pilot focus group is a small-scale trial run to test the interview guide, to recognise and to address some of the problems that may arise in obtaining relevant data. The purpose therefore was to modify and refine questions for the main research focus group protocol. De Vos et al. (2011) argued that pilot testing in focus groups is difficult and sometimes challenging to separate the context from the group and therefore suggests pilot testing with an expert panel or potential participants. It is for this reason that the researcher conducted a pilot focus group with 10 paramedic educators at the College of Emergency Care. The researcher used the same interview guide to test the effectiveness of the instrument. The College lecturers found the instrument to be effective and made no further recommendations.

3.3.7.3. Data collection process: Focus group interviews

The researcher met with paramedic students at the WCG, CEC and CPUT in their respective lecture rooms prior to the interview. The purpose of this contact session was to introduce the research topic to the paramedic students and establish a rapport to clear up any confusion or misunderstandings. Consent for participation and permission to voice record the interviews was also requested. The student seating was set in a semi-circular direction towards the facilitator, to allow eye contact with all participants. The facilitator had an assistant that set up the voice recorder and issued seat numbers to each participant to allow for anonymity. The facilitator also had a writing pad and pen and jotted down further points of discussion.

3.3.7.3.1. Focus group interview process

Krueger (1998) defined a focus group as a carefully planned discussion designed to obtain perceptions of a defined area of interest in a permissive, nonthreatening environment. De Vos et al (2011: 360) described focus groups as group of interviews to understand how people feel or think about an issue. The fundamental strength of qualitative research is exploration within a context

and interpretation (Freeman 2006). In this case study the researcher used focus group discussions in a semi structured format, to explore the multidimensional aspects and observe several participants systematically and simultaneously.

This study consisted of two separate focus groups. One group comprised of CCA students and the other group of National Diploma EMC. The first focus group was conducted with CCA students. The researcher requested 10 students. On the day of the focus group interviews 12 students arrived for the session. Despite this the researcher continued with the focus group interviews. Students were of different age groups, gender and race. A second focus group session was held on a separate date. Ten students volunteered to participate in the research. On the scheduled date of the interview, eight students arrived. The students comprised of varying age groups, gender and race.

In an effort to answer the first research objective, the following questions (see Annexure 2) were posed to the participants during focus group interview:

- What were your experiences with clinical practicum as a student?

- What are the factors that had an impact on your opportunity for learning during clinical practice?

- Were you provided with sufficient opportunity to make critical decisions and apply critical skills?

- What role did clinical practicum play in building your confidence in ALS skills?

- How has your practical competence improved during clinical practicum?

- What is your view on clinical practicum as an essential part of becoming a competent paramedic?

- If you had a chance to make changes to the way the clinical practicum is conducted, what would you change?

The researcher created a respectful environment for the focus group to encourage participants to share the points of view experiences perceptions, without pressurizing participants to reach a consensus (Doody and Noonan 2013:31). The researcher facilitated the interview discussion. Focus groups allowed for a process of sharing and comparing experiences amongst the participants and the group dynamics brought out aspects that would have not been possible through single interviews. The group dynamics allowed participants to understand each other's view. The advantage was that the students felt relatively empowered and supported in the group to share the experiences and feelings in the presence of other students.

In this study, focus group interviews were used as both a supplementary and multi method source to combine means of gathering data. It also allowed the researcher to investigate the multitude of perceptions regarding the experience paramedic students in their clinical placements. These discussions served as essential data derived from the focus groups.

3.3.8. One on one interview

The researcher used one-on-one interviews in sample 2, as a method to explore the views of paramedic graduates regarding their preparedness to practice. According to De Vos et al (2011: 348) a one-on-one semi structured interview is defined as a guided interview that is based around the areas of interest of the researcher and allows for considerable flexibility in scope and depth. The researcher designed an interview schedule, to conduct semi structured interviews with ALS emergency care providers, with the aim of exploring their perceptions of preparedness for the real world.

As per the interview guide (see annexure 3), the following questions were posed to the participants:

- How would you describe your experience as a new paramedic?

- Reflecting on your clinical practicum as a student, how did it help you in your current job as a paramedic?

- Reflecting on your clinical practicum as a student indicate what aspects were not covered that may have left you unprepared to deal with challenges in the field?

- How would you describe the opportunity for developing students' competence and preparedness in your current position?

- As a practising paramedic what do you think about the clinical practicum logbook?

- What would be your recommendations for better preparedness of paramedic students for real world practice?

The interview schedule was presented to each participant in exactly the same manner, to ensure data saturation (Fusch & Ness: 2015). The facilitator had a specific number of questions with additional prompting questions that encouraged the participant to elaborate more on the topic. Prompting questions afforded the researcher the opportunity to clarify and expand responses as well as to explicate meaning (Brink, Van der Walt and Van Rensburg 2012:132). Participants were able to express their opinions freely; this helped to minimize the facilitators influence and enabled a more objective and comprehensive result.

3.3.9. Document review

Documentation is regarded as an indispensable source of evidence in case study research designs (Yin 2009). Documents generally have various forms and formats; they provide opportunity for deeper contextual understanding of the case as well as data corroboration (De Vos et al. 2011:382). The advantage of document analysis is its unobtrusive nature of enquiry and also convenience to the researcher, in terms of time and place of document review. Although documentation analysis is strongly recommended by case study researchers, some critics question the validity of documentation as a source of valid evidence (Yin 2009). The main purpose of document review in the study, was to triangulate the source of data for the purpose of increased construct validity (De

Vos et al. 2011:386).The reviewed documentation consisted of the following documents:

- Experiential Learning Portfolio
- Experiential Learning Practical Workbook.
- Rotation evaluation form
- HPCSA CCA curriculum for clinical practice
- CPUT outcomes for clinical learning.

The clinical practice documents were analysed by means of content analysis using Rapleys' practical steps of analysing documents (Rapley, cited in De Vos et al 2011:381). The review was conducted against the work integrated learning framework and further interpreted against emerging themes from focus group and one on one interview discussions.

3.4. Ethical considerations

Ethics refers to the quality of the research procedures regarding the adherents to legal, professional and social obligations to individuals or participants (Brink, Van de Walt and van Rensburg 2012: 32). The following ethical principles guided the study:

3.4.1. Permission

Permission to conduct the research was obtained from the Head of Department Western Cape Government Emergency Medical Services, as well as the Head of Department at Cape Peninsula University of Technology.

3.4.2. The right to full disclosure

Potential participants were approached and requested to partake in the research study, by means of an internal circular, both at the WCG EMS College and the CPUT EMC Department. Partaking in the research was entirely voluntary and participants had the right to withdraw from the research at any

stage (Brink, Van de Walt and van Rensburg 2012: 35). Participants were supplied with an information sheet that contained specific details of the study, including any potential risks and benefits. This was disclosed to all participants (see Annexure 4).

3.4.3. The right to privacy

Privacy covers an individual right to determine the time, extent and general circumstances under which personal information will be shared or withheld (Burns and Grove, 2009:194-5).The participant's privacy was strictly observed throughout the entire research process. No names or personal information was reflected on data collection. Only the researcher and supervisors have access to data. Participants remained anonymous during the interview process. During the focus group interview participants were given a chance to sit in any of the seats numbered between one and 10. Throughout the interview process the student names were kept anonymous and participants answered according to their seated positions.

3.5. Data analysis

The analytic process in the study followed a confluent and systematic approach of data collection and data analysis as described by Creswell (2009). Qualitative data analysis is an inductive and dynamic process, whereby the researcher frequently analyses the data to get a better sense of the emanating themes (Creswell 2009; De Vos et al, 2011:307). The schematic diagram adapted from Creswell (2009) in Figure 6 below, describes the data analysis process. The interpretations of the study were based on the following steps:
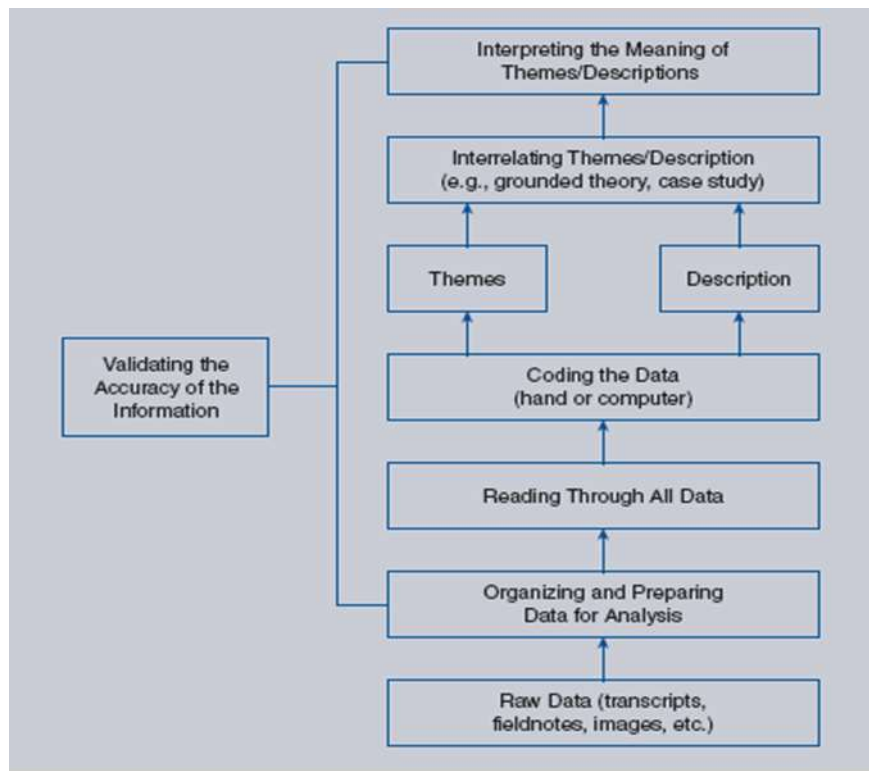
Figure 6 Data analysis process adapted from Creswell (2009)

3.5.1. The process of data analysis

Data analysis took place in two phases. Information from each component of the study was needed to inform the subsequent section. The initial analysis was required from paramedic students merely to gain a sense of the data and decide on the key areas to take forward from the focus group interviews with paramedic students to the one on one interviews, with paramedic graduates and ultimately to analyse the clinical documents to triangulate these findings.

Data analysis for the focus group and one on one interview was achieved in the following ways. In order to categorize the emerging themes and subthemes, for the focus group and one on one interviews data analysis was achieved using Tesch's method of qualitative data analysis (Tesch, cited in Cresswell 2009: 186). The detailed description of utilising this method is explained under the following key concepts:

- Initially the researcher listened to the voice recordings and compared them to the voice recording transcripts. All transcripts were then read

and reviewed carefully. This was done to get a sense of the overall picture which allowed for recognition of key areas of discussion.

- The preliminary analysis allowed for early refinement of the transcripts and it was logical to choose one transcript at a time to seek the underlying meaning of the data. During this process the researcher underlined and highlighted phrases in the text and wrote his thoughts down in the margin.

- The researcher made a list of all topics and clustered similar topics together. For further refinement, similar topics were grouped under columns to form major topics, unique topics and irrelevant discussions.

- The compiled list was then used to compare the data, topics were abbreviated as codes. These codes were written next to the segments of the text, while checking if new categories and codes emerged.

- The most descriptive words for the topics were assigned and turned into categories. Topics that were related to each other were grouped together to reduce the emerging list.

- The transcripts were looked at systematically line by line. Within each relevant comment voiced by the student, key words or comments were highlighted. In this way the researcher was able to identify accurate comments and themes raised in the literature that spoke directly to the research questions.

- Similar categories were grouped together to form subthemes. The subthemes that emerged were then grouped under major themes. The process was done manually and then populated in excel spread sheet.

- The researcher identified a co-coder who is knowledgeable in the field of qualitative research to use the protocol for the method that was utilized, together with transcripts and field notes. After data analysis, the researcher and the independent co-coder reached consensus, on themes and sub themes that emerged. A total of 15 subthemes emerged which was then summarized into 4 major themes.

3.5.1.1. Trustworthiness

Trustworthiness denotes the establishment of validity and reliability in qualitative research (Polit and Beck 2012:174). Streubert and Carpenter (2007:49) further explained that rigor in qualitative research is of utmost importance and requires the researcher to accurately represent the participants, data and interpretation thereof. De Vos et al. (2011:419) recommended Lincoln and Guba's (1985) framework of demonstrating trustworthiness. The researcher used this model which consisted of four criteria namely credibility, transferability, dependability and conformability as a method of establishing trustworthiness in the study.

3.5.1.2. Credibility

Credibility refers to the confidence and trust that the subject has been accurately identified and described (Polit and Beck 2012:175). To ensure credibility, the following measures were employed by the researcher. During the focus group interviews as well as the one-on-one interviews, the researcher used a semi structured interview guide. This ensured that all participants were asked the same questions. Information was probed until the data was saturated. The interviews were voice recorded and transcribed verbatim. After the transcription the researcher contacted few participants to ascertain whether the transcribed data reflected the truthful version of the experience.

3.5.1.3. Transferability

Transferability is the extent to which the findings can be applied in other contexts or in another setting with other participants (Mouton 2001:77). Although this may be problematic in qualitative research De Vos et al. (2011:420) advised the use of the conceptual framework, as a guide for parameters in the study. The conceptual framework for this research was guided by the work integrated learning good practice guide used in 2011. Together with this, the research provided a dense description of the research methodology, research context, and the participants' background to enable any

other prospective researcher to determine whether or not the case described can be generalized for new research or can be transferred in another setting. As mentioned earlier, the data for this research was generated from multiple sources viz. focus group interviews, one-on-one interviews and document review.

3.5.1.4.   Dependability

"Dependability denotes the stability or reliability of the data and is an enquiry to the research process through documentation and auditing" (Polit and Beck 2012:175). Interview material, documents, transcriptions, data analysis or any other material relevant to the study was filed by the researcher and was made available to the research supervisor for the purpose of an audit trail.

3.5.1.5.   Conformability

Conformability emphasizes the potential for congruency of data in terms of accurateness, relevance or meaning (Brink, Van de Walt and van Rensburg 2012: 173). The data represented in this study were excerpt quotations from the study participants. The focus group and one on one interview was audio recorded and transcribed verbatim. The data reflects the voice of the participants, and not the researcher's perceptions. The audio recordings of the interviews was secured via password-protected file and stored on the researcher's computer for the purposes of an audit trail. Conformability also refers to degree in which the researcher demonstrates neutrality and whether the findings of the study can be confirmed by another (De Vos et.al 2011:421). Data for this research was searched from multiple sources, which allowed for a cross check in terms of authenticity of the findings. Furthermore, every effort was made by the researcher to remain neutral in the process.

3.6. Conclusion

This chapter described the key concepts on the research methodology conducted for this case study and the process of data analysis. The specific

samples selected for this study, targeted participants that had a rich insight to the research aims and objectives. Several technical aspects of ethical considerations were discussed above. Finally the researcher employed multiple strategies to ensure trustworthiness of this study and triangulated the findings to determine the accuracy of the results. The following Chapter presents the findings of the study.

Chapter 4

PRESENTATION OF RESULTS, DATA ANALYSIS AND DISCUSSION

*"Without reflection, we go blindly on our way, creating more
unintended consequences, and failing to achieve anything useful".
Margaret J. Wheatley*

4.1. Introduction

Chapter 3 presented the research methodology used to guide this study. This chapter reflects the data collected and analysed in relation to the objectives below. These findings are discussed and contextualised in comparison to published studies of a similar nature, where it was found to be relevant. According to Creswell (2009) data analysis involves making sense of the text, conducting different analyses to gain a deeper understanding of the data, to represent and interpret a higher meaning of data.

In accordance with the aim and objectives, this study explored the multidimensional aspects of the clinical practicum experience of ALS paramedic students in the Western Cape, in order to make recommendations for its improvement. The participants were asked to describe their experiences during clinical practice placements. The study objectives were as follows:

- To explore the clinical practice placement experience of ALS paramedic students
- To investigate the views of paramedic graduates regarding whether the placement experience adequately prepared them for practice
- To evaluate the clinical practice documents involved in the training of ALS paramedic students
- To provide recommendations to enhance the ALS paramedic clinical curriculum

Data was obtained through multiple sources namely, undergraduate paramedic students, paramedic graduates and relevant clinical practice documentation. Data for sample one was sourced via two separate focus group interviews, which included CCA students and final year national diploma emergency care students in the Western Cape. Participants were selected based on specific criteria mentioned in the previous chapter. Data for sample two was obtained through one on one interviews with paramedic graduates employed at the Western Cape Emergency Medical Services.

Data was generated over a three-month period and analysed concurrently. In order to contextualize this case study, the work integrated learning good practice guide (CHE 2011) was used as a theoretical framework. Data sourced from the participants was then applied to the framework, which allowed for a more intuitive interpretation and gave meaning to the experience expressed by participants (Baxter and Jack 2008). Together with the analysis of clinical practice documents, these findings provide recommendations for paramedic clinical practice training.

4.2. The process of data analysis

Data analysis took place in three phases. Information from each component of the study was needed to inform the subsequent section. The initial analysis was required from paramedic students, merely to gain a sense of the data and decide on important aspects to take forward from the focus group interviews with paramedic students, to interviews with paramedic graduates, and ultimately an analysis of clinical documents.

This was achieved in the following ways. In order to categorize the emerging themes and sub-themes, data analysis for sample one and sample two was accomplished using Teschs' method of thematic data analysis (Tesch, cited in Cresswell 2009: 186). In addition, clinical practice documents were analysed through the process content analysis (De Vos et al. 2011:380). This method

was guided by Rapley (cited in De Vos et al (2011: 381) recommending key practical steps in analysing documents. The detailed description of utilising these methods was explained in the previous chapter.

A thematic breakdown of focus group transcriptions, as well as the one-on-one interview transcriptions of paramedic graduates, allowed for the emergence of four themes. Whilst through the process of clinical practice documentation analysis a parallel theme emerged and was aligned to the fourth theme drawn from sample one and two. Document analysis is discussed as a separate part of this chapter. These specific themes and subthemes are discussed with excerpt quotations from the participants, cited with relevant literature to substantiate the findings of this research. The supplementary data (verbatim transcripts) are presented, without any attempt by the researcher to correct any grammatical errors, and was coded to facilitate an audit trail.

4.3. Themes and subthemes

According to Braun and Clarke (2006) a theme captures the important aspects of data in relation to the research question and represents a patterned response or meaning within the data set. Therefore, in this case study, thematic analysis was used as a technique to reflect reality or unravel the surface of 'reality', regarding the experience of paramedic students in clinical practice and their preparedness for independent graduate practice (Holloway and Todres 2003:347). Subsequent to the unravelling of transcripts the following four themes were identified and are presented as follows:

- Clinical supervision and support in EMC
- Integration of theory with practice
- Exposure to learning in EMC
- Conducive clinical learning environment

Table 3 presents the themes and subthemes that emerged during the process of data analysis. For the purposes of this section the following abbreviations apply in respect to the direct quotations from the data:

- FG – Focus group
- P – Participant
- Data – refers to the transcribed line by line numbers

Table 3 Main themes and subthemes

THEME	SUBTHEME
4.3.1 Clinical supervision and support in EMC	4.3.1.1 Clinical teaching in placements 4.3.1.2 Clinical supervision 4.3.1.3 Feedback to paramedic students 4.3.1.4 Mentorship in paramedic training
4.3.2 Integration of theory with practice	4.3.2.1 EMC Curriculum related components 4.3.2.2 Discrepancies between classroom teaching and clinical practice teaching
4.3.3 Exposure to learning in EMC	4.3.3.1 Learning opportunities 4.3.3.2 Clinical decision making 4.3.3.4 Lack of confidence and preparedness to practice
4.3.4 Conducive clinical learning environment	4.3.4.1 Interpersonal relations between clinical staff and students 4.3.4.2 Student overcrowding 4.3.4.3 Clinical coordination and communication

4.3.1. Theme one: Clinical supervision and support

Clinical supervision and support during clinical placements is a complex activity. It occurs in a variety of emergency settings and has various definitions, functions, and modes of delivery as described in Chapter 2. The fundamental

purpose of supervision is to improve learning and ultimately the patient care experience. However, through the data analysis a multitude of variables emerged, that affected supervision and support of paramedic students in clinical placements. Data for the first theme and subtheme are summarised in Table 4.

Table 4 Clinical supervision and support

THEME	SUBTHEME
4.3.1 Clinical supervision and support	4.3.1.1 Clinical teaching in placements 4.3.1.2 Clinical supervision 4.3.1.3 Feedback to paramedic students 4.3.1.4 Mentorship in paramedic training

4.3.1.1. Clinical teaching in placements

The participants in sample one indicated that clinical staff in the pre-hospital and in hospital clinical facilities had no knowledge of how to teach paramedic students. Similar comments were further echoed by paramedic graduates validating the general lack of teaching in clinical placements. Although majority of the participants in both sample groups had negative comments, a few participants made positive remarks and proclaimed that teaching in clinical placements was largely dependent on the placement site, as well as the clinical practitioner's knowledge and ability to teach. The following quotations are some of the comments from student emergency care providers and graduates:

4.3.1.1.1. Comments from sample 1

"….. Often I find a lot of practitioners, especially in the…. are very pathetic when it comes to treating patients, it seems like it's just routine to them, there's no passion and as a student I feel I really need to make an effort to dig up things to learn and really need to dig into their experience" (FG 2: data 43-46).

"Sometimes you get into the ambulance and the paramedic doesn't like to work with you or teach you that day… So it's no use to work the whole day on one ambulance when you feel you're not welcomed and you not getting taught anything" (FG 1: data 401 - 405).

"The doctors….. the minute they see a red patient they call you, the one case I had to intubate and she stood by my side and said I'm going to be okay and told me how to do it.. She gives you a lecture on paediatrics and gives you hand-outs to read and she also gave me the objectives for the day" (FG 1: data 164- 167).

"A patient that came in with a third degree heart block and the doctor was there. So the paramedic bring the patient and they gave him an ECG and I told him it is a third-degree heart block and the doctor came and treated the patient for symptomatic bradycardia. So the senior doctor came in and she asked that doctor, what is wrong with this ECG? And she said it's a bradycardia. And then I stood there and she asked me because she knew we are the emergency care providers students, and I said, 'Doctor, it looks like a third-degree heart block' And then the doctor was treating me bad and didn't teach me the whole day because I gave the correct answer to the senior doctor" (FG 1: data 667-675).

4.3.1.1.2. Comments sample 2

"We're just randomly picking practitioners who don't necessarily have an educational inclination and expecting them to do something that's not necessarily part of their training or experience or job description, or something like that" (P 8: data 305 -307.)

"….. You can work with a crew and they may not teach you or let you do anything. …But then you find someone will push you and will challenge the way you think and then you learn far more with that person….. You cannot teach someone how to be a paramedic without showing them" (P 7: data 99-103).

Although students are randomly placed at the various clinical sites under the supervision of professional clinicians, this does not guarantee any effective

clinical teaching. These findings corroborate with those of Boyle (2008). This could be attributed to a number of factors which include a lack of communication between training institutions and placement sites, poor knowledge of paramedic curriculum, lack of understanding of paramedic students learning objectives, lack of knowledge in teaching or even the possibility of threatened limits of the clinical practitioner's theoretical knowledge (Levett-Jones 2007; McCall, Wray and Lord 2009).

Whilst the application of learning theories such as Bloom's theory of cognitive and metacognitive application and Miller's pyramid (1990:65) provide a simple description of hierarchy to achieve professional competence, the reality of applying these principles in paramedic clinical practice are quite different. The literature advocates that clinical teaching should be facilitated by a trained clinician guided by a planned curriculum to meet professional, societal and educational expectations and demands (Wass et al 2001; Norcini 2007; Gaberson, Gaberson and Oerman 2010:3-7; CHE 2011). It is therefore argued that a clinical teacher should guide and stimulate learning in the clinical setting allowing the student to meet specific clinical learning outcomes (Myrick, Yonge and Cpsych 2002; Kardong-Edgren et al. 2010). In the same vein Smedley and Morey (2010) and Lofmark and Wikblad (2001) affirmed that the extent to which students participate enthusiastically and responsively in clinical practice activities is an important aspect of developing students' clinical learning and increased participation promotes confidence and understanding of the professional role.

Despite the advocacy of clinical teaching and learning theories for clinical practice, the clinical practicum experience of final year paramedic students and new graduates should reside in the top levels of metacognition and self-evaluation (Anderson 2011). However, from the data presented above the development of professional competence through the application of a comprehensive range of knowledge and skill guided by teaching within real life contexts of patient care is missing. The opportunity provided to paramedic students to reach the top levels of Miller's pyramid during clinical practicum, is

lacking in the paramedic field. Based on the above findings it seems that when clinical practitioners are au fait with clinical teaching, students are guided constructively and learning is enhanced. Conversely, learning is hampered when clinical practitioners lack the ability to teach.

4.3.1.2. Clinical supervision

Bernard and Goodyear (1998) proposed one of the most influential definitions of clinical supervision, which was stated as:

An intervention that is provided by a senior member of a profession to a junior member or members of that profession. This relationship is evaluative, extends over time and has the simultaneous purposes of enhancing the professional functioning of the junior member(s), monitoring the quality of professional services offered to clients and serving as a gatekeeper for those who are to enter the particular profession (Bernard and Goodyear 1998).

In paramedic practice students essentially learn through observation of role models and are generally socialised into the values and norms of professional practice. A key element for workplace learning, is that paramedic students should have a supervisor who reflects the roles and values of an educator, to provide support and leadership in the clinical environment (Kilminster and Jolly 2000; Levy et al 2009; Rodger et al 2011).

Interestingly participants in this study highlighted that supervision in clinical placements was a challenging experience. The overwhelming majority of students remarked that clinical supervision was inconsistent and students generally performed the role of an observer during clinical practice. Once again, both participants voiced that supervision was dependant on the attributes of the individual clinical practitioner. Subsequently this had an adverse impact on the students' learning experiences. The following comments were made by paramedic students and graduate participants:

4.3.1.2.1.   Sample 1:

"I found that a big factor in the quality of education was with the practitioner you got to work with. A lot of practitioners just take a lot of short cuts, a lot of them aren't interested in supervising students" (FG 2: data 29-31).

"It all depends where you are…some of the doctors and nurses supervise you well and give you the exposure you need. They really treat you nice …because most of these nurses and doctors worked on the ambulance to complete trauma shifts."(FG 1: data 864-871).

4.3.1.2.2.   Sample 2:

"Some of the….. take the job of supervising as more of an instructor to instruct you… Then you always second-guess yourself about what you doing which leaves you with the low self-esteem…… I don't mind learning and don't mind being told what to do, but I need to learn how to make my own decisions…. we work with very strong characters and difficult personalities and this could damage students" (P 6: data 175-186).

"To be honest when you work with some ….. they don't want to give you a chance to be in charge to make decisions, they sommer takeover and they don't want to listen….. If you're stuck with the wrong person supervising you, it makes you miserable…… Because they don't let you do anything (P5: data 203 -213).

"…. It all depends who is able to guide you to make the transition" (P2: data 336 – 347).

4.3.1.2.3.   Discussion

Despite the importance of effective supervision to enhance clinical learning, participants experienced a sense of anxiety and perceived they lacked knowledge together with professional skills to treat serious patients in the clinical setting. Similarly, Morris (2007) and Anderson et al (2011) emphasized that poor supervision coupled with ineffective communication results in unproductive learning and poor socialization into professional practice.

In their interviews, paramedic students echoed that clinical practitioners took on the role of an instructor rather than supervisor. These findings were further echoed by the other sample of paramedic graduates who added that clinical staff lacked teaching experience and could not identify with their needs. These findings corroborate with those made by several researchers (Chaun and Barnett 2000; Sharif and Masoumi 2005; Kelly 2011; Mabuda 2008) who reported the lack of clinical supervision during clinical practice.

Perhaps the challenges within students and clinical practitioners supervisory relationship is partially explained, by the large number of allied medical students in clinical placements, where practitioners are pressurized with high workload demands, coupled with supervising whilst administering patient care. These issues combined with undesirable learner characteristics or lack of knowledge of each party's expectation is evidenced in various other studies (Maben, Latter and Macleod 2006; Chuan and Barnett 2012; Haggerty et al. 2012).

According to Sheehan et al. (2005) and Rodger et al. (2011) effective supervisors should guide and assist students in the workplace and provide students with the opportunity to enrich clinical learning. Contrary to this Pack (2012), stated that supervisors perceive supervision as a way of ensuring patient safety and mitigating risks to the organisation therefore restricting student's involvement with patients. From the literature reviewed, expectations of the supervisory relationship influence its effectiveness. Similarly, characteristics of the supervisor and learner contribute to an effective supervisory relationship.

The WIL conceptual framework (CHE 2011) asserted that supervisor's play a critical role in developing effective learning to guide students in challenging situations to integrate knowledge and workplace experiences. Without supervisors, workplace learning is little or more than just work experience and results in ineffective learning and a poor transition of graduates into the workplace.

4.3.1.3.   Feedback to paramedic students

Feedback on clinical performance is crucial for effective paramedic learning during clinical practice. Due to the nature of emergency care practice, feedback should be given at any opportune time for students to retain important information during specific situations which is imperative for learning and development (Clynes 2008). As part of the prescribed feedback report for paramedic students in clinical practice, health care professionals working with students are required to observe student's performance and provide comments in clinical practical books, to assess student's performance during each shift. Despite some measures put in place regarding feedback, participants echoed the following sentiments:

4.3.1.3.1.   Sample 1:

"….they expected you to know a lot, and if you didn't know something or did incorrect treatment they would scream and shout at you and make you feel worthless and then they ignore you the whole day… Created more doubt in my mind… Whether I'm doing the right thing and not" (P 7: data 164-170).

4.3.1.3.2.   Sample 2:

"I think one of the big problems is that feedback lacks there's a problem with the way they structured feedback and the way it is given can affect your motivation" (P5: data 287-289).

"The trainer should work with the students to ensure that skills are done and supervised correctly and that feedback is given correctly. But the problem is we have a large number of students with one lecturer and this is also not feasible to give feedback to all students……but there must be some sort of criteria for proper feedback and supervision" (P6: data 248 – 254).

" it's not really easy to write or give feedback to the students ne, if the student had a bad attitude or the student was lazy and didn't want to learn you can't really write that in front of the student…. Lying about the students will allow the

student to continue with their attitudes. The students know that the paramedic will always write positive things about them, irrespective of how they performed on the shift" (P5: Data 142-156).

4.3.1.3.3. Discussion

Drawing from the participants' comments, it is evident that there are numerous issues with delivering feedback in paramedic training. In some instances, feedback conveyed to participants in sample one appears to be destructive and personal in nature. Whilst it was also evident in this study that there was a lack of structured feedback. Dohrenwend (2002) recommended the "sandwich" method which consists of negative feedback, sandwiched between positive feedbacks, which was found to be more predominantly effective with junior students or students with low self-esteem. This was supported by Clynes and Raferty (2008) who emphasized that feedback should be highly specific, and descriptive of what actually occurred. Thus in paramedic practice, feedback should focus on evaluating behaviour and clinical performance rather than the student's character.

Literature affirms that feedback is essential for student's growth, as it provides direction, helps to boost students' confidence, thereby increasing the student's motivation and self-esteem, which allows the transition from novice to expert (Eurat 2006; Clynes 2008). On the contrary the findings of this study, are similar to those made by Clynes (2000) which found that poor feedback or the lack of constructive feedback results in students comparing themselves, with more senior colleagues and ultimately measuring themselves inappropriately, which leads to decreased self-esteem with negative clinical practice experience.

Another common issue expressed by both participants was the inappropriate ratio of the large number of students versus supervisors, in clinical sites which is further attributed to the lack of constructive feedback. This was supported by findings made in a study conducted by Pillay and Mtshali (2008: 48) where students reported a lack academic support due to overcrowding.

On the contrary, sample 2 viz. paramedic graduates reported difficulty in providing feedback to paramedic students, because they feared that criticism would affect their relationship. This concurs with the views of Clynes and Raftery (2008), Dohrenwend (2002) and Clynes (2008). These authors stated that when negative feedback is withheld, it results in a superficial relationship between supervisor and student and prevents any meaningful learning, which subsequently leads to poor patient care and graduate practice.

A possible solution to alleviate the challenge of providing frequent or direct feedback is to provide a quarterly report, based on the principles of the Reporter, Interpreter, Manager, Educator (RIME) feedback tool, advocated by Bloomfield et al (2007). It entails that all health professionals working with a student observe the student's performance for the entire term of the placement, rather than on a day-to-day basis. At the end of the term, the health professionals engage in a consultative discussion regarding the student's progress to create a rapport describing the student's performance which is then discussed with the student, by a single member of the group (Bloomfield et al 2007).

Whilst it is acknowledged that feedback is provided during clinical practice, there is no assurance that health care professionals have the supervisory capability to provide effective feedback and thus it cannot be assumed that a clinically competent practitioner will have the necessary skills to deliver feedback to students. The findings of this study highlight the significance of specific training in providing feedback. It is also congruent with the conclusions drawn by other writers who highlighted that feedback is poorly addressed or overlooked in clinical practice education (Kaviani and Stillwell 2000; Clynes and Raftery 2008; McCarthy and Higgins 2003:95).

4.3.1.4.   Mentorship in paramedic training

The World Health Organisation (2005) upholds that clinical mentorship is a coordination of practical training and consultation, which fosters continuing

professional development to yield sustainable high-quality clinical care outcomes. There is growing evidence of the positive effects of mentoring in medicine specifically in medical undergraduate training programmes (Connor et al. 2000; Schrubbe 2004; Sambunjak et al. 2006). Several scholars wrote that a mentor helps the mentee to develop implicit knowledge about the hidden curriculum of professionalism, values, ethics and the art of medicine, which cannot be learnt from the text (Buddeberg-Fischer and Herta 2006; Rosenfield and Towle 2008).

In the absence of a structured mentorship programme, student emergency care providers relied heavily on nursing sisters, doctors and emergency care providers to guide and support them during clinical practice. The following are some of the comments from both samples:

4.3.1.4.1. Sample 1:

"Well, they just don't seem to be too interested in interacting or they kind of just get to do what you want but there's no mentoring, and it's often difficult to communicate with some of them" (FG 2: data 36-39).

"…there are very different approaches to mentorship of students depending on the practitioner that you get and some are really supportive and engaged in the learning process and take that very seriously. …. But some don't engage in the learning process …….. (FG 2: data 147-167).

4.3.1.4.2. Sample 2:

"Some of the time I'm nervous and I don't want to teach or mentor because I don't know how to do it because I'm not comfortable with it. I think that when it comes to discussions with the clearly you need to be updated" (P5 data: 183-185).

"I mentor students and I am not trained to do it, as a new paramedic you shouldn't be mentoring students because you need time to practice your own skills and get comfortable with handling difficult patients before you are able to

teach others….. We should have criteria for mentoring because some emergency care providers don't want to mentor students while others have this natural gift and enjoy it….. Mentoring should come with experience because the more practice you have and handle difficult patients then you'll be able to guide others" (P 6: data 39-45).

4.3.1.4.3. Discussion:

Interestingly, participants in sample one perceived that there was a huge lack of structure and consistency with mentorship in paramedic clinical practice. This could be attributed to the high demands placed on the Western Cape emergency services staff to meet response times, particularly for acute or life threatening calls, where 75% of calls must be attended in 15 minutes (RSA DoH 2013).

Subsequently, this leaves little time for mentoring in the pre hospital environment. In addition, expecting ordinary clinical practitioners to engage in a mentorship programme without necessarily orientating all those practitioners to what is required of them in terms of mentorship and what it means to be a mentor and what the expectations are of the students or specific learning outcomes from the EMC training department will pose challenges.

Blunt and Conolly (2006) asserted that mentoring serves more than one goal, of improving personal development, career development and psychological development. Contrary to this, however sample two highlighted their lack of confidence in mentoring students. This could be attributed to the repetitive cycle of randomly placing students with practitioners, without assessing mentor's knowledge or experience in mentoring which further exacerbates learning in clinical practice.

Several writers have further contributed to the shortcomings in poor preparedness of clinical staff to take on the role of a mentor, which alludes to

the limitations for effective mentorship programme in the Western Cape (Kaviani and Stillwell, 2000; McCarthy and Higgins, 2003, Clynes and Raftery 2008).

The findings of this study are consistent with the views of Cooper (2004: 376) and Furness and Pascal (2013) who highlighted the need for the development of a supportive mentorship framework and inter professional collaborative links between training institutions and emergency services. These authors argued that role modelling enables the development of educational, professional and social roles to promote effective clinical learning.

4.3.2. Theme 2: Integration of theory with practice

Traditionally the curriculum for paramedic training is separated into theory and clinical practice. Students' exposure to patients and clinical environment takes place in the clinical phase, which is offered at a later stage of the curriculum (HPCSA 2006). Clinical placements form a fundamental role in professional development to link theory with the real world practice (Boyle 2007; Waxman and Williams 2006). The integration of theory with the practice setting was identified as a second major theme with its related sub themes as reflected in Table 5.

Table 5 Integration of theory with practice

| 4.3.2 Integration of theory with practice | 4.3.2.1 EMC Curriculum related components |
| | 4.3.2.2 Discrepancies between classroom teaching and clinical practice teaching |

4.3.2.1. EMC curriculum related components

The South African Qualifications Authority (2001:31), described a curriculum as a combination of courses, modules or units of learning, comprising of learning

materials and methodology, by which learners can achieve the learning outcomes of a set qualification. Such a curriculum should allow the knowledge and skills learnt in practice to be integrated with the metacognitive and affective domains for independent practice (Evetts, 2003; Dale 1994). Though it is important that clinical placements form an essential role in learning, participants in this study experienced gaps between what is taught in the classroom and what was expected and experienced in the "real-world" context. They had very strong views on the issues that influenced their experience in practice regarding the EMC curriculum related to clinical practice. Some of their comments are as follows:

4.3.2.1.1.   Sample 1:

"If theory is covered earlier you can start with your skills much earlier in the year then leave everything for the last-minute and at the end of the year and then you have to rush everything, there are too many students…. content and things are structured in earlier" (FG 2: data 488-491).

"As I explained our physiology and our EMC clearly did not correlate with each other. Like we would do cardiology in physiology and then renal abnormalities in EMC and our clinical practice was not related and we couldn't find proper links between all of this and made it more difficult to understand" (FG 2: 119-123).

""The theory is condensed in a very short space of time and leaves us with gaps in understanding the patient care and emergency care problems and issues going on the road" (FG 01: data 94-95).

4.3.2.1.2.   Sample 2:

"Theory wise I think it is a big problem because we don't enough time to go through our work to learn and understand because everything is so quick and rushed and then you go on the road" (P5: data 98-101).

"Problem is theory and practice is so far apart. We ended up doing pharmacology we ended up learning a whole lot about nursing drugs and not paramedic drugs….. We briefly went through paramedic drugs without

understanding them in depth like the way we learnt nursing drugs. The other problem is pathology, another disappointment….. irrelevant to the road…. Lecturers outside EMC are good and qualified… the curriculum they teach is not relevant to paramedic training and the things they taught are unnecessary things and irrelevant to the profession" (P7: data 141-162).

4.3.2.1.3. Discussion:

It emerged from the study that paramedic students and graduates established that some of the learning objectives for the curriculum, for emergency medical care was irrelevant to paramedic practice. Another concern raised, was that the emergency medical care curriculum was done quickly which affected students ability to grasp and understand key concepts of patient treatment in the context of emergency care. Hence they could not apply theory with practice.

It was further noted that anatomy, physiology and EMC modules of the curriculum were misaligned. This supports the theory practice gap that was identified across multiple health disciplines (Evans and Kelly 2004; Sharif and Masoumi 2005). The above findings are contrary to literature, as effective clinical learning should ideally relate to the knowledge, which is aligned to the relevant tier of Bloom's taxonomy (Anderson 2011). With this in mind there needs to be a paradigm shift from dependence on abstract principles to a concrete understanding of seeing situations as discrete, and related parts to seeing situations and practical problems as part of a the real world (Boles, Beck, Hargreaves 2005).

A study by Nxumalo (2011:287-292) in Limpopo province revealed several factors that affected nursing students integration of theory-with practice. The study highlighted the lack of lecturer's expert contextual knowledge to teach subject content. Consequently, students were able to comprehend what was taught in class and were unable to integrate theory with clinical practice. It was further revealed that lecturers were inexperienced in teaching and lacked sufficient clinical exposure. Another factor that contributed to the theory practice

gap was the disproportionate timeframes used for theory and practice, resulting in students performing poorly in clinical practice. This was further aggravated by the shortage of resources; and differences between simulated skills and actual clinical procedures in the ward, which, in turn, made it difficult for students to gain clinical learning experience. Clement and Mackenzie (2005) noted the gap between knowledge and practical application which affects professional competence and contributes to poor quality patient care.

Another compounding factor with theory and practice is the scarcity of clinical placements, patient availability and increased number of students in clinical placements limits training opportunities in real world practice (Hall 2006: 627). According to Boyle (2007) a constrained health system together with a shortage of clinical supervision are some of the factors that affect students integrating theory to practice.

Mckimm and Swanwick (2009) and Anderson (2011) said that learning taxonomies that influence paramedic training includes Bloom's taxonomy, Miller's pyramid of competence and Kolb's theory of reflective practice. By the same token the CHE advocated that students must combine cognitive, psychomotor and affective domains to the workplace, to relate theory to practice. The above findings contradict the core principles that guide health science education and as a result lead to poor paramedic practice. As per the above findings it is clear that there are serious challenges with integrating theory to practice. In any situation where the application is not possible learning experiences of paramedic students are adversely affected.

4.3.2.2. Discrepancies between classroom teaching and clinical practice teaching

Theory practice gap has been identified across multiple health disciplines. Clement and Mackenzie (2005) stated that the gap between knowledge and

practical application affects professional competence and contributes to poor quality patient care. As per the literature reviewed it was clear that there are severe challenges with integrating theory to practice. In any situation where the application is not possible the learning experiences of paramedic students are adversely affected.

Student participants expressed in no uncertain terms that they experience a gap between what is taught in the classroom, as it differed to operational practice. They had strong views on the issues that influenced their ability to integrate theory and practice.

The following excerpts represent comments from both students and graduates regarding their experience of theory and practice:

4.3.2.2.1.   Sample 1:

"I remember we had a child two years old with a severe asthma and I told her to nebulise child and I had to force her to listen to me to give the child correct drugs in correct treatment. She refused to put in the ipratropium bromide, I then took the neb from her and put the drugs in" (FG 1: data 454-460).

4.3.2.2.2.   Sample 2:

"I think we need to learn more on ventilators because these are what we use all the time for the transfers. Although we covered ventilators…….. I feel it was not adequate to prepare us for the road………… we are practising on the mannequin but it is so different when you work on the road with real patients" (P 2: data 96-101).

4.3.2.2.3.   Discussion

Findings from this study further reiterate that the theory taught at the college by lecturers during demonstrations in the OSCE and simulation laboratories differed from what was practised in the real clinical practice.

Participants in both samples felt that procedures demonstrated by some of the clinical practitioners differed from what was taught in class. This can be attributed to lack of knowledge and out-dated practice of clinical practitioners. In some instances, students argued with clinical practitioners to perform the correct treatment to improve patient outcomes.

One of the areas highlighted by participants in sample two, was the lack of knowledge and exposure to use of ventilators in patients with a severely compromised airway. Although airway management and ventilation is simulated in the classroom, there remains a huge disparity with real world practice and result graduates felt unprepared to transfer critically ill patients from one clinical facility to another.

These findings were consistent with findings from several other studies (McCall, Wray and Lord 2009; Mntambo 2009; Henderson et al 2012) where supervisors were found to feel underprepared for clinical supervision, as they felt threatened by the perceived limits of theoretical knowledge and found it difficult to answer student's questions. Participants in one study also felt that clinical placement was seen as an unwanted constraint on the daily operations of the ambulance service, producing additional burdens of clinical supervision in the midst of high volumes of patient calls (McCall, Wray and Lord 2009).

Similarly, Boyle et al. (2008:28) questioned the type of paramedic skills and knowledge that were reinforced during clinical placements and whether paramedic clinical placements were as successful as they could be, in assisting with the theory-practice gap paradigm. While these studies have importantly added to the body of knowledge in paramedic education, there still appears to be a gap in literature relating to clinical placement education and more specifically theory-practice gap.

These authors supported the notion that collaboration between the training facility, emergency services and students and the defining of roles and responsibilities is vital to improving quality education and graduate preparedness**.**

4.3.3. Theme 3: Exposure to learning exposure in EMC

The fundamental aim of clinical exposure is to link academic knowledge to workplace learning. Clinical exposure is of crucial importance to empower a practitioner with insight, decision-making and problem-solving skills (Boyle et al. 2008:2-6). Learning during clinical placements is regarded as transformation of theoretical knowledge with real world practice (Yardley et al 2012). The findings indicated that exposure to learning is repeatedly raised by students as a key factor influencing their satisfaction with the clinical practice placements. Table 6 represents a summary of the main theme and subthemes identified under learning exposure.

Table 6 Exposure to learning in EMC

Theme	Subtheme
4.3.3 Exposure to learning in EMC	4.3.3.1 Learning opportunities
	4.3.3.2 Clinical decision making
	4.3.3.4 Lack of confidence and preparedness to practice

4.3.3.1. Learning opportunities

Although the nature of opportunities for learning is an important element in influencing paramedic student's clinical learning, participants indicated that learning opportunities were frequently dependent on the placement site or the placement supervisor. Participants in sample one reported that besides paramedic students, allied medical students were also placed at the clinical facilities. Based on the medical qualifications of the supervisor, preference for

learning opportunities were generally given to students from the same field. As a result, nursing students and student doctors were generally given preference for opportunities to learn and practice in hospital facilities. Both paramedic students and graduates expressed the lack of active participation in clinical placements specifically with neonatal and paediatric exposure to learn. The following are the comments from both participants.

4.3.3.1.1. Sample 1:

"…….. Because of the nurses and their inclination, they prefer to give the nursing students opportunities because they are of the same profession" (FG 2: data 336-346)

"When it comes to practical hours I think it's not enough …. If the baby's in the incubator you're not allowed to touch the patient you must just monitor the vital signs and documented. In the specialist hospitals you stand around but if you are replaced in day hospitals, the patients are critical and you get to treat them and then later they're transferred to the tertiary hospital". (FG 1: data 597-600).

4.3.3.1.2. Sample 2:

"When you're a student you never get any neonates or paediatric patient exposure. Once you graduate you placed on the neonatal ICU vehicle….. It is very scary but" (P6: data 156-163).

"When I was student we didn't work a lot with neonatal transfers and I am uncomfortable, even now as a graduate I still feel I am lacking handling neonates and I'm not comfortable with this patients ……you need to know what you doing but sometimes I'm afraid…. The neonatal aspect of the course needs to prepare us" (P2: data 84-120).

4.3.3.1.3. Discussion

Whilst the participants reported general skills exposure to adult patients, the majority of the participants in this study indicated that they were unable to

partake in the treatment of neonates and paediatric patients at the specific placement sites, allocated for neonatal and paediatric exposure. They found themselves observing patients rather than being actively involved in skills procedures or patient treatment.

Similarly, Stein (2009: 83) asserted that the structure of the clinical practice programme for EMC clinical learning is that most paediatric emergency clinical skills and paediatric emergency case interactions are associated with proportional exposures which are rarely greater than 50%. With the exception of a very small number of clinical skills, those students who were able to gain some exposure normally are able to perform a skill once or possibly twice, in an average year of clinical practice. Subsequently, a given student's clinical experience in paediatric pre-hospital emergency care is generally based on a "luck of the draw" basis, which affords very few students adequate opportunities to practise important, perhaps life-saving, clinical skills before qualification and independent practice. Given the importance of direct patient contact, graduates in this study felt underprepared to deal with critically ill paediatric and neonatal patients.

The above findings do not cohere with the work integrated learning good practice guide (CHE 2011). Learning activities in clinical practice placements, prior to graduation needs to assist students develop skills required for professional practice at work. The findings of this research are consistent with other studies, where students reported that a lack of active participation and direct patient care impeded their development and confidence (Henderson et al 2007; Stein 2009; Smedley and Morey 2010). Smedley and Morey (2010) revealed that together with personalisation, student involvement viz. the extent to which students participate enthusiastically and responsively in clinical practice activities is an important aspect of developing students' clinical learning, thereby preparing graduates for real world practice.

4.3.3.2. Clinical decision making

In order for paramedic students to be adequately prepared for professional practice, students should be provided with a supportive environment to make clinical decisions and experience all aspects of paramedic exposure (Newton et .al 2010; Rodger et .al 2011). During these transition students gain autonomy, confidence and socialize into professional practice (Yardley et al. 2012). In this study, participants in sample one expressed that despite having relevant clinical knowledge they were doubtful of their ability to make independent clinical decisions in an emergency. These comments supported the report from sample two, who perceived that paramedic graduates lacked decision-making skills, were unsure of the treatment regiments for critically ill patients, and doubted their clinical decisions. The following are excerpt comments from these participants:

4.3.3.2.1. Sample 1

"I do think I've got enough experience not to make a complete mess and not to endanger a patient…..whether to do it very competently and confidently I don't think there's enough experience" (FG 2: data 260- 263).

"So I feel we have basic theory… I feel I can go on the road and make clinical decisions…. it's like when you get your driver's license for the first time, it doesn't mean your driving is a good, yet you still need to drive" (FG 01: data 37-44).

4.3.3.2.2. Sample 2:

"On my second day working as a paramedic I diagnosed a patient wrong my mistake was that I didn't check the patient properly and I just listen to the junior crew that was treating the patient for asthma but actually the patient had pulmonary oedema. The patient was so serious and the patient was unconscious and later on I realised that I treated the patient wrong and then I started crying and I was so miserable because I realised what damage I did. But I was so lucky the patient survived, luckily there was another paramedic that I

can go to and confide in which supported me and advise me that I'm learning and not to make these silly mistakes again" (P5 data 194 -202).

"I worked alone and found this very challenging and my stress levels were really high because you don't know what's going on with the patients because these are your first proper patients where you are actually making decisions. … When you get onto the road the first time you're not ready" (P7 data 81-90).

4.3.3.2.3.   Discussion

Learning during clinical placements is what experiential learning theory calls 'situated' learning, suggesting a transformation of theory into paramedic practice (Yardley et al 2012). In order to contextualise clinical learning, Mckimm and Swanwick (2009), identified learning taxonomies such as Bloom's taxonomy, Miller's pyramid of competence and Kolb's theory of reflective practice, which significantly influences paramedic training. These authors advocated that students must combine cognitive, psychomotor and affective domains to the workplace, to relate theory to practice. Learning results from innate practice that unfolds during the transition from observing to actively participating and ultimate decision making (Anderson 2011). Whilst participants in sample one echoed that they had foundational theoretical knowledge, they nonetheless doubted their ability to make clinical decisions. These comments are of concern, particularly since the nature of paramedic profession requires that paramedic graduates practice independently and are required to make independent critical decisions to improve patient outcomes. If they are doubtful of their decisions, it could comprise the quality of patient care. Similarly, Waxman and Williams (2006: 24) highlighted that two thirds of the final year paramedic students felt ill-prepared for independent paramedic practice, due to their perceived limits of knowledge and limited practical exposure.

The above findings were reiterated by sample two. This is of concern as several writers have asserted that there is a   strong association between clinical exposure and clinical decision making (Duchscher 2001; Atack and Maher, 2010; Tavares, Boet, Theriault, Mallette, and Eva, 2012; Rapport, Kelly, Hankin,

Rodriguez, and Tomlinson, 2014;). Clinical decisions are derived from clinical knowledge and incorporate variables from the history, physical examination and assessments that ultimately determine the prognosis of the patient (Christopher et al. 2009). The comments voiced by participants are in contrast to literature reviewed, regarding clinical decision making in emergency situations (Yonge and Cpsych 2002; Mckimm and Swanwick 2009; Myrick; Anderson 2011). These authors advocated that when learning taxonomies are applied to clinical context, it enables students to elevate their level of thinking and also affords them the opportunity to deal with their world intelligently. Even though the clinical practice setting is an environment rich in opportunity for enabling critical thinking, when students are not given the opportunity to think independently and make critical decisions, the transition from learner to graduate is then flawed (Mckimm and Swanwick 2009). Supervisors, mentors or preceptors are in a prime position to use questioning behaviours that can challenge the way students think, encourage them to justify or clarify their assertions, promote the generation of original ideas, explanations, or solutions to patient problems, provide mental and emotional tools to help resolve dilemmas, promote discussion, and evaluate learning (Anderson 2011).

Not surprisingly the lack of exposure to clinical learning and opportunities to make critical decisions appears to affect graduate preparedness for practice. Likewise, similar findings were found in nursing studies (Burton and Ormrod 2011; Mampunge 2013) where graduates are required to have high levels of knowledge and understanding, apply intensive skills as well as managerial skills to work with the patient, as well as within a multidisciplinary team. The transition from student to novice paramedic requires a shift in paradigm from the experience of being a student in supervised practice to an independent professional practitioner in an emergency setting. Consequently, it is important that students are equipped with all the skills that are essential to make a successful transition.

The above findings are contradictory to the WIL framework, for instance clinical practice which should encourage knowledge production, skills development,

technical knowledge and skills. In this case, reports from the participants were contrary to the key concepts advocated by the Council for Higher Education (CHE 2011).

4.3.3.3. Lack of confidence and preparedness for practice

Besides clinical exposure, clinical placements should afford students the opportunity to attain knowledge and values of the professional subculture (Boyle et al 2008). Several scholars concluded that professional socialisation assists in improving graduates' preparedness for real world practice and on the pressures of the work environment (Creuss et al 2004; Page 2008; Joyce et al. 2009). In order for paramedic students to be sufficiently prepared for professional practice, students should be provided with a supportive environment to be certain of their clinical decisions and experience all aspects of paramedic exposure (Newton 2010). During these transition students gain autonomy, confidence and socialize into professional practice. Conversely, the narratives quoted below show that paramedic students appear uncertain of their confidence to practice independently. Similarly, paramedic graduates affirmed that they lacked confidence to take on the role of an independent practitioner. The following are descriptions from both samples:

4.3.3.3.1. Sample 1:

"I feel confident, I feel that I can go on the road but I feel that for three months we need to work with the paramedic" (FG 01: data 37-38).

"I think my confidence will build over time; I cannot say that I have got enough experience to be confident I do think I have enough experience not to make a complete mess and not to endanger a patient…. Whether to do it very competently and confidently I don't think there's enough experience" (FG 2: data 258-266).

4.3.3.3.2.   Sample 2:

"Pressure, pressure, pressure…. Now that you're on your own, places so much pressure is on you and so much of your nerves can take over and once your nerves takes over you don't know what you doing it affects your confidence" (P5: data 51-53).

"I find it very challenging as a new paramedic I feel I don't have the confidence… I feel I doubt myself a lot….. I felt I have huge gaps in terms of preparing me for becoming a paramedic I didn't have enough advanced life support exposure" (P 6: data 61-70).

4.3.3.3.3.   Discussion

In paramedic practice, confidence is defined as trust and reliance to identify one's personal and professional strengths and limitations (Aehlert and Vroman 2011). Preparedness is a state of full readiness (Concise Oxford English Dictionary, 11th edition: 631). With reference to the framework of this study, it means that the final year paramedic students should be confident and prepared to practise as independent registered practitioners, capable of rendering good quality medical care. On the contrary, the findings of this study are at a disjuncture from the key elements concerning graduates' preparedness for independent practice advocated by the Council for Higher Education (CHE 2011).

On this note, a study conducted by Michau et al (2009) investigated the theory-practice gap in undergraduate EMC training, to evaluate whether clinical placements assisted with the transition from a student to novice paramedic. The study was conducted using a cross-sectional retrospective study of 84 paramedic students. Although students frequently reported exposure to cardiac and respiratory cases, more than half (n = 46) reported poor patient exposure and ALS skills practice. The most common barrier to participation was that paramedics were unsure of the student's role during clinical placements. These authors concluded that motivation and confidence

were identified as one of the key elements inhibiting students' participation in patient care.

Similarly, in this study, final year paramedic students felt reasonably assured to practice independently, yet requested to work for a minimum of three months with an experienced paramedic to be socialized into the field. Clinical practitioners in South Africa are exposed to numerous critical incidents, complicated with life threatening trauma (Brysiewicz and Bruce 2008:128-129). The critical incidents include patients with alcohol intoxication, penetrating poly-trauma, and cervical spinal, cardiac and respiratory injuries (Brysiewicz and Bruce 2008:128-129). During the treatment of these patient's emergency care providers perform a wide range of complex, invasive, and often high-risk emergency medical procedures (Williams, Brown and Onsman 2009). The performance of these procedures, however, is not a unique professional characteristic to distinguish paramedics from other healthcare professionals. What truly differentiates paramedics are the settings in which they practice, where they frequently adapt procedures to suit their work environment. In order to provide effective treatment, graduate paramedics should be confident to deliver quality patient care in various emergency settings.

The transition from paramedic student to graduate is momentous and can generate profound feelings of responsibility on newly appointed paramedics as expressed by participants in sample two. However well-prepared the students were as is reflected in sample one, new graduates felt that their responsibility for patient care weighed heavily and challenged their self-confidence. These feelings were commonly articulated across the interviews, as participants expressed their responses to the responsibility and accountability for paramedic practice.

While clinical placements form a fundamental role in professional development for undergraduate students, literature is rife with reports of continuing and complex problems surrounding the clinical placement experience, accompanied

by concerns about students' and graduates confidence to practice across multiple healthcare disciplines (Levett-Jones and Lathlean 2008).

4.3.4. Conducive clinical learning environment

Students often identify the clinical learning environment as a significant factor influencing the quality of their placements in preparation for graduate practice (Saarikoski and Leino-Kilpi 2002). An enabling clinical environment enriches the clinical placement experience of paramedic students (Fenton 2005; Morris 2007). Such an environment requires a culture of positive relationships that supports learning and promotes best practice education and service delivery. Clinical placements for students should be facilitated by good communication to strengthen the collaboration between the academic institutions and placement sites (Rodger et al 2011). For students to gain any value from clinical practice exposure, placement facilities should have the necessary resources to conduct quality clinical learning (Newton et al 2009). In line with the main theme above, the following subthemes emerged which included interpersonal relationships, resources and clinical coordination of paramedic students. Each of the sub themes are discussed separately.

Table 7 Conducive clinical learning environment

4.3.4 Conducive clinical learning environment	4.3.4.1 Interpersonal relations between clinical staff and students
	4.3.4.2 Student overcrowding at clinical facilities
	4.3.4.3 Clinical coordination and communication

4.3.4.1.   Interpersonal relations between clinical staff and students

Participants in both samples identified that relationships with clinical practitioners influenced the quality of their placements. Participants reported that they need to be supported both psychologically and pedagogically. While

some clinical staff was friendly, cooperative and willing to teach, the majority of participants indicated poor relations with clinical staff which restricted their exposure to acute emergency calls and skills exposure. The following comments were made by both participants:

4.3.4.1.1.   Sample 1:

"Staff are very unpleasant and you can't change that, they don't teach you, they don't help you they just do their own work it is just the way they are and you can't change that. It's their personality. The others they just have their own work" (FG 01: data 250-253).

"Sometimes I think as students we lie to get a chance to do an ALS skill, so if the doctors asks you if you have done this before and then we say yes ……. We just say okay, yes, I have done it before and yet you don't actually have the experience and end up making mistakes and when the doctors say, I will never give them an opportunity again" (FG 1: data 638 – 643).

"The problem I have is that the doctors say no, no, no patients too critical of then the truth is if we wait to make a mistake here we would learn tenfold and the patient will survive. Whereas out there, we will make the same mistake because we haven't had to deal with that problem….. There won't be 10 doctors and specialists and nurses and everything else…. Paramedics need to learn". (FG 2: data 298-313).

4.3.4.1.2.   Sample 2

"The bigger struggle I had was not the clinical issues but how to deal with the nursing staff and doctors and difficult personalities" (P7: data 97-99).

4.3.4.1.3.   Discussion

Although the focus of the study is based on clinical learning experience and preparedness for independent paramedic practice the above findings reveals that interpersonal relations with clinical staff have a significant impact on learning opportunities. Both participants expressed a lack of trust between

clinical staff and paramedic students. Part of the problem can be attributed to the lack of communication from the academic institutions to the placement site supervisors, where staff is unfamiliar with the learning objectives as well as the student's scope of practice. Prior to clinical placements, paramedic students are assessed with patient simulation or OSCE demonstration to ensure they are competent and safe for clinical practice (Stein 2009). The above comments differ from the recommendations made by other writers (Lofmark and Wikblad 2001; Healey 2008; Plack 2008). These authors advocated that the clinical learning environment should offer support and a psychological safety net where students are able to ask questions, learn from their mistakes and are afforded opportunities for learning.

On the contrary, placement experiences characterised by supportive relationships in positive learning environments have shown to improve learning outcomes substantially (Fenton 2005; Hartigan-Rogers et al 2007; Morris 2007). Positive working relationships enhances students opportunities to practice in clinical placements, whereas negative relationships, restricts the student to minor routine tasks (Newton et al 2009).

Interpersonal relations characterised by mutual respect and constructive criticism reduces student anxiety, thereby improving cognitive function (James and Chapman 2009). Trusting relationships increases the capacity for open and honest feedback that encourages self-awareness and reflective learning (Fenton 2005; Chesser-Smyth 2005 as cited by James and Chapman 2009).

During practice students are bound to make mistakes, and should therefore be guided constructively to prevent patient harm (Newton et al 2009)). The literature reviewed supports the idea that interpersonal relations between paramedic students and clinical practitioners are important to students, because they provide a sense of belonging; feel respected, appreciated and part of the healthcare team (Newton et al 2009; Ralph et al 2009; Gallagher et al 2012).

Unsurprisingly, students and graduates identified working relationships as critical to their satisfaction as part of the clinical placement experience.

4.3.4.2. Student overcrowding

The literature reflects that the number of paramedic students allocated to each clinical area must be controlled, if learning experiences of the student paramedics are to be enriched, as the number of students placed in clinical facilities is proportionate to the influence on clinical teaching, availability of learning opportunities and clinical supervision (Mabuda 2008; Boyle et al 2008; Mntambo 2009). This view is supported by Sibiya (2012) who emphasized that the number of students allocated to a clinical area should be controlled, so that overcrowding can be avoided, thereby making the teaching and learning environment more effective.

Both participants indicated that although the training coordinator scheduled them to work in groups of 2, upon arrival at the clinical sites, there were often other paramedic students or allied health care staff, which resulted in student overcrowding. This impacted adversely on clinical teaching and learning opportunities for paramedic students. The following are some of the verbatim responses from participants:

4.3.4.2.1. **Sample 1**:

"….. There are five nursing students and other students with few patients this result in competition for patients….. which makes it even more difficult" (FG 2 : data 207-214).

" On the ambulances crowded there are 2-4 students and there's barely space for the patient and the escort and then you have to work around each other in the space there in the back and is horrible and you don't learn almost anything and it was a waste of time.." (FG 2: data 230-to 234).

"… Maternity, that's where you've got lots of nursing students there and you have to compete with other students the deliveries

"It's just overpopulated with students. There's too many students and everybody wants skills and shifts now and all at the same time" FG 2: data 558-559).

4.3.4.2.2.   **Sample 2**:

"There are 4 to 6 students per shift and this is too many students at a time because there's not much paramedics for the students to work with. Then you end up with third year of final year students working with basic life support and that is not really on because what exposure are they supposed to get"(P 7: data 40-44).

" You have three students on one vehicle which is not really conducive because this students have to share the skills and patience which results in not much being done and it's just the skills shift instead of actually learning how to be a paramedic" (P7: data 47-50).

4.3.4.2.3.   Discussion

From the findings of this study it emerged that at times there was more than one student placed on an ambulance. Overcrowding of the ambulance placed the student, the clinical practitioners, as well as patients at risk and contradicts the health and safety regulations (RSA DoH Ambulance Act: 1999). Due to the large number of students allocated to an ambulance, students have turns to perform patient care. As a result, they have a limited number of opportunities for learning exposure.

These findings are mirrored in a study conducted by Van Rhyn and Gontsana (2004) at the University of Free State, where they explored the experiences by student nurses during their first clinical placement in psychiatric units. The study was conducted through a descriptive, exploratory, qualitative design using unstructured interviews. One of the themes that emerged was the overcrowding of students in clinical units. The study concluded that large numbers of students at clinical sites adversely affects teaching and learning, thereby resulting in inadequate student support. The study recommended that number of students

allotted to a clinical shift must be controlled for effective teaching and learning to be achieved.

Majority of the participants in sample 1 and 2 indicated that overcrowding of students at hospitals is a common manifestation. Paramedic students often compete with the allied medical students to treat patients. Similar learning anxieties and issues of overcrowding were addressed in nursing studies conducted by Mabuda (2008) and Mntambo (2009) who explored student nurse experience during clinical practice. The views of participants above are of concern as they violate the principles advocated by the Council for Higher education (CHE 2011).

Mongwe (2001:108) and Mafalo (2003:39-40) expressed that shortages of staff and equipment also have a severe impact on the health care system, jeopardising professional integrity. These authors argued that a shortage of staff and increased workloads leads to stress and burnout in clinical supervision, thereby resulting in diminished supervision and mentoring. This has a profound impact on the quality of experiences and learning of students in the clinical learning environment.

4.3.4.3.   Clinical coordination and communication

Multiparty collaboration between various Hospitals, Emergency Services and training institutions contributes to a positive learning experience and prepares graduates for independent practice (Kirke et al 2007). It is also commonly acknowledged that placement preparation is a challenging task for higher education intuitions (Redding and Graham 2006; Gallagher et al 2012). This is often determined by the communication between the academic institutions and the placement sites (Papp et al 2003). Paramedic students often reflect that the type of experience achieved is often influenced by the coordination of the clinical practice placement. The following comments, are from paramedic students in sample one as well as the graduates in sample two, with the focus

on communication between the students, placement sites and the academic institutions.

4.3.4.3.1.　Sample 1:

"The top structure at the hospital or the bases knows that students are coming but I think for the people on the ground, they are not informed cause when the students go on shift the staff tell you what are you doing your we didn't expect you… People on the ground and not informed" (FG 2: data 414-418).

When you arrive there they just see people in green. They don't know which one is the paramedic; and then you have to tell them and you must explain to them the different scope – that's what I experienced (FG 01: data 178-180).

"You get the early in the morning and they tell you not rostered and they tell you to go straight like that….. They don't care" (FG 2: data 438-442).

"Being roistered is one thing but actually orientating the staff to what the students are being sent to get out there and what the expectations are from the facility…. Something that needs to be done a lot better… Be less negotiating ability of an individual student" (FG 2: data 447- 462).

4.3.4.3.2.　Sample 2:

"The College and University should work closely with paramedic practitioners…. We should be told exactly what is expected from the students ………..I suggest they set up a meeting on how we handle the students"(P6: data 251- 256).

4.3.4.3.3.　Discussion

Participants felt that there was poor communication between the training facilities and the placement sites. It is evident from the comments above that both participants in sample one and two found it frustrating when supervising staff was unaware of their impending arrival for ambulance clinical shift. Often the rosters were changed by the clinical coordinators, at the last minute and as

a result clinical supervisors at the facilities, were unaware of these changes and instructed students to go home when their name did not appear on the roster.

Furthermore, clinical rosters are emailed to the Head of the Department at the clinical sites. Due to communication errors, supervising staff on the ground generally do not receive student rosters or objectives set out for the student. Participants further stated that clinical supervisors questioned the clinical objectives, as some of the objectives specified could not be achieved at some clinical sites. These findings concur with findings made by several other researchers (Redding and Graham 2006; Levett-Jones et al. 2006; Kirke et al 2007; McCall et al. 2009; Henning et al. 2011). These authors concluded that clinical supervisors had limited knowledge about what students had learned prior to placements, trouble contacting academic staff to align practice with curriculum, untimely provision of information about placement details, unclear clinical objectives, and absence of orientation processes to clinical venues.

Several studies identified the need for clearer communication regarding the expectations of both the student and supervisor in clinical placements (Henning et al. 2011; Rodger et al. 2011; Gallagher et al. 2012). It is evident that proper channels of communication between the placement site and training institutions needs to be established so that orientation and induction programmes for students at clinical placements can be agreed on and processes for addressing emerging issues discussed. The literature reviewed concerning collaboration and communication of students in clinical practice placements, recommended several collaborative initiatives (Fenton 2005; Mabuda 2006; Andrews et al 2006; Kirke et al 2007; Newberry 2007; Rodger et al 2011). This included collaboration with academic institutions, training providers, Hospitals and Emergency Medical Services to ensure that graduates are prepared for independent practice. The above recommendation from the literature concurs with the work integrated learning good practice guide (CHE 2011).

4.4. Document analysis

Document analysis encompasses the study of existing documents either to comprehend their substantive content or to illuminate deeper meanings, which may be discovered by their style and coverage (Ritchie and Lewis 2003:35). With the aim of exploring the multidimensional aspects of clinical practicum experience of paramedic students, the researcher further scrutinized relevant documentation pertaining to clinical practice from both units of analysis (CPUT and College), which consisted of the following documents:

- Experiential Learning Portfolio
- Experiential Learning Practical Workbook.
- Rotation evaluation form
- HPCSA CCA curriculum for clinical practice
- CPUT outcomes for clinical learning.

The clinical practice documents were analysed by means of content analysis using Rapleys' practical steps of analysing documents, against the backdrop of the work integrated learning framework as described in Chapter one (Rapley, cited in De Vos et al 2011:381). In order to corroborate the findings, triangulation of the data collected allowed for a deeper exploration of the case and contextualization of clinical practice at the units of analysis. The following subthemes emerged which was interrelated to the main theme of exposure to learning as indicated in Table 8 below.

Table 8 Document analysis: Exposure to learning

Theme	Subtheme
4.4.1 Exposure to learning	4.4.1.1 Reflection of clinical practice
	4.4.1.2 Feedback
	4.4.1.3 Learning objectives

4.4.1. Reflection

Emergency care providers are required by the HPCSA to maintain their registration, to uphold high clinical standards and continuously engage in their own professional development (Christopher 2008). Similarly, student paramedics are required to provide a portfolio of evidence that reflects their development and eventual competency.

Biggs (1999) expressed that effective learning requires a knowledge base, trained within a motivational context, together with effective learning activities and interaction. For learning to occur, students need to observe and reflect on experience, develop concepts to make sense of their experience and then apply and test out these concepts through new experiences.

Although there is evidence of intent for student reflection at both institutions, no clear guidance for reflection exits in the documents as per Figure 7. The documents lack guidance to learners in terms of what particular element of clinical experience requires students' attention and how to analyse their observations. According to David Kolb's (1984) reflective learning theory, reflective practice is when student reflects on an experience and reconstructs what has been learnt, makes necessary adjustments and applies new learning in future situations.

Such elements of reflection are crucial for learning to occur (Kolb and Kolb 2005). These findings are corroborated by sample 1 and 2, who both highlighted that paramedic students lack sufficient guidance in the process of reflection. The clinical documentation is focused on performance-based competence, which does not allow for an assessment of contextual performance. In other words, it is questionable whether paramedic students and graduates are able to apply procedures learned in various clinical contexts.

Figure 7 Reflection report in clinical practice documentation

These findings were supported by other scholars who said that the level of exposure to guided reflection during paramedic critical thinking process, determines the extent of reflective observation and abstract conceptualization (Hauer et al 2005; Williams, Brown and Windship 2013). The extent of learning that can take place during paramedic clinical practicum depends on many extrinsic factors, of which many are out of the paramedic student's influence and control. However, without reflection on an experience, a practitioner may be in danger of continuing to make the same errors (Schön, 1987).

Learning can be said to result from exposure to an experience. Conversely, it is not the exposure alone which results in learning. It is in the process of reflecting on that experience and responding to it that factual learning takes place. Reflection is a contentious topic in paramedic education, for some students, reflection can be daunting. Concerns about the academic writing

process and knowing where to begin were articulated by students attending paramedic training programmes.

Australian paramedic practice advocates the Peshkin reflective tool to enhance students' self-reflection capabilities on clinical placements (Bradbury-Jones et al. 2007). It requires students to record their subjective thoughts and feelings, in order to identify aspects of their subjectivity that influence their clinical practice (Bradbury-Jones et al .2007; Murphy et al. 2009). This tool was found to be effective in enhancing supervisors' and students' capacity to give and receive feedback, and in increasing students' self-awareness and overall learning (Bloomfield et al. 2007).

From the literature reviewed, it can be concluded that the understanding and application of reflective practice to the students' learning contexts, could be more effectively developed through a revised curriculum approach than that which currently exists. The overall evidence of the data supported this conclusion, which indicated that a structure of reflective practice does exist. However, it is limited in application.

4.4.2. Feedback and supervision of clinical practicum books

Feedback during clinical performance is essential for effective student learning in paramedic clinical practice (Clynes and Raftery 2008: 406). However, in this study students reported variable experiences of receiving feedback while on practice placements. These findings are consistent with the review of the clinical workbooks and portfolios and may be attributed to a number of factors. The feedback section of the workbook generally consists of few lines, providing comments regarding students' performance rather than structured constructive feedback as per Figure 8. As mentioned above, participants in sample one, voiced that feedback is generally given at the conclusion of the shift whereby clinical practitioners were rushed to sign off skills and provide feedback comments to students regarding the performance. As a result, feedback on

clinical performance is often too late, when students have no opportunity to improve practice.

On the other hand, paramedic graduates stated that they lacked knowledge on how to deliver feedback to students. As a result, when students performed poorly they were compelled to give positive remarks. Therefore, graduate paramedics recommended that a separate report be provided to the institution regarding students' knowledge attitudes and skills.

Bloomfield et al (2007) designed and implemented a Reporter, Interpreter, Manager, Educator (RIME) feedback tool to alleviate the challenge of providing frequent feedback to medical students. This tool requires health professionals working with a student to observe the student's performance during clinical practice for the entire term of the placement, rather than in a single clinical shift. At the end of the term, the health professionals engage in discussions about the student's progress on the RIME developmental ladder, and create a consensus report describing the student's performance which is then discussed with the student by the clinical practitioner. Feedback reports similar to this could be incorporated into student portfolios in the Western Cape, which will allow for constructive feedback and effective learning.

Notwithstanding the evidence that feedback is an essential component of the student learning process, a review of the literature reveals significant inconsistency in the amount of feedback, praise and positive reinforcement received by students similar to this study (Raferty 2001; Dohrenwend 2002; McCarthy and Higgins 2003:95 Eraut 2006; Clynes 2008). It is widely recognized that feedback is more likely to be acknowledged and results in improved practice if the information is aptly presented to the student. The reviewed literature concluded that effective delivery of feedback is a multifaceted process, which begins with preparation of the supervisor for competent delivery of feedback. Further elements include a rapport with the student, timing of the feedback, the environment, the language, and format

used. Feedback should be guided by the principles that promote learning and readiness of the student to receive both verbal and documented feedback, which should resonate in clinical practice documentation.

Feedback on clinical performance is crucial for effective paramedic learning during clinical practice. Awareness and understanding of the basic fundamentals of feedback delivery can aid the process and ensure that both supervisor and student have a positive collaborative experience. Feedback will also assist students to reflect on their practice thereby learning from experience.

Figure 8 Clinical practice document feedback to students

4.4.3. Learning objectives

After the analysis of content from the clinical logbook as well as the clinical portfolio from both units of analysis it was evident that the learning objectives were not clearly defined. The clinical practicum books generally contained a checklist of skills, requiring a student to achieve a specific number of skills during a specific period. Although the HPCSA clinical practice curriculum stipulates vague objectives, these learning objectives were not included in the

practical books. Lack of specific objectives in the workbook resonates with the views of sample one, where the participants voiced that the clinical practice workbook contains a generic list of advanced life support procedural skills, which was merely a checklist of skills to ensure competency was achieved in clinical placements. Contrary to this finding paramedic graduates felt that although a clinical supervisor signed off these skills, it rarely assessed competency. Participants also voiced the difficulty with attaining some of the ALS skills that they were required to achieve, as clinical supervisors regarded these skills as being unrealistic and unachievable during clinical placements.

SKILLS REQUIRED			
Skill	To Obtain	Obtained	Coordinator / Lecturer Signature
Blood Gas Analysis	10		
External Jugular Cannulation	5		
Femoral Cannulation	5		
Neonatal IV Cannulation	5		
Pediatric IV Cannulation	5		
Pediatric Intra-Osseous Cannulation	5		
Neonatal Umbilical Vein Cannulation	3		
Diagnosis of 12 ECG's	10		
Drug Administration: Intramuscular	5		
Drug Administration: Intravenous	10		
Drug Administration: Subcutaneous	5		
Endotracheal Intubation: Adult	10		
Endotracheal Intubation: Pediatric	5		
Endotracheal Intubation: Neonate	5		
Examination: Antenatal	5		
Examination: Postnatal	5		
Examination: Medical Patient	4		
Examination: Trauma Patient	4		
Fluid Management: Infusion Device	3		
Fluid Management: Syringe Driver	3		
Nasogastric Tube Placement	5		
Normal Vaginal Delivery	5		
Nebulization / In-line neb	15		
Patient Report Form Completion	6		
Resuscitation: Adult	3		
Resuscitation: Neonate	3		
Suctioning (ETT)	10		

Figure 9 HPCSA requirements for clinical practice skills of paramedic students

The national standard recommended by the HPCSA (1999) requires paramedic students to successfully perform the skills of surgical cricothyroidotomy, intraosseous injection, pacing and synchronized cardioversion, at least five times amongst other advanced life support skills on live patients as per Figure 9. Whilst it is widely acknowledged that skills exposure and proficiency are important, the results of the study are similar to Wang, Seitz and Hostler (2005) who concluded that empirical links between quantified skill exposure and proficiency on live patients do not exist. Regrettably, there is no valid, evidence-based reference to define adequacy of clinical exposure for pre-hospital emergency care students within the context of emergency care. Despite this, some research has addressed the description of learning curves, and this provides at least some idea of the relationship between exposure and competence.

The Council for Higher Education advocated that workplace learning should be aligned with the curriculum and students be provided with clear outcomes and teaching and learning activities that are aligned with the appropriate level of assessment (WIL 2011). The growing practice with designing clinical learning outcomes or objectives internationally is focused on what the student will be able to do, rather than on the content being covered by a misaligned curriculum (Donnelly and Fitzmaurice 2005). This practice reiterates the move towards student centred learning in clinical practice and helps shift the emphasis on the learner, as opposed to coverage of generic skills to achieve competence. This is also reflected in Gibbs' (1995) definition of "an emphasis on the process and competence, rather than content" (O'Neil, Moore, and McMullin 2005).

According to Wessels (2005:40) learning objectives for clinical placements should focus on desired outcomes with real life exposure to deepen the understanding of learners. Wessels (2005: 40) wrote that learning objectives should be an observable and measurable activity related to the cognitive, affective and psychomotor domains of the learner. On the contrary, learning objectives for paramedic students as per Figure 10 are contradictory to the views of several writers (Donnelly and Fitzmaurice 2005; Wessels 2005; O'Neil,

Moore, and McMullin 2005). Although the HPCSA recommended vague learning objectives for the paramedic clinical practice curriculum, none of the specified objectives were included in the clinical practice workbooks or portfolios.
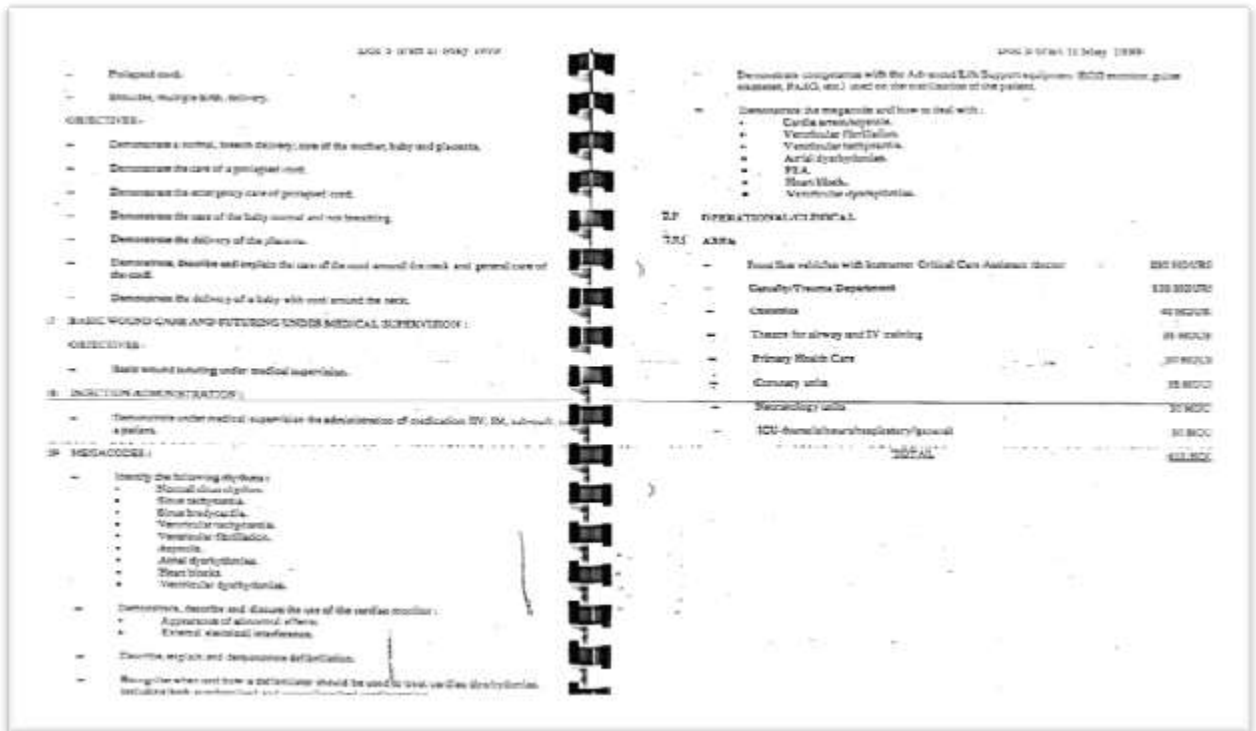
Figure 10 Clinical practice learning objectives for paramedic students

Based on the theoretical propositions and model of Miller's pyramid, the clinical practicum experience of final year paramedic students resides in the top levels of the pyramid, which should provide the opportunity and experience of consolidating the development of professional competence, by application of the comprehensive range of knowledge and skill within real life contexts of patient care. As per Figure 10, the opportunity provided to paramedic students to reach top levels of Miller's pyramid during clinical practicum lacks sufficient evidence in the paramedic field as the clinical objectives laid out in both units of analysis do not describe measurable outcomes for clinical competence.

4.5. Summary

In this chapter the multidimensional aspects of paramedic students' clinical practice experience in the Western Cape was discussed. The identified themes that emerged from the study were discussed against literature together with the backdrop of the work integrated leaning theoretical framework advocated by the CHE. The following Chapter will focus on the summary of findings, conclusions drawn by the researcher, its implications and recommendations.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

"A teacher who establishes rapport with the taught, becomes one with them, learns more from them than he teaches them." Mahatma Gandhi

5.1. Introduction

The purpose of this research was to explore the multidimensional aspects of the clinical practicum experience of ALS paramedic students, in the Western Cape and to make recommendations for its improvement. This involved exploring the experience of paramedic students in the clinical practice placement. Further to this, the views of paramedic graduates were investigated regarding whether the placement experience adequately prepared them for practice. It was also necessary to explore the clinical practice documents involved in the training of ALS paramedic students, with particular reference to identifying correlations with relevant literature. In addition, it was necessary to identify how clinical practice manifested itself, not only in what students and graduates express but also how it is coordinated and conveyed in a professional work related context, against the backdrop of the work integrated learning framework, advocated by the Council for Higher Education. This information was essential to inform theory and practice relationships to enhance the ALS paramedic curriculum.

5.2. Summary of discussion

During data analysis several primary elements converged to form relevant themes, which comprised of clinical supervision and support, the integration of theory with practice, exposure to learning in EMC and a learning environment conducive for clinical practice.

Under theme one, clinical supervision and support gave rise to the sub themes of clinical teaching, supervision in clinical practice, feedback, and mentoring. Through the data analysis a multitude of variables emerged that affected supervision and support of paramedic students in clinical placements. Participants highlighted that teaching in clinical placements was largely dependent on the placement site, as well as the clinical practitioner's knowledge and ability to teach. Participants emphasized that supervision in clinical placements was a challenging experience. The vast majority of students remarked that clinical supervision was inconsistent and students generally performed the role of an observer during clinical practice. Participants reiterated that supervision was dependent on the attributes, specifically knowledge and attitude of the individual clinical practitioner.

Reflecting on the participants' comments, it is apparent that there are numerous issues with the delivery of feedback in paramedic training. Feedback provided to students often lacked structure and at times appeared to be destructive and personal in nature. In contrast, paramedic graduates reported a different scenario saying they had difficulty providing feedback to students, as they feared that criticism would affect their working relationships with students.

The participants highlighted the lack of structure and consistency with mentoring in clinical practice was also highlighted by participants. Of significance the study found that paramedics lacked knowledge and training skills to mentor students. As a result ordinary clinical practitioners provide clinical supervision and support and engage in a mentorship programme without any form of orientation, as to what is required of them in terms of mentorship or what the clinical objectives of mentoring constitute.

The integration of theory with practice was identified as a second major theme. The sub themes that converged with this theme, included curriculum related aspects and discrepancies between classroom teaching and clinical practice teaching. It emerged from the data that some of the learning objectives of the

curriculum were irrelevant to paramedic practice. Participants raised concerns that the theory component of the curriculum was condensed into a short space of time, which affected the ability of students to grasp and understand key concepts within the context of emergency medical care. Another confounding factor was the structure and misalignment of anatomy, physiology and emergency medical care modules with the clinical practice placements. This led to confusion in contextualizing emergency medical care during patient treatment.

Participants expressed that certain modules learnt in EMC theory were at a disjuncture from real life practice. Participants indicated that they lacked knowledge in three key areas, namely airway and ventilation management, neonatal and paediatric management. Basic and advanced airway management is the cornerstone of the ALS scope of practice. Poor airway management compromises the patient further and could lead to impaired neurological status with severe disability or even death (Sanders 2007). Neonates and paediatric patients are already in a fragile state, based on their anatomical differences hence their treatment defers from adults (Kue et al 2013). Parameters for critical treatment in neonates and paediatrics are time sensitive. During these emergencies it requires emergency care providers to apply metacognitive thinking. The emergency care management of these patients is dependent on accurate patient weight calculations, drug dose specifics and clinical equipment manipulation to improve patient outcomes. However, this study shows that the link between theory and practice in some components are weak, which has serious implications for the quality of patient care.

Whilst it is noted that clinical exposure is a key element to empower students with insight, problem-solving skills, and critical decision-making, the lack of exposure to learning within emergency medical care was reported as a major theme that influenced students learning and graduates preparedness for practice. Participants identified that the lack of learning opportunities and clinical decision-making affected their confidence, to practice independently. Another challenge related to clinical exposure was the overcrowding of students at

facilities and preferential teaching to allied health students, instead of paramedic students. It resulted in participants being unable to actively partake in neonatal and paediatric patient treatment during clinical placements. The findings of the study reflect graduate unpreparedness for independent practice as it emerged that participants lacked decision-making skills and confidence to practice independently. The Institute of Medicine's 1999 released a report titled "To Err is Human: Building a Safer Health System" which highlighted the importance of preventable medical errors in patient mortality. It estimated that up to 98 000 Americans die annually due to medical errors in patient treatment. According to Welzel (2012) no factual data in SA exists, however it is estimated that 8.2% of patients entering the health care system suffer adverse incidents. The foundation for such prevention is effective clinical training and education.

Preparedness, against the backdrop of complexity and holistic approaches to practice is increasingly important. Participants identified that the clinical learning environment was the most significant factor influencing the quality of their placements as well as their preparedness for graduate practice. Whilst a culture of positive relations, good communication and adequate resources strengthens learning in clinical practice, the participants indicated that their experience strongly contradict this. Participants expressed that the lack of trust and poor relations between clinical staff and paramedic students restricted their exposure to critical advance life support skills. Another pervasive sub theme that students continuously raised was the overcrowding in placements. This was problematic, as it resulted in competition for skills and participants felt frustrated that they were not included as members of the multidisciplinary team during clinical placements. The increasing demand for clinical placements and the lack of team dynamics contributes to the mounting pressure on the already constrained health care system. Furthermore, these frustrations and levels of anxiety are transferred into the workplace and escalate into poor socialization into the multidisciplinary paramedic profession.

Having outlined a number of key points that this research highlighted, students particularly reflected a dissonance in communication between training

institutions and placement sites. Participants reported that placements supervisors were sometimes unaware of paramedic students' clinical rosters. Furthermore, clinical placement supervisors had superficial awareness about student's prior theoretical knowledge, the advanced life support practical curriculum, as well as the specific learning objectives. This discrepancy underscores the importance of clinical learning, communication and shared expectations between the student, clinical supervisor, and the training institution.

The findings of this study indicate deficiencies in all three elements of the WIL framework, namely, the academic field, educational field, and profession. In the views of the participants, the curriculum components, namely the paediatric, neonatal, airway and ventilation components did not provide sufficient knowledge base for clinical real-world scenarios faced by emergency care providers. In terms of the second pillar of the WIL framework, the training providers struggled to implement an efficient clinical curriculum. The clinical curriculum appears to be decontextualized from the workplace demands; the failure to perform lifesaving skills can have a long lasting psychological impact on a fresh graduate that affects his or her self-confidence, self-efficacy and subsequently the patient care. Inefficiency of the WIL could have serious implications on the quality of EMS. Although the public EMS providers may be able to meet the mandate of early access to emergency care, the quality of that care will remain questionable.

5.3. Recommendations

On the basis of the above discussions and from the contextual summary of the five themes that emerged, the following recommendations are offered to improve the paramedic-training curriculum, to better prepare graduates for independent practice.

5.3.1. Recommendations for improving student's clinical supervision and support in clinical practice

The learning objectives for clinical practice should focus on specified desired outcomes to deepen the understanding of paramedic students in clinical practice. When setting outcomes program coordinators must have specific goals in mind which must be clear and concise. Learning objectives must focus on observable, measurable, action orientated and time bound activities.

Clinical teaching should be facilitated by a trained clinician, guided by a planned curriculum to meet academic and professional expectations. Training institutions should design a criterion for selecting supervisors in clinical placements. The criteria should include positive attitudes, the ability to demonstrate clinical competence, good organization, and communication skills. In addition, supervisors should possess strong leadership and management skills as well as ensure consistency and transparency with the practical assessment process.

Supervisors need to be educated and trained in delivering constructive feedback to students. The literature has advocated various tools for delivering effective feedback to medical students, for example the sandwich method proposed by Dohrenwend (2002) or the reporter, interpreter, manager and educator (RIME) feedback tool designed by Bloomfield (2007). Feedback should be specific and descriptive, focusing on assessing the student's attitude, knowledge, and skills in work performance.

EMC training institutions should develop a supportive mentorship program with inter professional collaborative links with emergency services and hospitals. This will enhance teaching, learning exposure and support for students. Hence, it will improve confidence and clinical decision making to enrich the professional development of students.

5.3.2. Recommendations for integrating EMC theory with practice

The paramedic curriculum should be reviewed and aligned to ensure that theory and clinical practice clearly relate to the learning outcomes for real world practice. The review of the curriculum should be tasked to the HEI curriculum department with advisory input from the Provincial College's Principal Forum, National Department of Health, and HPCSA PBEC education committee.

The Western Cape CEC and CPUT clinical coordinators must work collaboratively with clinical practice supervisors to ensure that teaching is consistent at practice placements.

5.3.3. Recommendations for enhancing students' exposure to learning in EMC

The EMC academic institutions should work in partnership with the emergency medicine specialists from the neonatal and paediatric departments to facilitate the integrating of theory with practice to ensure students are exposed with opportunities for 'real life' practice. Lecturers should supplement clinical practice with simulated real-life scenarios with the aid of audio visual and E learning resources to encourage critical thinking and promote active learning.

Despite the supportive three month induction program established for new graduate paramedics in the Western Cape Government EMS, this study further recommends that clinical learning and exposure for new graduates be facilitated through a one-year structured internship programme of supervised practice, thereby exposing the graduate to all facets of the paramedic profession. Besides paramedic placements, exposure should include the specialized neonatal and paediatric ICU transfer vehicle, specialized rescue services, the air mercy service transferring critically ill patients from rural areas, working together with emergency medicine specialists in maternity, neonatal, paediatric and disaster management departments. Although the NDEMC and CCA qualification may perhaps be superseded as per the NECET policy, clinical learning in the BEMC and ECT programme is very similar. Thus graduates will

benefit from a structured internship programme preparing for independent practice.

5.3.4. Recommendations for a conducive clinical learning environment in EMC training

Currently the Western Cape Government Department of Health is in the process of negotiating a multilateral agreement with allied health training providers, to share the clinical platform and consolidate all clinical practice training under a single provincial clinical coordinating department. This will ensure resources are distributed equitably and all medical students benefit from clinical practice platform. However, at the conclusion of this research, the agreement was not yet finalized. Thus, it is recommended that a collaborative partnership between academic institutions and the various placement sites be formalized to elucidate the roles and responsibilities of the respective partners. Training institutions should design and implement an induction programme to provide EMC students with sufficient orientation to the workplace. Programme coordinators must consult with clinical practice supervisors to establish effective lines of communications regarding feedback, monitoring, and evaluation of students in clinical placements.

5.3.5. Recommendations to improve clinical practice documentation in EMC

Clinical practice documents should be explicit regarding clinical learning objectives. The roles and responsibilities of the student and clinical practice mentor or supervisor should be specified. Documentation should include relevant HEI, HPCSA, and DOH policies regarding the elements of practice and skills acquisition and competence. Portfolios should have clear guidelines informing students on how to write a reflective report, and the importance thereof. The framework for reflection should be guided by the principles of Kolbs theory (1984). Feedback to students should be provided in a structured report, using any one of the feedback tools such as the RIME report or the sandwich method mentioned earlier. Whilst it is acknowledged that CPUT is moving away

from paper based clinical documentation to the electronic data reporting system, it is recommended that institutions offering paramedic training progress move towards electronic clinical practice documentation. The advantage is perhaps that electronic documents may ease the accessibility and proficiency in generating reports on students' achievement and growth, essentially assisting in understanding student's strengths and weaknesses. However, it requires an appropriate infrastructure such as Internet access, tablets or smart phones and most importantly computer literacy.

5.4. Recommendations for further study

This study has unravelled many areas for future potential research such as coaching and mentoring in clinical practice and effective teaching in an emergency care environment. It is further recommended that research be conducted in other provinces regarding the clinical practice experience of paramedic students. Further research will stimulate the paramedic training curriculum and enhance graduate preparedness for independent practice in the challenging, dynamic multifarious paramedic workplace environment.

5.5. Limitations

The limitations of this research are primarily around the generalizability of the findings, which is due to the fact that this was a single case study conducted in the Western Cape Province that encompassed two training institutions with a unique population sample. Consequently, the conclusions reached may only be applicable to the population of undergraduate paramedic students studied in this particular context. Qualitative studies however allow for an in depth rich inquiry into a case, which may shed valuable light on, issues at other institutions as well.

In addition, as highlighted in Chapters 3 and 4, the participants in this study were predominantly paramedic students and graduates. Whilst this shed valuable light on these samples, it is important for future research to extend the

lens of the inquiry to include students' understanding of clinical practice across all levels of study including those who supervised paramedic students, viz. doctors, nurses and paramedics.

5.6. Conclusion

The findings of the study indicate that the clinical practice learning objectives of paramedic students were not adequately achieved and paramedic graduates felt ill prepared for independent practice. These discrepancies were attributed to the multidimensional issues both in theory and practice. The paramedic profession is an emerging and developing discipline within higher education. Over the last decade there have been significant changes with the advanced life support qualifications, which have since grown into the formally endorsed SAQA competency and benchmark for professional practice. In this context the research was salient and creates a multitude of opportunities to improve the clinical training experience, such that a more prepared paramedic may enter the complex and challenging world of EMC.

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Statement of Agreement to Participate in the Research Study

CONSET

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Mr. Kubendhren Moodley, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number:

- I have also received, read and understood the above written information (Participant Letter

  of Information) regarding the study.

- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.

- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.

- I may, at any stage, without prejudice, withdraw my consent and participation in the study.

- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.

- I understand that significant new findings developed during the course of this research which

  may relate to my participation will be made available to me.

_____   _____   _____   _____

Full Name of Participant   **Date**   **Time**   **Signature**
/ Right

Thumbprint

I, __Kuben Moodley_____   herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

_____   _____   _____
Full Name of Researcher   **Date**   **Signature**

_____   _____   _____
Full Name of Witness (If applicable)   Date   Signature

_____   _____   _____
Full Name of Legal Guardian (If applicable) Date   Signature

Focus Group Interview Guide

(For Use of Researcher Only**)**

1. Thank you for taking the time to be interviewed for this study.
2. Introduce myself and the purpose of the focus group interview.
3. Ensure that the participants have read the study information sheet and has given consent to participate in the study.
4. Remind participants of confidentiality of the interview and alleviate any fears of group participation.

5. **Focus group interviews will be guided by the following questions**:
- **Factors that affect student's opportunity for learning**
- What were your experiences with clinical practicum as a student?
- What are the factors that had an impact on your opportunity for learning during clinical practice?
- Where you provided with sufficient opportunity to make critical decisions and apply critical skills?
- **Exposure to ALS skills**
- Tell me about your exposure to advanced skills during clinical practicum specific to airway management, circulatory, obstetric, neonates and paediatric management?
- What influenced your exposure to ALS skills during clinical practicum?
- What role did clinical practicum play in building your confidence in ALS skills?
- How has your practical competence improved during clinical practicum?
- What is your view on clinical practicum as an essential part of becoming a competent paramedic?
- **Opinions and expectations of student's towards clinical practicum**

- What were your expectations of clinical placements?

- Tell me about positive experience you have had with clinical practicum

- Tell me about negative experiences you have had during clinical practicum

- If you had a chance to make changes to the way the clinical practicum is conducted, what would you change?

- **Conclusion**

- What would be an ideal clinical practicum for you?

- Of all the things we discussed, what do you think are the most important issues regarding clinical practicum?

- Would you like to add anything else?

Annexure 3.   **Semi structured interview schedule**

Semi structured interview schedule

(For Use of Researcher Only**)**

Introduction

1. Thank you for taking the time to be interviewed for this study

2. Introduce myself and the purpose of the interview.

3. Inform the interviewee about anonymity and the right to withdraw from the interview at any time

4. Obtain permission for audio recording and explain its purpose

5. Obtain consent to participate in the study (Consent letter)

The interview will be guided by the following questions:

General demographic information

Age: Race:
                                                                    Previous experience:

1. When did you qualify as a paramedic?

   _____

2. Which organization are you currently working for as a paramedic?

   _____

3. What is your position at your current organization?

4. How long have you been employed in current position?

5. Do you mentor paramedic students in your daily job?

6. How would you describe your experience as a new paramedic?

    a. Probe: Can you describe some of the challenges that you experienced in practice?

    b. Probe: What were you lacking starting as a new paramedic?

7. Reflecting on your clinical practicum as a student, how did it help you in your
    current job as a paramedic?

    a. Probe: Which aspects of the clinical practicum were most beneficial in your current competence and preparedness for the job of paramedic?

8. Reflecting on your clinical practicum as a student indicate what aspects were not covered that may have left you unprepared to deal with challenges in the field?

    a. Probe: Tell me more about what specific medical problems

    b. Probe: Tell me more about what specific skills

9. How would you describe the opportunity for developing students' competence and preparedness in your current position?

a. Probe: Does your current job allow for adequate exposure to ALS skills?

10. Now as a paramedic what do you think about the clinical practicum logbook?

a. Probe: What would you say about the way students record their competency and exposure to skills?

b. Probe: What would you say about the documentation of feedback and supervision in the current logbooks?

c. Probe: what would you recommend to improve the logbook for better student preparedness?

11. What would be your recommendations for better preparedness of paramedic students for real world practice?

12. Is there anything you would like to add?

13. Thank you once again for your time and availability

Annexure 4.   **Letter of information**

**LETTER OF
INFORMATION**

Title of the Research Study: An investigation into the clinical practicum experience of ALS paramedic students and their preparedness for professional practice

Principal Investigator/s/researcher: Mr. Kubendhren Moodley, B.Tech: Emergency Medical Sciences, Higher Diploma in Higher Education and Training

Co-Investigator/s/supervisor/s: Mr. Yugan Pillay, B.Tec Emergency Medical Care, M.Tech Emergency Medical Care, PhD Emergency Medicine student at UCT.

Prof Raisuyah Bhagwan, PHD Community and Development at UKZN.

Dear participant,

Firstly allow me to welcome you to the study information debrief session and thank you for taking the time to allow me, as the researcher to inform you about all relevant information regarding your potential participation in this study.

Brief Introduction and Purpose of the Study:

Clinical practicum is a vital component of pre hospital emergency medical care (EMC) student's curriculum and takes place in a complex emergency care context. It provides student's the opportunity to combine cognitive, psychomotor and affective skills to develop competencies to prepare for independent practice. The purpose of this study is to investigate experiential learning of EMC student's during their clinical practicum in Emergency Medical Services and health care facilities in the Western Cape.

The study seeks to investigate EMC students exposure to Advance Life Support (ALS) skills during clinical field practicum; and student's' perceived competence for individual skills. The study will explore factors affecting paramedic student's exposure to critical skills and determine perceptions of student's towards clinical practicum.

Outline of the Procedures:

If you agree to decide to take part in the study you will be asked to complete a consent form and return this. This research will be carried out using focus group interviews. You will be invited to take part in a focus group session lasting between 60 -90 minutes, consisting of ten participants, all of whom are ALS students either at CPUT or WCG College of Emergency Care.

You have been asked to take part because the researcher would like to gain a deeper, more comprehensive understanding of your perceptions about various aspects of experiential learning during clinical practicum in Emergency Medical Services (EMS) in the Western Cape. The focus group is a semi structured discussion platform in a relaxed environment.

The session will be audio recorded for reliable data collection purposes. There are no right or wrong answers during the session. All information disclosed in the interview is confidential.

Risks or Discomforts to the Participant: Not applicable

Benefits:

The benefits of the study may provide a foundational framework for future implementation of structured systems into EMC clinical practicum. The findings of the study may inform the relevant EMC curricula for University EMC Programs as well as short courses offered by EMS Colleges. The study output could further serve as a source of information for development of mentorship programs for the purpose of improving EMC training in South Africa, ultimately to elevate health care quality.

Reason/s why the Participant May Be Withdrawn from the Study:

It is up to you to decide whether or not to take part and there is no obligation. If you decide to take part you will be given this information sheet to keep and you will be asked to sign a consent form. If you decide to take part, and then withdraw, you are free to withdraw at any time without giving a reason. A decision to withdraw at any time or a decision not to take part, will not affect your employment, service provision or studies in any way.

Remuneration: No remuneration will be offered for participation in the study

Costs of the Study: You will not be asked to cover any costs associated with the study

Confidentiality: All data from interviews will be coded to ensure anonymity; therefore no names will be used for the purpose of data analysis and report. Data will be kept strictly confidential and will only be accessible to the primary researcher and the research supervisor.

Research-related Injury: Not applicable

**Persons to Contact in the Event of Any Problems
or Queries:**

Please contact the Mr. K. Moodley (tel no. 021 938 4115), my supervisor Mr Y Pillay (tel no. 031 373 5203) or the Institutional Research Ethics administrator on 031 373 2900. Complaints can be reported to the DVC: TIP, Prof F. Otieno on 031 373 2382 or dvctip@dut.ac.za.