A critical analysis of pre-hospital clinical mentorship to enable learning in emergency medical care.

by

Nuraan Liebenberg

Thesis submitted in fulfilment of the requirements for the degree

Master of: Emergency Medical Care

in the Faculty of Health and Wellness

at the Cape Peninsula University of Technology

Supervisor: Associate Professor James Garraway
Co-supervisor: Mr. Lloyd Christopher

Bellville
June 2018

DECLARATION

I, Nuraan Liebenberg, declare that the contents of this dissertation/thesis represent my own unaided work, and that the dissertation/thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

Signed  **Date:** 30 June 2018

ABSTRACT

For emergency medical care (EMC), clinical mentorship can be thought of as the relationship between the EMC students and qualified emergency care personnel. Through this relationship, students may be guided, supported and provided with information to develop knowledge, skills, and professional attributes needed for delivering quality clinical emergency care. However, this relationship is poorly understood and the focus of this research was to explore how this relationship enabled or constrained learning.

Through having experienced mentorship, first as a student in EMC, then as an operational paramedic, mentoring students, I was privy to an insider perspective of clinical mentorship, and the experiences of fellow students'. Through this experience the practices I observed may not have promoted learning. This is when my interest in pre-hospital clinical mentorship in relation to learning began.

The aim of this research was to present a qualitative analysis of the clinical mentorship relationship in pre-hospital EMC involving the qualified pre-hospital emergency care practitioner (ECP) and the EMC student. The objectives included gaining an understanding of what enabled and/or constrained learning EMC, exploring clinical mentorship and learning in the pre-hospital EMC context, and gaining understanding of the role and scope of community members in the clinical mentorship activity system.

The purpose of this study was to qualitatively document, by means of a thematic analysis, the pre-hospital clinical mentorship relationship, as well as document, by means of a Cultural Historical Activity Theory (CHAT) analysis, the clinical mentorship activity system. The focus of this qualitative documentation was the enablements and constraints to learning during clinical mentorship. This research also made possible recommendations for EMC clinical mentorship and education and may also inform (PBEC) policy, as well as work integrated learning (WIL) policy.

Data collection included the use of diaries and focus group interviews. Analysis involved a two-part analysis, where data was reduced and understood with thematic analysis guided by Braun and Clarke (2006) six phase thematic analysis process (explained in Chapter three, Section 3.6). Thereafter, a CHAT analysis was conducted to uncover contradictions within the clinical mentorship activity system that made working on the object of activity difficult, thereby also uncovering constraints to learning.

Inductive reasoning was applied to the thematic analysis to reduce data and identify themes and subthemes which provided insight into the enablements and constraints to learning in the pre-hospital EMC clinical mentorship relationship. The CHAT analysis of the data collected and analysed brought to surface the affordances, tensions as well as the primary-level and secondary-level contradictions of the clinical mentorship activity system. The thematic analysis of the clinical mentorship relationship provided limited understanding of the enablements and constraints to learning, and thus further motivated deeper analysis with CHAT.

The results of this research included primary and secondary-level contradictions for almost all elements of the clinical mentorship activity system. Contradictions amongst the Division of Labour (DoL), the rules of the activity system, and the tools/resources of the activity system existed in that it constrained the interaction and activity of the subject and the community while working on the object of the activity system possibly achieving a lesser or undesired outcome of clinical mentorship.

ACKNOWLEDGEMENTS

I wish to thank:

- My husband, Nazmie Jacques Liebenberg, for being with me every step of the way, and encouraging me, motivating me, and inspiring me to achieve my goals.
- My parents Roesdiya and Rhasheed Jacobs, for their understanding, support and motivation for me to always do my best.
- My supervisor and mentor, Associate Professor James Garraway, for always being supportive, flexible and for guiding me.
- My Co-supervisor and mentor, Mr. Lloyd Christopher, for his continued support, understanding and for motivating me throughout my career and education.
- My mentor, Dr. Navin Naidoo, for his guidance, support and unwavering belief in my potential.
- My colleagues and family in the Emergency Medical Sciences Department at Cape Peninsula University of Technology, for supporting me in times of need.

The financial assistance of the Teaching Development Grant from Cape Peninsula University of Technology towards this research is acknowledged. Opinions expressed in this thesis and the conclusions arrived at, are those of the author, and are not necessarily to be attributed to the Teaching Development Grant.

DEDICATION

I wish to dedicate this thesis to my beloved daughter, Azrah, my loving and supportive husband, Nazmie Jacques Liebenberg, and to my Parents, Roesdiya and Rhasheed Jacobs.

For my family.

TABLE OF CONTENTS

LIST OF FIGURES **Page**

LIST OF TABLES **Page**

LIST OF APPENDICES **Page**

GLOSSARY

Terms and Definitions	Definition and/or Explanation
Mentorship	The term 'mentor' refers to a person who fulfils a complex role of teacher, advisor, guide, supporter and advocate. The relationship that fosters the role of the mentor is referred to as mentorship (Stephen and Lewin, 2012).
Clinical Mentorship	*"Clinical mentorship is a system of practical training and consultation that fosters ongoing professional development to yield sustainable high-quality clinical care outcomes. Clinical mentors need to be experienced, practising clinicians in their own right, with strong teaching skills"* (World Health Organization, 2006, p. 8).
Cultural Historical Activity Theory	CHAT is a theory of learning in which learning is understood as socio-culturally embedded and mediated. It also involves *"An attitude and approach to studying texts that acknowledges them as complex and situated in specific histories, cultures, and activities that can never be divorced from one another"*. (Igira and Gregory, 2012, p. 360)
Emergency Medical Care	*"The rescue, evaluation, treatment and care of an ill or injured person in an emergency care situation and the continuation of treatment and care during transportation of such person to or between health establishment(s)*"(HPCSA, 2006, p. 3)
Emergency Medical Care Student	According to South African Qualifications Authority (SAQA) a student developing competence in the knowledge; attitude, insights and skills required for the emergency medical care and rescue professions (South African Qualifications Authority, 2016).
First order / Primary-level contradiction	Conflicts that exist within one element of an activity system, e.g. the roles and responsibilities of the subject may be in conflict with the degree of participation of the subject within the Division of Labour element. (Garraway, 2011)
Second order / Secondary-level contradiction	Conflicts that exist between elements of an activity system, e.g. the Rules that regulate the subject may be in conflict with the Division of Labour (shared participation/responsibilities) of that subject. (Garraway, 2011; Engeström and Sannino, 2015)

LIST OF ABBREVIATIONS:

EMC	Emergency Medical Care
EMS	Emergency Medical Services
CHAT	Cultural Historical Activity Theory
WIL	Work Integrated Learning
ALS	Advanced Life Support
ECP	Emergency Care Practitioner
ILS / AEA	Intermediate Life Support / Ambulance Emergency Assistant
BLS / BAA	Basic Life Support / Basic Ambulance Assistant
COP	Community of Practice
DoL	Division of Labour
TR	Tools and Resources
ZPD	Zone of Proximal Development
HPCSA	Health Professions Council of South Africa
PBEC	Professional Board of Emergency Care
HEI	Higher Education Institution
SAHE	South African Higher Education
CHE	Council on Higher Education

CHAPTER ONE

1. INTRODUCTION

1.1. Introduction

This thesis describes my research into the pre-hospital clinical mentorship relationship in relation to enabling learning. In this Chapter I will be providing the background, problem and motivation of this research. The research question, its aim and objectives will be detailed. This Chapter will also discuss the relevance this research has for South Africa. At the end of this Chapter the reader will understand the relevance, purpose and intent of this research. Following this Chapter, I will explore literature that further unpacks the research aim and objectives.

1.2. Background

In Greek mythology, Mentor was a friend and trusted counsellor of Odysseus. When Odysseus left for the Trojan War he placed Mentor in charge of his son Telemachus and of his palace. It was this role modelling and guiding relationship between Mentor and Odysseus's son that gave rise to the notion of mentoring (Lazarus, 2013; Ehrich, Hansford and Tennent, 2001). Today a mentor is still referred to as a wise man or woman. Centuries later, researchers showed interest in the nature of this mentorship model, exploring the roles of mentors, the culture of mentorship, and the goal or benefit of mentorship (Valadez and Lund, 1993; Mitchell, 1998; Ralph, 2000; Gazza, 2004; Komaratat and Oumtanee, 2009; Cassidy, Goodsman and Lyons, 2013). The World Health Organisation (WHO) provides a complex but well-defined explanation of clinical mentorship:

"Clinical mentorship is a system of practical training and consultation that fosters ongoing professional development to yield sustainable high-quality clinical care outcomes. Clinical mentors need to be experienced, practising clinicians in their own right, with strong teaching skills" (World Health Organization, 2006, p. 8).

This WHO definition of mentorship applies to pre-hospital Emergency Medical Care (EMC), where there is a mentoring relationship between the EMC students and qualified emergency care personnel. More specifically this relationship refers to the interaction between the EMC student and the Advanced Life Support (ALS) or Intermediate Life Support (ILS) paramedics who work with these students during Work Integrated Learning (WIL) placements. Through this relationship students may be guided, supported and provided with information to develop knowledge, skills, and professional attributes needed for delivering quality clinical emergency care. However, within a holistic EMC workplace system, this relationship between mentor and mentee is poorly understood. Thus, the focus of this research was to explore the enablements and constraints of learning within the clinical mentorship relationship, during the clinical mentorship period.

To further explicate learning through clinical mentorship, a description by Kreuger, Russel and Bischoff (2011) of learning, lends relevance, as they explain learning as knowledge or skills gained through doing, following processes and gaining experience. They believe that for this to occur, the learner as to undergo change, and that for significant learning to take place, the change undergone must be lasting and meaningful to the learner (Kreuger, Russel and Bischoff, 2011). One postulates that the change that occurs in the learner can be change in knowledge, attitude, and possibly practice, which is perceived as meaningful to the learner. Thus, if clinical mentorship does not foster learning, students may not develop the attitude of lifelong learners as an exit level outcome or graduate attribute. Another possibility that this highlights is that the cycle of adopting some workplace cultures of clinical mentorship could continue, and the learning opportunities offered through clinical mentorship may be compromised in future (de Waal, 2012).

1.2.1. The history of Emergency Medical Services (EMS) and Training in South Africa

In the early 1960's, the idea of qualified and trained ambulance personnel was only a dream. Common practices of assisting the ill or injured persons involved a 'load and go' to hospital, with ambulance drivers operating alone, with no qualifications and little equipment. Ambulance personnel depended on the good nature of community members to assist them in loading the ill or injured person into the ambulance for transport to hospital (Dalbock, 1996).

Following this, ambulance services became the responsibility of fire departments at local government municipalities, which were associated with poor services that lacked medical equipment and resources. In 1977, the Department of Health transferred the responsibility for the provision of ambulance services to the Health Departments of the Provincial Administration (Dalbock, 1996). Consequently, this led to the establishment of Provincial Ambulance Training Colleges, which largely focused their training on "*in-service, short-contact and skill-based methodologies"* (Stein, Wang and Louw, 2012). Although these courses became more structured and nationally standardised in the 1980's, the in-service and skills-based short courses remained (Stein, Wang and Louw, 2012). Students who registered for short-course training at Provincial Ambulance Training Colleges would have been employees of the Provincial Ambulance Services, with the result that the in-service training would possibly follow the hierarchical structure of that organisation. It is likely that the short course instructor was their training supervisor and also their senior ranking manager. In essence, this could mean that as the students' manager and mentor, and as their instructor, they are able to issue orders or instructions to students, which follows the historically embedded hierarchical and para-military structure of that ambulance organisation. In addition, failure to comply with this instruction or order would render the student liable for disciplinary action. This may have been culturally acceptable at the time, but as EMC training progressed to university based and aligned education, students were now not necessarily employed at the ambulance organisation where they did their training, and training supervisors were no longer their managers as well, and thus no longer able to give orders with the expectation of the student to oblige.

The nature of the evolution of pre-hospital emergency medical services and training is precisely the reason why clinical mentorship in EMC should be reviewed for a relationship that should enable learning.

1.2.2. The practice of EMC Education and Training

As the EMC education and training evolved and became aligned to the requirements of the South African Qualifications Authority (SAQA) and the Health Professions Council of South Africa (HPCSA), so did the focus of these qualifications. The requirement was to develop professionals adept at research and clinical diagnostic abilities, rather than the protocol and skills-based training that involved a mixture of in-service university-based clinical training, and work-place based training (also WIL) (Stein, Wang and Louw, 2012). WIL occurs during the course of the students' studies, where EMC students are usually assigned to clinical sites at day clinics, hospital wards and public and private EMS.

Although students are assigned to a specific pre-hospital area for WIL, from my own experience as a student and mentor, there has been no standard for placement or for assigning mentors at these ambulance bases. As a consequence, students are exposed to many different mentors with each placement. Furthermore, it can be suggested that the critical nature of EMC practitioners' work is what makes clinical mentorship challenging for both the mentor and the mentee, as emergency treatment interventions may take precedence over field teaching, as the patient's life may be at risk. This should, however, not impinge on the learning that can still take place for both mentor and mentee, as Wyatt (2003) explains that when confronted with unique situations in the workplace, paramedics do not just rely on existing knowledge, but they generate new knowledge and understanding (Wyatt, 2003). The emergency treatment interventions that take precedence over field teaching may very well be unique situations, and in accordance with Wyatt (2003), reflection on that situation for both mentor and mentee can offer valuable learning opportunities.

1.3. Research Problem

The purpose of WIL is to gain knowledge, experience and competence through clinical practice guided by a mentor. Having experienced a mentorship programme, first as a mentored student in EMC, then as an operational paramedic, mentoring students, I was privy to the opportunity of an insider perspective of the process of clinical mentorship. I was also privy to the experiences of fellow students, and I observed practices that may not have promoted learning. I observed non-standardized practices of assigning mentees to mentors, as well as varying methods and attitudes of mentors toward mentorship and nurturing students to become professionals.

From an insider perspective, although clinical mentorship seemed to be somewhat beneficial for the students in the sense of gaining knowledge and experience, I became aware that it occurred unsystematically within the EMC organisations. This was when my interest in pre-hospital clinical mentorship in relation to learning began.

1.4. Purpose of this research

The purpose of this study is to qualitatively document, by means of thematic and Cultural Historical Activity Theory (CHAT) analysis, the pre-hospital clinical mentorship relationship and activity system. This is in order to uncover enablements and constraints to learning in pre-hospital EMC so as to inform WIL and clinical mentorship practices, in order to make recommendations for research into these practices. The purpose of this study is supported by a similar Australian study by Michau, Roberts, Williams and Boyle (2009) which, in conclusion, acknowledged the importance of identifying educational barriers, such as lack of access to skills practice in relation to improving the quality and theory-practice gap of paramedic clinical education (Michau *et al.*, 2009). Similarly, Cox stressed that, "*the role in experience in learning and mentoring has created a large body of literature showing how to maximize learning based on the learners' experience"* (Cox, 2006, p. 7), whilst also imploring the need for research into mentorship and learning.

I further considered work by Moodley (2016), involving a qualitative case study conducted in fulfilment of a Masters' degree dissertation in 2016, which evaluated the *"multidimensional issues of paramedic students during their clinical practicum"* (Moodley, 2016, p. 66). In this study, the holistic clinical practicum experience of the paramedic student was the focus, which brought attention to mentorship relationships and development of supportive mentorship programmes. Moodley further stated;

"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" (Moodley, 2016, p. 142).

Moodley's' statement and research into paramedic students' clinical practicum experience (including mentorship activities) lends additional support to the purpose, relevance and need of this study.

1.5. Research Question

The Research Question for this study is: How do pre-hospital clinical mentorship relationships enable or constrain learning in emergency medical care?

1.6. Aim and Objectives

1.6.1. Aim

The aim of the study is to investigate clinical mentorship relationships in pre-hospital EMC that exist between the pre-hospital ECP and the EMC student so as to identify how this relationship enables or constrains learning.

1.6.2. Objectives

The objectives of the study are:

a) To examine the literature on clinical mentorship and learning in the pre-hospital EMC context.
b) To identify what enables and/or constrains learning in the clinical mentorship relationship in pre-hospital EMC.
c) To gain an understanding of the role and scope of EMS community members in the clinical mentorship activity system.

1.7. Research overview

Following this Chapter, I discuss literature relevant to this study in the form of a literature review. The areas of discussion include mentoring, learning through practice, situated learning and learning in communities of practice. The literature review allowed for exploration of clinical mentorship and learning thereby addressing the first objective of this study. Chapter two reviews theories of learning through practice, and explores CHAT as a theory of learning through social interaction. In contrast to the other theories, CHAT is then related to the relevance it lends in gaining further understanding into the role and scope of community members in the clinical mentorship activity system. In Chapter three, the research design, methodology, ethical considerations, as well as the conceptual framework are explained and justified. Chapter three details use of diaries and focus group interviews and explains the selection criteria and methodology used to gather data.

The thematic analysis process and relevance is also explained in Chapter three, whilst CHAT is further explored and vindicated for its relevance as an analytical tool to allow for deeper analysis of data collected.

Chapter four applies Braun and Clarke's (2006) thematic analysis process of data collected and allows for uncovering and understanding enablements and constraints to learning (Objective B). Chapter five involves the use of CHAT as the analytical tool which aids with deeper analysis, and reveals contradictions within and between elements of the clinical mentorship activity system and provided understanding into the role and scope of EMS community members in the clinical mentorship activity system (Objective C). The CHAT analysis also served as a validation process and allowed for reverse contextualisation of the data analysed in Chapter four (thematic analysis). The thesis then concludes with Chapter six where the major arguments uncovered in the study will be summarised, and recommendations for further research and collaborations for further exploration of clinical mentorships are made.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

In this Chapter, the literature reviewed and discussed is sought and gathered with an interpretivist approach from both health and education publications and data bases, using key words[1]. The interpretivist epistemology attempts to *"'get into the head of the subjects being studied' so to speak, and to understand and interpret what the subject is thinking or the meaning s/he is making of the context. Every effort is made to try to understand the viewpoint of the subject being observed, rather than the viewpoint of the observer. Emphasis is placed on understanding the individual and their interpretation of the world around them*" (Kivunja and Kuyini, 2017, p. 33). Interpretivists too believe that reality is socially constructed, and thus the Interpretivist paradigm is also considered a Constructivist Paradigm (Kivunja and Kuyini, 2017). It involved more specific searches of authors and literature as it was discovered (and deemed relevant by the researcher) through citing's of literature already gathered and read. Since the area of research for this study largely involves educational literature, no publication year exclusions were applied and literature was included for this review for its relevance to this study. The Higher Education Institutions (HEIs) (through which this research was conducted) literature resources both online and library sources were consulted to gather literature and on occasion the expertise of the librarians was used to locate specific sources that were pertinent to this study. Only literature with no access to full text publications and/or with no contextual and/or theoretical relevance to this study and its aim was excluded from this literature review. Since CHAT was also understood to be useful in this study, research related to social constructs of learning and constructivist learning publications was also included for review and deeper understanding in this Chapter.

[1] Key words: Mentorship, Clinical Mentorship, Emergency Medical Services (EMS) Clinical Practice, EMS Internship, Emergency Medical Care (EMC) Clinical Practice, EMC Internship, EMS Experiential Learning, EMC Experiential Learning, EMS Supervision, EMC Supervision, Paramedic Student Supervision, Paramedic Student Experiential Learning, EMC WIL, EMS WIL, Paramedic Student WIL, Mentorship in health care disciplines, Clinical Mentorship in health care disciplines, Learning through practice, Experiential Learning theories, Learning by participating.

During the literature review, I adopted the understanding that the mentor should guide and assist with development of a mentee. Just like mentorship implies learning through practice, the theories of learning through work/practice are discussed and the relationship between theory, reflection and practice is explored. Furthermore, learning in Communities of Practice (CoP) and situated learning is discussed as work that considers learning as a social construct that affords students learning opportunities. Further exploration of literature and theories of learning through practice brought about the understanding of learning that is socially and culturally influenced, which then led to CHAT, which is socio-cultural in nature.

2.2. Learning through practice

Mentorship is not a theory of learning, but rather a process of learning; one cannot deny that it also implies learning through practice, as traditionally the mentor is tasked with developing their mentee holistically. With this in mind, it becomes vital for one to understand what WIL (sometimes referred to as experiential learning) implies. The South African Higher Education (SAHE) monitor on WIL defines WIL as learning that fosters *"less didactic and more situated, participative and 'real world'"* environments (Council on Higher Education, 2011, p. 4). The Council on Higher Education (CHE) (2011) monitor features a well-structured guide and source of information aimed at informing curriculum design and implementation at HEIs. In this guide, WIL is seen to include both simulated contexts and real world practice. Previous terms that could be associated with WIL may include service learning, experiential learning, and apprenticeships. With this in mind, Fenwick (2001) offers a meaningful understanding of experiential learning, where experiential learning can be referred to as everything from activities in classrooms, to activities in special workplace projects, and even team building adventures (Fenwick, 2001). For Fenwick, a learner constructs, through reflection, a personal understanding of relevant structures of meaning formed from their action in the real world, each person is active in the learning process, and each person may construct very different understandings after interacting with the same objects in the environment (Fenwick, 2001). Fenwick's' (2001) referral to reflection could be individual reflection, and not community involved reflection, as described in the work of Engeström. Through community based reflection, meaning is assigned to learning achieved through working on the challenges identified, which makes possible expansive learning (Engeström *et al.*, 1996; Engeström, 2001, 2005). Engestrom's work is discussed later in the Chapter.

With the literature reviewed thus far, it is evident that for one to be able to do something, one should know something first, or at least come to know through guided practice or doing. It is due to this understanding that I think it is important to understand the relationship between theory and practice to achieve learning.

2.2.1. Theory and practice in learning through practice

As early as 1904, Dewey (1904) identified that what is required in academia is improvement of education, not just by having 'new' or 'improved' teachers who can teach better, but rather by altering the idea of what makes up education, which in his terms would involve knowledge acquisition through practice (Dewey, 1904). What education is and what it is made up of is understood to be contested, however the works of Billet (2002, 2009) and Gamble (2009) earnestly address this issue. When relating theory to practice and vice versa in both the academic world and the practice or real world, it is important to acknowledge that both these environments contribute to the students' learning, and each come with their own pros and cons in developing the student (Billet, 2009). Billet (2009) postulates that the curriculum would implement a balance between the academic and real world of work practices in a qualification and that this could be assumed to be central to the development of that student. Billet (2002) and Dewey (1938) view learning through practice in professions as important processes in educational development. Dewey believed that "*an object or event is always a special part, phase, or aspect, of an environing experienced world – a situation…"* (Dewey, 1938, p. 67). Billet (2002) believes learning to be a multidirectional flow of knowledge, *"Learning is not a unidirectional flow"*, and a person does not participate in a "*social system comprehensively or uniformly",* but that a person is "*active and selective about what they appropriate from sources"* (Billet, 2002, p. 86). Thus, curricula should be based on a balance between academic and real world of work practices, and should allow for multidirectional, social and autonomous learning.

As Gamble (2009) explains, the curriculum requires a mixture of various types of knowledge, taken from both non-empirical (conceptual) and empirical (situated in everyday life) knowledge, in order to enable both knowledge progression and occupational progression. In the pre-hospital EMC and other health related practices, practitioners need to rely firstly on the knowledge and skill acquisition gained through their programme design and curriculum before, and while embarking on learning through work-placement (Gamble, 2009; de Waal, 2012; Harold, 2013).

This would imply that the correct or most ideal balance and integration between theory and practice would be needed to develop clinical reasoning and competence (Stein, Wang and Louw, 2012). Furthermore 'Applied competence' is often a term used in the South African education and training domain as an overarching term, which Gamble refers to as competency in practical competence, foundational competence, and reflexive competence (Gamble, 2009). Where practical competence is demonstrating the ability to perform tasks; foundational competence is demonstrating the understanding of what one is doing, and why, and reflexive competence is demonstrating the ability to combine and connect the prior two competencies with understanding, so that one learns from one's actions and is able to adapt to changes and unforeseen circumstances (Gamble, 2009). For EMC students, these progressions may be made possible through the affordances of learning provided through opportunities that are availed through the clinical mentorship relationship, in essence, learning through practice and reflection.

2.2.2. Reflection of and reflexivity in practice within learning through practice

Dreyfus (1986) depicts a five-stage model of developing professional competence. The student normally passes through the following five stages: novice, competence, proficiency, expertise and mastery, and, in essence, can be viewed as a process of becoming. Dreyfus (1986) further argues that as the student becomes skilled (an expert), they depend less on abstract principles and more on deep tacit understandings of knowledge and concrete experience and possess authoritative knowledge of the discipline. This relates to what Gamble (2009) mentions about applied competence. Additionally, Stein *et al.* (2012) suggest that becoming an emergency care professional is not only about developing skills and competence, the individual would need to develop clinical reasoning and decision making abilities, which involves growth in knowledge as well. This could be related to the reflexive competence that Gamble believes is important for development. (Gamble, 2009; Stein, Wang and Louw, 2012).

Affording students the opportunity to develop practical competence has always been part of the EMC programme, both in its design and delivery, with objective based skills practice and assessment, as well as patient simulation practice and assessment, both taught and assessed in a laboratory (Stein, Wang and Louw, 2012).

For example, the theory of cardiopulmonary resuscitation would be taught alongside the practical in a laboratory setting, and students would be evaluated and assessed on both theory and practical aspects. Gamble (2009) suggests that within the context of applied competence, programmes should also afford students opportunities to gain the practical competence outside the safety of the classroom and laboratory. Another interpretation of applied competence is the ability to operate at an adequate standard (Clements and Mackenzie, 2005). Gruppen, Mangrulkar, and Kolars (2012) suggest that applied competence can be achieved through improvement of the education systems and competence-based education (which is only skills focused) as well as focus on the performance requirements for all health professionals (Gruppen, Mangrulkar and Kolars, 2012). Development of applied competence has been in place since the conception of the EMC programmes, where *"students are required to adapt and re-contextualise their learning to function successfully in complex and unpredictable circumstances"* (Gamble, 2009, p. 3–4). For the pre-hospital EMC environment, these complex and unpredictable circumstances is a likely occurrence. The only question is that whether these complex and unpredictable circumstances would enable or constrain the development of the ECP that is capable of using knowledge, skill, and reflexive competence in their practice, which may be useful and needed during the clinical mentorship interactions (Wyatt, 2003).

In terms of Dewey's theories of education to the EMC field, during WIL the mentor's aim is to develop a thoughtful and independent practitioner (enabling development of reflexive practice). On this Dewey cautions about the extent to which intellectual criticism (criticism from mentors for the EMC context) should be given (Dewey, 1904). He explains that being critical (of both failures and successes) of nearly everything a student does may not be calculated to develop a thoughtful and independent professional (Dewey, 1904), thus, implying that this may constrain learning. My understanding of Dewey's caution on intellectual criticism is that should a mentor be over critical with feedback to the mentee, the mentee may foster a dislike for reflection on their practices as they may have felt inept and may avoid such reflective practice in future. This attests to Dewey's' belief that schools (possibly including the clinical mentorship relationship as an extension of schools) are social institutions where education and learning are social and interactive processes (Dewey, 1904).

Another scholar who valued reflection was Schön (1987). He theorized experiential learning as 'reflection-in-action', where he acknowledges that important learning happens through problem solving in the middle of everyday experience followed by 'reflection-on-action' after the event. He viewed these problems that an individual would encounter in everyday practice as ill-structured, where outcomes are uncertain and situational proportions constantly changing, and should the individual engage in continuous learning by reflecting-in-action and reflecting-on-action they would attain characteristics of professional practice (Schön, 1987).

Another author on experiential education, Quay (2003), states that learning is not purely psychological and that the social situation is of important consequence. Quay (2003) also appraises the view of experiential education provided through situated learning as invaluable as it theorizes possibilities for learning in experiential education beyond the way it is often modelled as an internalized process. In other words, learning occurs through interaction and engagement and is limited when such interaction does not occur as learning is not an internal process (cognitive reflection). For example, a student could be exposed to a problem or experience and reflect on this problem or experience based on their understanding and how they have been affected, but could still exit with very little or no learning; whereas, should this student have been guided by interaction with a more competent other (as in mentorship as part of a community), the learning that would occur may have been more meaningful (Furco, 1996; Russell, 2001; Billet, 2002; Felce, 2011).

One of the most influential experiential learning theorists, David Kolb, speaks about how different people learn through reflection on their emotional experiences, where the reflection is the cognitive processes of conceptual analysis and eventual understanding (Kolb, 1984). This cognitive process can be seen as limiting ones' understanding of what actually influences the learning that is thought to have occurred. Quay (2003) identifies two major issues for experiential learning models in relation to learning and participation. He uses Kolb's example of equating learning with a stepwise process in which an internalized reflection follows concrete experience resulting in an adaptation revealed in further experience (Kolb, 1984; Quay, 2003). Based on this, Quay (2003) claims that experiential learning provided through situated learning, via the context of COP, and the activity of learning is invaluable as it theorizes learning beyond the way learning is modelled as an internalized process (Quay, 2003).

Unlike social learning theories, Kolb's (1984) cognitive nature of experiential learning relies mostly on the individual and their emotion related to their experiences, and does not consider social constructs like what or who impacted on those emotions, or how the individuals' emotions were affected (Miettinen, 2000). In the pre-hospital EMC field of practice, using Kolb's experiential learning theory would be inadequate, as one would not be able to investigate the how, why, who or what impacted (enabled or constrained) on the mentees' learning. The only factors that one would have considered is what emotions were elicited through experiential learning, and how the mentee reflected on those emotions for learning to occur, whereas this may be asking for a deeper understanding into the social aspects of learning, and thus possibly learning in a situated real world context and communities of practice.

When it comes to learning through experience, Billet (2002) believes that understanding how individuals learn necessitates accounting for how workplaces afford individuals opportunities to learn. Billet also believes that the norms, values and practices of that workplace determine how everyday engagement and the use of learning strategies are afforded to and divided among individuals (Billet, 2002).

2.3. Mentoring and Clinical Mentorship

Valadez and Lund believe that an important task of the mentor is to "*guide the mentees or protégés through the formal and informal structures of the organization"*, (Valadez and Lund, 1993, p. 260), and that a higher level of accomplishment can be achieved in training programmes when a mentee-mentor relationship evolves.

With the nature of pre-hospital emergency care work, guiding students through the community of work and through its informal and formal structures might be challenging, like in cases where the lifesaving emergency treatment places time or ethical constraints on providing students with in-depth or detailed guidance to the situation at hand. For example, when an ECP who is mentoring an EMC student during the student's WIL placement is confronted with an emergency situation, such as a patient whose heart has stopped beating, the ECP focuses upon the immediate emergency by trying to restart the patient's heart. During this life-or-death situation the patient takes priority over the student's mentoring.

To further explain clinical mentorship, using the nursing and medicine disciplines in comparison to EMC work; nursing students are assigned a few mentors at various hospitals or places of work where the student will be scheduled to complete all WIL and skills under the supervision and guidance of these trained practitioners and mentors, possibly making the development of a relationship easier (Komaratat and Oumtanee, 2009; Neary, 2011). For EMC and WIL, one assumes that EMC students are not necessarily assigned to any particular practitioner as mentors and these practitioners may not necessarily be trained mentors.

Mitchell (1998) states that mentorship is about teaching, and teaching is an element of leadership. This opportunity for teaching and leadership development could possibly be limited to the skills set of the mentor, or the uncontrolled environment in which the mentor and mentee find themselves. Mitchell further emphasises that mentorship is about growth, *"leaders who do not grow soon cease being leaders, and novices who do not grow cannot become leaders"* (Mitchell, 1998, p. 48). Growth for mentors and mentees in other disciplines, such as nursing or medicine, would possibly rely on the situation and resources available. If one has to compare the environments alone, it may be that in nursing and medicine disciplines, mentors and mentees find themselves in controlled, well-structured and stable environments. Whereas, the pre-hospital EMC discipline potentially presents with a less controlled environment where noise, weather, hazardous scenes, and limited pre-hospital equipment, among other things, may influence the degree of knowledge and skill growth for both mentor and mentee (Wyatt, 2003; de Waal, 2012). An example of the varying environments could be a Doctor attempting endotracheal intubation in a well-lit environment, as compared to an ECP attempting the same procedure in darkness on the side of the road.

Like Mitchell (1998), Shelly (2003) views mentorship as a philosophical entity concerned with human potential and self-development. In this context, learning is not just passive, but involves the students' effort (participation) to learn; this involves a less structured process that relies more on the student actively seeking and challenging practice concepts with either a peer or team members (Shelley, 2003). The nature of mentorship described tends to lean toward social means of learning, specifically learning within communities (Shelley, 2003). Similarly Billet (2002) explored learning in communities of practice (COP).

According to Billet (2002), these communities could be the team within which you work, or the entire organization, and these community members would determine the progress of a task, and how the responsibilities are shared to achieve the task. He states that in the COP, the agency of the individuals would shape how they engage in and learn within that community.

According to Shelley (2003), The College of Radiographers in London also believes that clinical supervision is a more formalised means of improving and monitoring practice using a structured relationship that involves regular interaction and enables practitioners and others to develop skills and abilities to their full potential. The concern, however, is that supervision, unlike mentorship, does not necessarily mean interaction through a nurturing relationship and may just be outcomes or goal directed, which leaves one with the question of how much learning clinical supervision enables. Clinical supervision would need to incorporate all philosophical meanings of mentorship, such as informal and formal relationships where guiding and nurturing environments exist for students to achieve holistic goals.

Kilminster and Jolly (2000) stress that *"the quality of supervision relationship is probably the single most important factor for the effectiveness of supervision, more important than the supervisory methods used"* (Kilminster and Jolly, 2000, p. 835). This suggests that supervision may not equal mentorship, as supervision has the risk of superficial 'management' of students' requirements, and thus possibly only focusing on the fulfilling or completing of the tasks required (clinical skills performance, for example) without consideration of new learning or expanding learning through that practice.

In a clinical mentorship relationship, there are other kinds of complications in relationships formed between non-related persons, for example, personality types, individual likes and dislikes. It is generally assumed that thriving relationships are seen in persons with compatible personalities, and common likes and dislikes (Gazza, 2004; Malat, 2014). So, when pairing a student with a mentor, these traits may be considered. Schrubbe (2004) indicates that effective mentors provide not only a distinct vision but also guide their mentees.

For the pre-hospital EMC context a finding of this research may be that it is important for these mentors' visions to be aligned to that of the Higher Education Institutions' (HEI) programme's specific outcomes and that of the students' outcomes and expectations (Schrubbe, 2004). Again, suggesting the importance of pairing the student with the appropriate mentor.

Linked to promoting employability through mentorship as a possible outcome of clinical mentorship, Jackson, Palepu, Szalacha, Caswell, Carr, and Inui, (2003) state that mentoring relationship alliances hold a certain 'mystery', but are key to developing productive careers in academic medicine. In a similar study, Schrubbe (2004) deduces that having a mentee-mentor relationship that works well together, and where both parties complement one another, is critical for the success of both individuals (Jackson *et al.*, 2003). This is supported by Cassidy, Goodsman, and Lyons, (2013) who regards mentorship as a symbiotic relationship (Cassidy, Goodsman and Lyons, 2013). Gordon (2000) supports this by saying that if the 'fit' is right, the mentee will experience the many positive outcomes of mentoring (Gordon, 2000).

This is particularly relevant in the South African pre-hospital EMC context, as work opportunities may possibly exist world-wide for qualified pre-hospital emergency practitioners, which may result in practitioners leaving the South African workforce for international jobs (Binks, 2011). So, creating meaningful relationships through mentorship may influence retention of South African employed practitioners, and choices of employment for new graduates, despite the other job opportunities that exist world-wide.

2.4. Situated Learning and Learning in Communities of Practice

This section will review various scholars who made contributions to the understanding and application of situated learning like apprenticeships in communities of practice (the workplace). This review aims to make sense and meaning of situated learning and communities of practice in the pre-hospital EMC profession. Situated learning can be thought of as learning that occurs through social relationships and informal settings where prior knowledge is connected to new contexts, and meaning is attained through real world experiences (Lave, 1991; Lave and Wenger, 1991).

Situated learning can be explained as a ‘holistic’ process that has ‘deep-rooted’ connections with ’social constructionism’ and considers ‘aspects of cultural discourses’, and students as participants practicing in a social and cultural environment that impacts and is impacted by them (Quay, 2003).

For the EMC context, situated learning could be viewed as learning in the EMC community, a social context, and the EMC community or group working together on a common goal or task could be viewed as the COP. This term, COP also refers to students participating in communities of practitioners as newcomers in that community. The mastery of knowledge and skill acquired by these newcomers over time, moves them toward full participation in the socio-cultural practices of the community (Lave and Wenger, 1991). Complete participation would involve a measurable degree of learning with a closed domain of knowledge or collective practice, and would be achieved through the process of moving toward full participation (Lave and Wenger, 1991). For example, a fourth year EMC student would likely engage in complete participation as they would have accumulated three to four years’ worth of knowledge and practice as mentees in a community and would be closer to full participation, as compared to a first year EMC student with less knowledge and practice.

Billet (2002), like Lave and Wenger, focuses his work on learning through practice, essentially internship, and reiterates that the concept of COP emphasizes relationships between persons and the social world. Billet (2002) suggests that the concept of COP may be applied to workplaces, or to different work areas within the same workplace. A COP implies that there are norms, values and procedures that guide the clinical mentorship relationship. Billet (2002) suggests that the practices of the community would determine how work progresses, the division of labour and how opportunities are distributed to participate in knowledge growth, much like Engeströms’ CHAT (Engeström, 1987; Billet, 2002).

Even in their earliest work, Lave and Wenger (1991) became convinced that a re-examination of the relationship between the apprenticeship being referred to in literature at the time of their work and historical forms of apprenticeship was needed. This ultimately led them to exploring learning as ‘situated learning’ (Lave and Wenger, 1991).

They believe learning to be an integral part of generative social practice in the lived-in world, and not just situated in practice (Lave and Wenger, 1991). For example, situated learning involves being part of a social learning process that involves input from other individuals in that community, rather than learning that is just based on practice of skills with no real influence from the real world or its' COP. For the pre-hospital EMC community and clinical mentorship, this could imply that learning can either be constrained or enabled by the social practice of the lived-in world, in this case, the clinical mentorship relationship. Billet (2002) cautions that the individuals' (student or mentor) engagement may be determined by the perceived benefits of participation and that the learner may remain unconvinced of and uncommitted to what they have learned. Although they are able to perform the required task, and this is premised on how the student conceptualizes what is being afforded to them (Billet, 2002). For example, an EMC student understanding the reason for a treatment regime may be more eager to engage in that treatment process, and may be more so if they relate this to theoretical knowledge or subjects of the programme of study, in other words, the reason why they are doing what they are doing.

Blåka and Filstad's (2007) view of situated learning, adopted from the work of Lave and Wenger, is that learning is a process of distribution among participants and their collective expertise is changed through their own and others' actions. They believe that the learner will enter a community of practice at the periphery, and over time, will move toward full participation as they gain knowledge and learn the community customs and rituals, and adopt a view of themselves as a member of that community (Blåka and Filstad, 2007). Lave and Wenger offer insight into peripheral participation by explaining that it involves being located in a social word where identities are developed and memberships are formed through learning opportunities where people within the community change location and perspective (Lave and Wenger, 1991). For example, in the clinical mentorship relationship, a student changing from first to second year would mean changing location and perspectives within the pre-hospital EMC community, however, the learning trajectories, development of identities and forms of membership would possibly rely on how well the student is located in the community through clinical mentorship. This in turn impacts on the enablements and constraints of the afore-mentioned learning opportunities. Blåka and Filstad (2007) concur that participation in a community of practice involves construction of identity and they state that construction of identity is an act of negotiating a position.

Linked to participation, Hodges (in Billet, 2002), states that participation may lead to dis-identification when the norms of practice clash with individuals' values. For example, where a students' values and views of abortion (in that they are against it) clashes with the practices of a health care centre where abortion is an acceptable medical procedure commonly practiced; this student may either chose to participate, but not fully engage in the learning or chose not to participate at all, which could result in a constraint of learning. Billet (2002) further reasons that although knowledge may be transferred between the individuals and across the artefacts that constitute a community of work practice, the agency of the individuals would shape how they engage in and learn within that community. So would inclusion in, or exclusion from participation (with others through work) have consequences for higher order knowledge accumulation (Billet, 2002).

In relation to workplaces and participation, Billet (2002) claims that the status of the individuals' employment, and whether they are located at the centre or periphery of decision-making, may influence the kinds of participation they may be able to secure. This will also influence the support the workers receive, and their access to opportunities and the support (Billet, 2002). The relevance that this may hold for the pre-hospital EMC clinical mentorship relationship and the EMC community, is that the status a student might hold in relation to their year of study may be linked to their access to support in terms of working with an appropriately qualified practitioner. For example, a fourth year student may be placed with an ECP that is qualified to practice using a basic or intermediate scope of practice, whereas the fourth year student would require guidance from a person with a more advanced scope of practice. Likewise, suggesting that the students' year of study status may also influence the kinds of participation they are able to secure in terms of being placed with the appropriately qualified practitioner and thus the level of clinical exposure. All this may be a small indication of some experiential learning and work politics, where Quay (2003) points out that participation in the workplace is intertwined with politics (Quay, 2003). For example, with the implementation of the newer standardised university qualification (professional degree in EMC), the student in this programme may be met with workplace politics where their acceptance in the workplace community is stifled by resistance to or lack of support due to the ending of the short course (non-university) qualifications (Stein, Wang and Louw, 2012).

An explanation of co-participation is offered by Billet (2002) who proposes it as a basis for pedagogy of community founded on activity engagement and interactions that is created in communities like workplaces. He emphasizes the importance of the extent to which those workplaces allow the individual to participate and be guided, and therefore proposes co-participation as the basis for interdependence between situations and students (Billet, 2002). This proposal is extremely important when one considers all who are involved in the students' situated learning.

Learning theories such as situated learning and COPs are however understood to be insufficient to account for substantive learning in the workplaces and during clinical mentorship. With further exploration, Edwards (2005) provides further insight into learning though CHAT activity systems, and explains how this is a step up from the situated learning theory in a COP. Edwards (2005) understands the importance of the cognitive as well as the social perspective of learning, and understands learning as a representation of 'within-person changes' and how these changes affect the individual's interpretation and actions within his/her world. She acknowledges that learning is a change of state, which leans toward a cognitive ideology of learning (much like Kolb), but argues that individuals are 'shaped' by their world just as they shape their worlds (Edwards, 2005). Edwards (2005) critiques the participation metaphor of situated learning. She suggests that situated learning theory lacks acknowledgement of how the student and the individuals in the community, their beliefs and practices as well as the situation they find themselves in, impacts on learning, and also affects the system as a whole. Edwards (2005) believes that CHAT can provide us with a better explanation of learning in complex systems than that put forward in situated learning theory within a COP.

2.5. Cultural Historical Activity Theory (CHAT) and its relevance

CHAT is a theory of learning in which learning is understood as socio-culturally embedded and mediated. These socio-cultural activities or interactions are also understood to be 'goal-orientated', but like most socio-cultural interactions are not without difficulties (Engeström and Sannino, 2015). These culturally and historically embedded difficulties or contradictions can be worked on, which may bring about change in practices (Engeström *et al.*, 1996; Engeström, 2005; Engeström and Sannino, 2015). For CHAT as an analytical tool, Garraway (2011) explains that it may be used in a descriptive manner to understand the nature of the elements of

an activity system (for example what rules are present and what roles do people play). In addition it may also be used to uncover and work on contradictions between the elements of the activity system (Garraway, 2011). In essence, CHAT makes possible an in-depth review of systems as it unpacks work activity into rules, community, division of labour (DoL), tools and resources (TR), the subject and the object being worked on. Whilst also being concerned with mediating artefacts and adopting a socio-realist perspective when used as an analytical tool and as change laboratories with its community members, to uncover contradictions within and between these elements to learn from, propose solutions, and effect change that is understood to be longer lasting as the solutions are deep-rooted (Engeström, 1987, 2001, 2004, 2005; Engeström *et al.*, 1996; Engeström and Sannino, 2015). CHAT is discussed in detail in Chapter 3.

2.6. Chapter Summary:

For mentorship relationships and COPs to enable or foster environments for learning, students firstly need to be afforded the opportunity to link foundational competence (theory learnt) to practical competence (practice) and these would need to be coherent in their curriculum. Through relating foundation and practical competence and with guidance and reflective events on their theoretical and practical knowledge, students may develop reflexive and applied competence where clinical reasoning and decision making can be achieved. These reflective events often involve students confronted with problems that require them to think about how and what theory and skill to use. The challenge for learning through guided practice (mentorship) in pre-hospital EMC, however, remains the criticality of care, sometimes constraining learning, such as when patients' lives are at stake, and where time is of the essence.

In general, learning can be individual or it can be part of a COP. The notion of learning through guided practice much like in COPs and working with a more experienced 'other' often enables learning, however that experienced 'other' should know how to teach (pedagogical knowledge) and should not be overcritical. What is also noteworthy is that good or healthy mentorship relationships could positively impact on recruitment and retention of staff as students move (with time and progression) from participation at the periphery of COPs to full participation where development of relationships and individual identities within the COP positively impact on the COP.

Also central to the understanding of learning through practice, is that learning is not unidirectional nor purely cognitive in nature, but rather socially constructed and multifaceted. This social construction of learning, however, is problematized as a dynamic, and is often contradictory to systems which should be taken into account with learning through mentorships. This is in fact what the thesis focuses on: understanding learning in complex and often contradictory organisations by accounting for how mentorship relationships and workplaces afford learning.

For this reason, CHAT resonates in the pre-hospital EMC context for clinical mentorship relationships as a theory of learning and an analytical tool, but there is no evidence of the use of this in South African pre-hospital EMC. Since this theory was not validated as an analytical tool for clinical mentorship in pre-hospital EMC in South Africa (limiting the use of the theory for this research), by using CHAT as an analytical tool this thesis could contribute to the theoretical validation for CHAT in explicating the clinical mentorship relationship as an activity system in the South African EMC context. What was evident were some constraints to learning during WIL (across health care disciplines) as listed below;

1. Lack of pedagogical knowledge by mentors
2. Lack of participation or willingness on either parts
3. Lack of mentor and mentee accountability/roles and responsibility
4. Poorly designed and aligned curricula or WIL programmes
5. Cognitive constructs to learning

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

This Chapter discusses the research design, methodology and analytical framework for this study. An explanation of the research methodology and an account for the sampling and data collection processes that took place will be provided. Factors such as the ethical considerations of informed consent, confidentiality, anonymity, group harm, voluntary participation and secure record and data storage were duly considered during the design and implementation of data collection tools and processes.

3.2. Research Design

This research is a qualitative study interested in informing the views, perceptions and processes of pre-hospital clinical mentorship by uncovering the enablements and constraints of learning during the clinical mentorship relationship. Following the literature review which explored clinical mentorship and learning in the pre-hospital EMC context (Objective A), this study identifies and understands the enablements and constraints to learning (Objective B) through an inductive thematic analysis (which is described in Chapter four), and further gains an understanding of the clinical mentorship structure (role and scope of community members – Objective C) through a CHAT analysis (described in Chapter five) of the clinical mentorship activity system and thereby answering my research question: 'How do pre-hospital clinical mentorship relationships enable or constrain learning in emergency medical care?'. The in-depth CHAT analysis was achieved with data already reduced and understood through the preceding inductive thematic analysis Chapter. This allowed for a step up in data analysis that uncovered the constraints to learning within the system, so that possible new ways of doing can be identified. The data collection tools (diaries and focus group interviews) were chosen carefully, as they best aided in identifying contradictions, and dug deeper into the participants' insights and experiences. These data collection tools had the potential to provide rich data that could be analysed for better understanding of the participants' accounts of their clinical mentorship experiences.

I discussed alternate 'learning at work' theories as theoretical frameworks in Chapter two, where I found that earlier theories of learning lack the social and cultural analyses that the CHAT offers. Those earlier learning theories mainly relied on the individual and/or the community affording individuals learning opportunities for learning to occur. Additionally, Chapter two revealed that CHAT explores multiple possibilities of learning, whether desired or undesired, and suggested that learning would occur regardless of the individual (the subject in the activity system), but rather depended on the community and mediated activity in a network. This gave rise to the potential of CHAT as an interpretive tool to further explore and delve into the clinical mentorship relationship and its enablements and constraints to learning.

The background, interest and motivation for this research was founded largely on my perceptions and experiences as both a student (and mentee) and paramedic (and mentor). Hence, I thought it critical to further explore the clinical mentorship relationship, as research has indicated that mentoring in EMC remains problematic (de Waal, 2012; Moodley, 2016). The research of de Waal (2012) and Moodley (2016), as well as research from Williams, Brown and Winship, (2012), found a mismatch of undergraduate paramedic students' perceived and preferred expectations of their clinical learning environments, informed the questions and guiding statements in the data collection tools. The purpose, background and research design of this thesis thus informed the methodology used to make possible achievements of this study's' aim and objectives.

3.3. Research Methodology

Figure 3.1 provides a summary of the process described. The process began with selection of participants using purposive convenience sampling and where they were approached by myself at times convenient to them. The research aim and purpose was explained to all potential participants, after which they were encouraged to contact myself or my supervisors, should they be interested in participating. Informed consent was obtained and all ethical processes adhered to prior to, during and after data collection. Data was collected from mentees using diaries in August 2014 and from both mentors and mentees using focus group interviews which were split into two groups each and conducted during October 2014. As data for the diaries was collected, they were transcribed by myself, and audio data gathered through the focus group interviews were transcribed by an independent professional.

Thereafter, inductive thematic analysis (described in section 3.4) of all data was implored, using Braun and Clarke's (2006) six phase thematic analysis framework during the period November 2014 and November 2017. The CHAT analysis (described in section 3.5) of all data and findings of the thematic analysis followed in the period November 2015 and November 2017. Both analyses were reviewed and revisited throughout the process of report writing to ensure appropriate and accurate representation of the data.

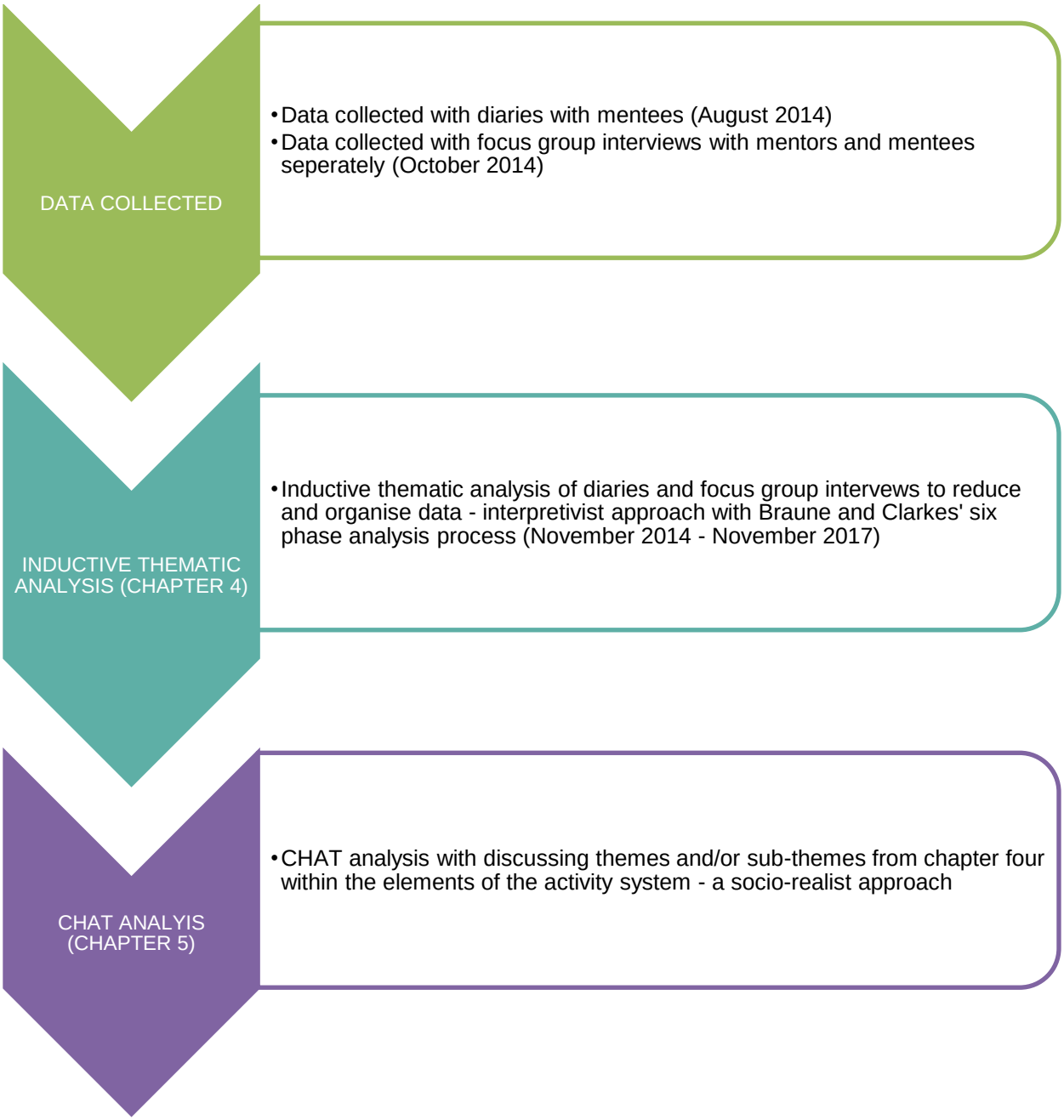


Figure 3.1 Data collection and analysis process

3.3.1. Sampling

The sampling method used in this study was purposive, convenience sampling with inclusion and exclusion criteria (Table 3.1) that guided the participant population, as the population sought needed to be involved in or with the EMC discipline. This non-probability sampling was useful, as randomization of all mentors and mentees in the South African or Western Cape was not possible because the population was large and time and resources limited the researchers' ability to broaden the sampling size. The research conducted is not intended for generalization to all such populations, but rather to gain understanding of clinical mentorship relationships and how they enable or constrain learning (Brink, 2006; de Vos, 2011; Etikan, Musa and Alkassim, 2016). Table 3.2 depicts the number of participants for each data tool used. All students who met this criterion and who volunteered participation were requested to complete a diary. Six of ten students participated, however, only five students submitted their diaries. Eight practitioners out of approximately twenty eligible ALS practitioners volunteered to participate.

Students	Practitioners
i. Only students from a HEI, specifically students in their third year of their studies in a Degree in the EMC programme, a. in Cape Town, and b. who have previously worked with ALS practitioners were included in this study.	ii. Only public sector ALS practitioners in possession of any advanced life support qualification, a. registered with the HPCSA, b. from any four metropolitan ambulance bases in Cape Town, South Africa where students were more frequently assigned, c. who have worked with the HEI EMC students from the University of Technology under study were invited to participate in this research.

Table 3.1 Inclusion and Exclusion Criteria

Data collection tool:	Mentor participants:	Mentee participants:
Diaries	Was not required to complete	5 of 10 participants submitted
Focus group interviews	5 of 8 participated	5 of 10 participated

Table 3.2 Participants

Participants who met the inclusion and exclusion criteria were approached by myself in a formal but friendly and open manner, where the study was explained and individuals were invited to contact myself or my supervisors, should they wish to participate. Ethical protocols (described in section 3.6) were observed during the entire research process. I used a thematic analysis (discussed in section 3.4), with an inductive approach, seeking enablements and constraints to learning, to reduce and organise the data and to identify themes which would aid (along with the CHAT analysis discussed in section 3.5.3) in providing insight into the clinical mentorship relationship enablements and constraints to learning Inductive thematic analysis is understood as "a process of coding the data without trying to fit it into a pre-existing coding frame, or the researcher's analytic preconceptions." (Braun and Clarke, 2006, p. 12)

3.3.2. Data collection tool 1: Diaries

The mentee participants were asked to carry a diary in which they reflected on their preceding 12 hour shift (Appendix A). In the diaries, the mentee participants were guided by open ended questions and incomplete sentences (Table 3.3) informed by the findings of research conducted by de Waal (2012). The students were asked to record their clinical and work-related experiences during WIL in a hand-written diary (provided by the researcher). They were asked to record a minimum of two 12 hour shifts, and thereafter hand the diary back to me for analysis and interpretation. The diaries were completed by students only, as I was interested in the students' perception and experiences of clinical mentorship in relation to their learning. Diaries as a form of data collection methods, on their own or with others, are viewed as valuable tools by a few researchers; *"The format of maintaining a solicited diary encourages the participant to focus on daily activities and reflections that he or she values, unsolicited personal diaries are an interesting source of data reflecting the writer's point of view"* (Jacelon and Imperio, 2005, p. 991).

Diaries
'I found this shift to be valuable/invaluable because…'
'What I learned in the last 12 hours was…'
'What made it difficult for me to learn during this 12 hour shift was…' Provide examples
'What I would have liked from the practitioner during the last 12 hours to assist my learning is…' Provide examples
'The other persons in the experiential learning process who helped me with my learning in the last 12 hour shift were…' 'How they help me…'
'I would have liked assistance from….' 'Because…'
'The relationship between me and the practitioner for this 12 hour shift was…'
'How this shift helped or made it difficult for me to understand my emergency medical care theory was…' Provide examples
'This was the? amount of times I have worked with this practitioner and it…' (write about your experience)
Write anything about the last 12 hour shift and the practitioner that comes to mind. Be free to be as critical and honest as you want.

Table 3.3 Diary guiding questions and statements

Diary records are seen as more accurate than interviews in obtaining information through recall, the reporting level is higher and participant perceptions tend to be captured (Burns and Grove, 2005). This was specifically useful in attaining information that may be viewed by some as sensitive in the context of investigation of the mentor-mentee relationship. In using the diary method of data collection, Nicholl (2010) cautions that clarity of terminology used is essential to avoid misunderstanding. The diaries were kept in a locked and secure place (office or cabinet) for protection of identity and information shared in confidence.

3.3.3. Data collection tool 2: Focus Group interviews

The focus group interviews, conducted over two days in October 2014, were guided by concepts and matters of interest identified in the diaries, and afforded the opportunity for me to further explore these areas aligned to the research questions and objectives. With this, researchers are able to develop in-depth accounts of perceptions and experiences and produce *"rich empirical data about the lives and perspectives"* of others (Cousin, 2009, p. 71). Table 3.4 provides a few of the questions asked in the Focus Group Interviews (numbered as in the focus group interview guide, Appendix B).

In aims of avoiding interviewer fatigue, and minimising the possibility of 'smoothing' or blending the researchers' interpretations (Cousin, 2009), a decision was made to conduct four group interviews instead of fourteen individual interviews.

Focus Group Interviews

1	What do you think your role is in Experiential learning? Rank responsibilities as a practitioner/student
3	What do you think enables learning during experiential learning and mentorship?
4	Do you think pairing students with mentors will enable learning?
5	What constrains learning during in experiential learning
7	How does experiential learning and mentorship benefit the student and the mentor?
8	Do you as a practitioner/student learn anything from a practitioner/student? What types of things have you learnt?

Table 3.4 Focus Group Interview questions

I requested a focus group interview with all the participants in that specific group (mentors or mentees). The discussion was recorded (audio) and later transcribed (by an independent contractor), and later manually analysed (by myself). The audio recording provided safety in terms of anonymity as identification by face could be protected. Participants were engaged throughout the data analysis for verification of my emerging interpretations of their perceptions and experiences.

The data collection methods chosen for this study were done so under careful consideration of their advantages, disadvantages, as well as any risks or harm they might have posed for participants. This being said, each data collection method fitted with the design and paradigm of this study. All data sources strengthened and supported findings from the other data tools used. The methods were the most appropriate in terms of alignment to the research question and aim of this study. For example, they enabled the gathering of information related to the roles and responsibilities of mentors/mentees and allowed developing an understanding of the clinical mentorship relationship, as well as the enablements and constraints of learning.

All data that was collected was dated and coded according to the type (mentor or mentee) of participant and was kept electronically on a password secured computer and password protected internet cloud storage, which provided a secure place for storage and future reference.

3.4. Inductive thematic analysis and interpretive framework

Braun and Clarke's (2006) six phase thematic analysis framework was used to guide the inductive thematic analysis of the data (Figure 3.2).

Phase	Description of the process
1. Familiarising yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking in the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells; generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Figure 3.2 Thematic analysis framework (Braun and Clarke, 2006, p. 16)

Although Braun and Clarkes' (2006) paper on thematic analysis was to provide more insight into thematic analysis for psychology, their description of thematic analysis in qualitative research and their six phase framework was developed based on their research on thematic analysis in various disciplines, making their framework applicable to any research using thematic analysis. The six phase thematic analysis was aimed at providing guidelines for those starting thematic analysis, or for a researcher to *"conduct it in a more deliberate and rigorous way"*, the pair also advised that the analysis is a constant back and forth process between the *"entire data set, the coded extracts of data that you are analysing, and the analysis of the data that you are producing*" (Braun and Clarke, 2006, p. 2; 15). The researchers indicated that some of their stages of thematic analysis is similar to other stages of research analysis and thus not specific to thematic analysis, providing some validation for their analytical framework. They argue that their framework "*offers an accessible and theoretically-flexible approach to analysing qualitative data*", but can also be used to produce sophisticated interpretative analyses within a qualitative paradigm (Braun and Clarke, 2006, p. 2; Clarke and Braun, 2013). Their only assumption for the effective use of their framework is that the research question and epistemology was appropriate and that a good quality data set was accessible (Braun and Clarke, 2006).

Whilst guided by the thematic analysis literature by Cousin (2009), phase three to five of Braun and Clarke (2006), aided in reducing and organising the data. The use of diaries (Appendix A) as a data collection tool included information from the mentee participants, only for this phase of the research, as the data gathered here was meant to augment and inform from the perspective of the mentee the data gathered from the focus group interviews (Appendix B). The reason being that the learning interested in for this research was mostly that experienced/developed by the mentee. Throughout the first part of data analysis, I was interested in what the data/participants were saying, rather than how the data fitted the theory (Cousin, 2009). The method of analysis helped to avoid 'cherry picking' quotations (Braun & Clarke, 2006). For this study, I still understood the world to exist with realities and forces at play that influenced the perceptions of participants.

As this research was focused on gathering data involving the experiences and perceptions of mentors and mentees with clinical mentorship within the public EMS sector, data alluding to clinical experience and mentorship in the private EMS sector that emerged was deemed inappropriate as it would not have assisted me in addressing the aim or objectives of this study and was thus not included as data analysed or discussed in this research.

As depicted in Appendix H, once all the data was coded (diaries and focus group interviews), the construction of broader themes began with grouping codes and collating them into themes and sub-themes marking the end of phase three (Braun & Clarke, 2006). The data within the newly constructed themes was re-read with the aim of refining the data, and then regrouped and/or relabelled where inconsistencies were found. Data sets that did not fit in a theme were moved to a more appropriate theme, or were grouped to form another theme. Some themes were discarded on subsequent readings and the data within that theme was reorganised to other themes. This process of refining themes marked phase four of the thematic analysis framework by Braun and Clarke (2006). Phase five speaks of the author reviewing the themes again to uncover the crux of the themes, and where needed, themes would be refined once more.

The epistemology and analytical framework employed in the thematic analysis was that of interpretivism. The data was reduced and organised using Braun and Clarkes' six phase framework of analysis (Braun & Clarke, 2006). This allowed for systematic analysis, reduction and organising of data guided by my epistemology, whilst interpreting the participants' perceptions and understanding of the clinical mentorship relationship, so that it could later be further analysed within a CHAT framework.

Table 3.5 shows an example of the construction of the themes throughout phases one to five of the six phase thematic analysis framework used. The audio data was transcribed by an independent person. Thereafter, I listened to the audio recordings and read the transcriptions to check for correctness of data captured against the audio recordings. The written data was captured electronically and I re-read the data to check for correctness.

Once all data was confirmed to be correctly captured, I read the transcriptions and listened to the audio throughout the thematic analysis and discussion of this research. Explicated as phase one in Table 3.5, this allowed me to familiarise myself with the data. During the analysis participants' voices and experiences were coded (phase two); then analysis of the coded groups allowed me to construct themes (phase three). Data sets were manually coded on a computer with the aid of Microsoft Word and Excel, whilst engaging an interpretive epistemology. The codes used were associated with what the participants said or explained, and were based on the type of situation being described by the participants, or the underlying message, assumption or ideologies of that participant.

With an interpretivist approach, refining themes and rearranging data sets to better fit within themes (phase four), reduced researcher bias and allowed for better representation of the data and participants voices. For example, in phase three, theme one, 'mentee-mentor participation' was identified as a theme; it was refined in phase four to include the degree of community participation within the clinical mentorship relationship. With the process of refinement in phase four, the fifth phase was made possible, where themes were further refined and where themes were related to one another, broader themes identified with sub-themes (as depicted in table 3.5). Phase five also involved defining the themes using data extracts to support or relate to the definition and included short narratives to further explicate the themes which lead to phase six, the write up of the report. The data extracts to support themes concluded in phase five was reorganised electronically, using Microsoft Office Word tabling, and colour coding for ease of reference, and reporting for in phase six.

Data Tool	Phase one	Phase two	Phase three	Phase four	Phase five
Diaries	1. Diaries: a. Transcribed data to electronic format. b. Kept actual data in locked storage for future reference 2. Focus group interviews: a. Independent transcription completed electronically by professional unaware of research aims and objectives. b. Professional was subjected to confidentiality of data and also could not identify participants by name as participants were given participant numbers to use during the interview.	1. Diaries: a. Transcribed data was read and re-read by researcher during the entire six phases of the analysis process, period between October 2014 and June 2017. 2. Focus group interviews a. Audio was listened to and transcribed data read with both activities repeated throughout the six phases of analysis, period between November 2014 and June 2017	1. Mentor Attitude 2. Trust in the relationship 3. Mentee-mentor roles and responsibilities 4. Mentor-mentee participation 5. Mentorship from the EMS community	1. Trust in the relationship 2. Degree of community participation 3. Mentor & mentee attitude as a resource enabler 4. Mentor-mentee roles and responsibilities	1. Clinical mentorship relationship dynamics 1.1. Roles and responsibilities 1.2. Mentor and mentee attitude 1.3. Trust in the relationship
Focus group interview			1. Mentor Attitude 2. Trust in the relationship 3. Mentee-mentor roles and responsibilities 4. Mentor-mentee participation		
Diaries			1. Cultural diversity 2. Autonomy 3. Clinical mentorship platform principles 4. Common mentorship strategy	1. Cultural diversity 2. Tension between shift work & academics 3. Clinical mentorship procedures 4. Mentor & mentee autonomy	2. Workplace dynamics 2.1. Mentorship structure and procedures 2.2. Tension between shift work and academics 2.3. Mentor and mentee autonomy
Focus group interview			1. Cultural diversity 2. Autonomy 3. Clinical mentorship procedures 4. Clinical mentorship platform principles		
Diaries			1. Mentor/mentee as resources 2. Community members as resources 3. Mentor/mentee educational skills and knowledge	1. Technology 2. Mentors as resources 3. Mentees as resources	3. Resources 3.1. Mentor and mentees as resources 3.2. Technology enabled learning
Focus group interview			1. Mentor/mentee as resources 2. Mentor/mentee educational skills and knowledge 3. Technology		
Diaries			1. Independent medical professional 2. Develop individual identity and clinical competence 3. Personal academic development	1. Independent medical professional 2. Personal academic development	4. The purpose of mentoring 4.1. Becoming a medical professional 4.2. Learning in the real world 4.3. The mentors purpose 4.4. Learning to be a part of a community of medical professionals
Focus group interview			1. Independent medical professional 2. Develop individual identity and clinical competence 3. Personal academic development		

Table 3.5 Phase one to five examples of construction of themes using Braun and Clarkes' six phase analysis framework

My analysis allowed for some understanding of the clinical mentorship relationship, and relied on an interpretivist approach. Such an approach, however, lacked insight into the enablements and constraints to learning during clinical mentorship. This led to the use of CHAT as the interpretive framework to aid in gaining further in-depth insight and understanding into the enablements and constraints to learning. Here, I was able to adopt a socio-realist perspective, believing that the world in which the mentors and mentees operate, is as it is, due to the forces at play, and these forces at play would affect the experiences of the participants, fitting with an interpretivist epistemology. In addition, the forces at play are believed to be real, and that they are influenced historically and culturally (Maxwell, 2012). Although the ontological stance of this Chapter is that of a socio-realist, the epistemology of this research remained interpretive in nature, as I was seeking to uncover what exists within the world as perceived by the participants' understanding of their experiences and contexts. The writings of Russell briefly explain the choice of epistemology for this research, as he believes that *"it is in the contexts of their activities that people consider texts and give meaning to texts"* (Russell, 2010, p. 356). By uncovering what forces are at play and gaining an understanding of this through meaning assigned by the participants, I was led by the belief that the participants' experiences are not independent from the real world and that the cultural and historical matters would influence such experiences, and that these experiences are perceived to be real by the participants. Although these research positions may seem to be opposing, much qualitative research draws on both realism and interpretivism (Maxwell, 2012).

3.5. Cultural Historical Activity Theory (CHAT)

3.5.1. The origin of CHAT:

The first generation CHAT (Figure 3.3) was conceived by the Russian psychologist, Lev Vygostky in the 1930s. In his research in child psychology, he proposed that learning, specifically, higher orders of cognitive learning, is achieved through interactions and mediation from a more competent other which is fostered from cultural tools (Mwanza and Engeström, 2003; Hardman, 2005). Vygotsky (1978) believed that the subject (child, student, etc.) could not directly achieve the object (learning or doing) without some sort of mediated interaction within that environment, as depicted in Figure 3.3. He found the need for the existence of a more competent culturally significant other, with which makes possible the Zone of Proximal Development (ZPD), a unique learning space referred to by Vygotsky.

The ZPD refers to an environment in which the student is guided by the more competent other to perform certain tasks that without guidance he or she will not have been able to perform without assistance. In the EMC field of practice, and with clinical mentorship, this ZPD can be thought of as the clinical work-place and learning environment that the mentee is placed in when assigned to work shifts. Notwithstanding, this theory focusses on the individual learning/development only.

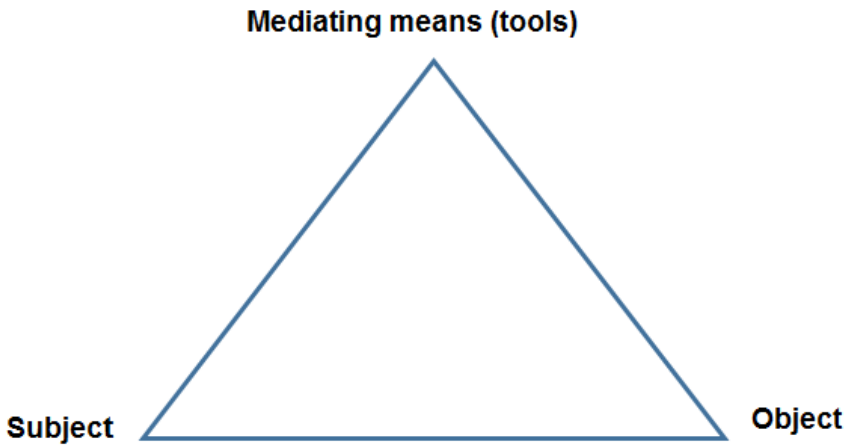


Figure 3.3 First Generation CHAT adapted from: (Vygotsky, 1978)

The second generation CHAT involved Alexei Leontiev adding to the work of Vygotsky, and providing views of learning as a collective activity rather than an individual one (Engeström, 2001). Leontiev moved toward a more structured methodology of analysing learning where his suggestions of division of labour and his conception of the participants' motives (which Vygostsky referred to as the object of activity) are viewed as central to the development of higher cognitive functions during a joint activity with common goals (Engeström, 2001, 2005). This joint activity could, for example, be the mentor and mentee being involved in patient care while working on the development of the mentees' clinical competence.

Engeström (1987) developed the theory further in that he conceived a basic unit of analysis which he referred to as an Activity System (Engeström, 1987). In this activity system, Engeström believed that the subject acts on the object of activity to achieve an outcome using mediating artefacts such as tools/resources available, the rules of the community, the community members themselves, and the division of labour between the subject and the community (Engeström, 1987).

3.5.2. Theoretical validation

For the purpose of this study, Engeström's Cultural Historical Activity Theory (CHAT) is used as the interpretive framework in Chapter five, where the theory of mediated activity between the subject and tools/resources to work on a collective object within a network or system is the primary unit of analysis (Figure 3.4) (Engeström, 2001)[2].

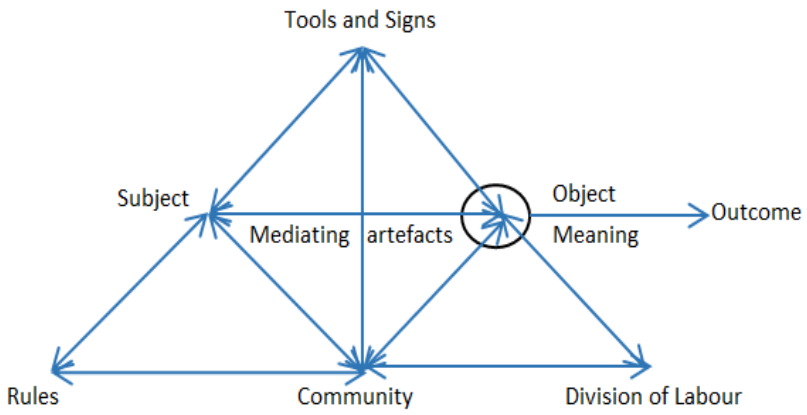


Figure 3.4 CHAT activity system adapted from (Engeström, 2001, p. 135)

Engeström (2001; 2005), as depicted in Figure 3.4, as well as Engeström and Sannino (2015) refers to the subject of activity as the individual who would be making use of the tools/resources available to them while working on the object. The subject, however, is understood to have historical and cultural influences that determine how or when the tools/resources are used. In the clinical mentorship relationship activity system, the subjects would be both mentees and mentors as they use tools/resources during clinical mentorship for learning.

[2] Refer to Chapter two, section 2.5 for an explanation of this theory.

The tools/resources for this research (Figure 3.4) could be materialistic, such as the actual equipment or technology, and non-materialistic, such as lecture content or knowledge content shared by a community member of that activity system. In the clinical mentorship activity system, tools/resources could include any clinical or non-clinical technology used during clinical mentorship.

As referred to in Figure 3.4, the object refers to what is actually being worked on, and in Hardman's (2005) opinion, which was influenced by Engeström (2001), the object is ever changing and 'slippery' due to the nature of the interaction between the elements of that activity system (Engeström, 2001; Hardman, 2005). With this in mind, for this research and clinical mentorship activity system, the object of activity could range from patient care, call taking, radio communications, patient handovers, to scenario discussions. In this case, the object of activity is any task or activity with which the mentor and mentee is engaged. In work done by Garraway when analysing curricula from a CHAT perspective, the community was also viewed as an element that "*typically interacts with and has influence (constraining or supporting) over the subject through rules"* (Garraway, 2011, p. 5). The community of an activity system (Figure 3.4), and for this research, would include any persons involved with or invested in the object of activity, and who interact with the subject whilst they are working on the object, including the subject (Engeström, 2001).

The Division of Labour (DoL), as referred to in Figure 3.4, involves how the work is divided between members of the community and the subject in terms of working on the object of activity and achieving the outcome. This element would include information on how the mentee and mentor work together to achieve a common goal or purpose. The rules in an activity system, including the clinical mentorship relationship activity system, are both hidden and explicit rules, both formal and informal rules, structures or processes that govern the nature of interaction between the community and the subject. The rules often determine how the work is divided between community members and the subject (DoL), and what tools/resources are available or can be accessed, and how and when the subject is able to use these tools/resources (Engeström, 1987; 2001; 2005). The outcome for this research in relation to CHAT would be what has actually resulted from the mediated activity whether desired or undesired after interacting with the community whilst working on the object of activity.

3.5.3. CHAT as an analytical framework:

Engeström (2001) provides clarification of CHAT as being underpinned by five main principles:

i. The Activity System, all that it encompasses and its' network relations, is taken as the primary unit of analysis.
ii. The 'multi-voicedness' of Activity Systems is the second principle where a community possesses multiple points of view, traditions and interests.
iii. Historicity, which represents the Activity Systems taking shape and transformation over time.
iv. The central role of contradictions as the sources of change and development, and can be identified or be thought of as tension between structures.
v. The possibility of expansive transformations through interactions and reflections on the contradictions within the Activity System.

These five principles aided in identifying the theoretical and analytical perspectives of this research. With reference to Figure 3.4, each element of the CHAT activity system will be briefly explained and related to this research. First, it is important to understand that for this research the CHAT activity system is the clinical mentorship relationship involving both the workplace and the university in its community.

For this research, using CHAT to understand the clinical mentorship relationship between mentor and mentee as that of a social relationship which is likely culturally and historically rooted, one would need to look at the clinical mentorship relationship as the primary unit of analysis. This is understood to be pertinent in aiding me with identification of the enablements and constraints to learning. I was also persuaded by the notion that "*the individual could no longer be understood without his or her cultural means; and the society could no longer be understood without the agency of individuals who use and produce artefacts"* (Engeström, 2001, p. 134). Thus, the decision to use CHAT as an analytical framework for clinical mentorship in the pre-hospital EMC field of practice was influenced by a number of theorists.

Garraway (2011) demonstrates the success and usefulness of CHAT as a framework that aids in enquiry around curriculum, and makes possible the analysis of the curriculum as it relates to internships, and inevitably the relationship between university knowledge and workplace knowledge and practice (Garraway, 2011). McMillan (2005) focused her work on using CHAT as an analytical lens to understand service learning as 'boundary work' and the relationship between the university and industry in working on a joint object (McMilllan, 2005).

The work of Le Maistre and Paré (2004) on education and work used a CHAT perspective to understand the transition between university and work and identified contradictions that make these transitions difficult. Hardman (2005) used CHAT as an analytical framework in technology research where she concluded that the introduction of new tools/resources resulted in tensions/contradictions that emerged within and between other elements of the activity system, which ultimately effected change in that activity system. Alhough this work was not specifically related to learning in the workplace, it still provided insight into the use of CHAT as an analytical framework. These examples of how CHAT is used as an evaluation tool provide insight into the relevance such an analytical framework may have in the EMC field of practice, and the clinical mentorship practices not used in this context before. Earlier works of Billet (2002) also support the use of CHAT to explore Experiential Learning, as his work refers to learning opportunities afforded through participation.

The primary unit of analysis is thus understood as the clinical mentorship activity system in the world of work. When using this activity system as a unit of analysis, I adopt the aim of uncovering contradictions within primary-level contradictions, and between the elements of secondary-level contradictions (Garraway, 2011). When uncovering and analysing these contradictions, I am guided by Engeström's (2001) understanding that the contradictions uncovered would have historically and culturally embedded roots, and through identification of these cultural and historical roots, the contradictions become issues that can be worked on and improved. This makes the possibility of effecting change and possible improvement within the system a reality (Engeström, 2001).

When considering this research design, importance and relevance, throughout the duration of this study, I constantly consulted other studies that also used CHAT in education and, in particular, mentorship and coaching (because of its similarities). Studies that just explored mentorship and education were also consulted, and informed the design of this research project. Rambe (2012) of the University of the Free State, used CHAT as an interpretive framework to understand the learning mediated through social media, specifically, Facebook. In her study she explains that the lecturer responsible for the module would serve as the online administrator and they would address student queries on Facebook (Rambe, 2012). Although this study differs vastly in relation to the field of study, and the mode of mentorship, Rambes' use of CHAT was able to inform this study's' design in part, as like me, her aim was to understand learning that was mediated through interaction with a significant or more competent other.

In a qualitative study using mentorship dyads (mentor and mentee) of various organizational backgrounds, CHAT was used both as a conceptual framework and analytical framework. Mcwhirr and Gordon found that CHAT provided *"a holistic framework with which to view formal mentoring relationships"* (Mcwhirr and Gordon, 2014, p. 2). They further reported that employing the analysis strategy informed by CHAT*; "enabled a complex range of data sets and the associations between them to be interpreted and identified"* (Mcwhirr and Gordon, 2014, p. 2).

The analysis strategy that CHAT provides in this research, involves viewing and analysing data provided by participants with a socio-realist ontology. By providing clear elements in its primary unit of analysis and thus simplifying analysis of complex systems, one is sensitised to uncovering tensions within and between elements and is thus able to identify contradictions between elements (Mcwhirr and Gordon, 2014). These contradictions identified could then be related to how, what and when achieving an outcome of that activity system is conceivable. It is these contradictions that once I have assigned data sections of data collected to elements within the Activity System that CHAT analysis may provide me with enhanced understanding of what constrained learning, whilst also affording me the opportunity to make recommendations of new ways of doing and future research.

The themes identified in Chapter four provided a clear understanding of the challenges for the clinical mentorship relationship as experienced by mentors and mentees. Further insight into CHAT as an analytical framework also allowed for data analysed in Chapter four to be reviewed and assigned to the elements of CHAT as detailed and discussed in Chapter five. Further exploration of the challenges found in Chapter four was required, so that tensions or contradictions within and amongst these challenges could be identified by means of the CHAT analysis. This, so that recommendations could be made for transformational change[3] of the clinical mentorship relationship.

3.6. Ethical Considerations

3.6.1. Confidentiality and Group Harm

Since only one University of Technology offered the Professional Degree in Emergency Medical Care at the time of this study, it was difficult to withhold this information as confidential. However, in this research, the University of Technology is not directly referenced and participants were informed of this and extra precaution was taken to ensure participant anonymity. Confidentiality of the research participants was ensured by not identifying any participants by name, South African or HEI identity number or any other means that may be traceable to the participant. Only I had access to this privileged information. During the focus group interviews, I limited group harm by creating a safe platform and declaring that all information shared will be treated as highly confidential. I set the tone that participant responses or answers will not be judged or held against them as a student or practitioner, and no information given will be disclosed to any person or organization, besides the research supervisors.

3.6.2. Consent and participation

Students and practitioners were approached as a group or individuals, depending on what was more convenient for the participants at the time, however, the student group and practitioner group were kept separate. I explained the aims, purpose and potential benefits of the study, then distributed my contact details and requested that they make contact should they wish to participate.

[3] Fifth principle of CHAT

The intention of the study was made clear to the participants prior to their giving permission and involvement in the study. A consent form (Appendix C) was handed to the potential participants at the first contact that I had made with the individual. Voluntary participation was sought and the students and practitioners were not forced or coerced into participating in this study. Subjects were informed that withdrawal from the study is acceptable at any time should the participant feel the need. The participants were assured that no negative consequences would be elicited by myself or my supervisors, due to their withdrawal from the study. Ethical clearance for this study was obtained prior to any data collected. Clearance was sought from the University's' Research Ethics Committee (Appendix D), and thereafter, permission to collect data was sought from the Provincial Ambulance Services Director of EMS (Appendix E), the HEIs (University of Technology's) Head of Department of Emergency Medical Sciences (Appendix F) and from the Provincial Health Ethics Board (Appendix G).

3.6.3. Bias

I declare bias in terms of the background and motivation of this study as well as my having been an employee of a University of Technology. However, I used the research ontology and epistemology, inductive thematic analysis framework and the CHAT as interpretive and analytical tools to limit bias and to successfully achieve the aims and objectives of this study. This research takes the form of insider research, where I have access to 'inside' information or insights into organisations or practices. Though this type of research is associated with ethical challenges, such as bias, validity and confidentiality to mention a few (Greene, 2014), these challenges may be overcome by using sound theoretical and methodological structures in the research activity. Insider research may also be viewed as beneficial as I may have been privy to information provided by participants that an 'outsider' may not have been able to attain (Greene, 2014). Although I was an employee of a University of Technology at the time of this research, instead of placing limitations of the information shared by participants, it could and has aided in information shared, as I had already developed a rapport with the participants which created a comfortable, 'safe' space for information sharing. I ensured that the participants were constantly aware of the aim and ethical obligations of my research, so as to avoid any doubt, on the participants' part, on the integrity and confidentiality of this research.

3.6.4. Delineation and limitations of the Study

This study was limited to participants in the Cape Town, in the Western Cape Province of South Africa. Specifically, students in a University of Technology, Department of EMC, and Advanced Life Support practitioners working for Provincial Government EMS in the Western Cape. In terms of the participants in this study, there were no age limitations of the participants. This study did not include clinical practitioners who have held student registrations with the University of Technology for more than one year in their current studies, as these practitioners might introduce bias in terms of their perceptions of clinical mentorship as they are exposed to tutor and mentor programmes as well as subjects that involve educational practices during their third and/or fourth year in their course of studies at a University of Technology. Practitioners working with private EMS were not used as participants in this study as at the time of data collection the students were rarely placed at private services for Work Integrated Learning (WIL). It is also important to note that the time limitations of this study placed confines for the number of participants.

3.6.5. Trustworthiness

The credibility of this research is underpinned by the use of a previously validated six phase analytical process by Braun and Clarke (2006), detailed in section 3.4 of this Chapter. Furthermore, data is analysed again using a structured analytical tool; the CHAT. Although CHAT may not have been used in the same or similar EMC contexts like this study, its use is extensive, and aids in understanding its use in analysing relationships, by uncovering contradictions within and between elements of an activity system. Both of these analytical frameworks, coupled with the epistemology of this study, and the use of two data collection tools (diaries and focus group interviews) provided me with a structure that aided in eliminating other researcher biases. This allowed the perceptions and voices of participants to be presented in this study. The sampling method, inclusion and exclusion criteria, described in section 3.3 of this study makes possible similar studies in other areas of South Africa with similar EMC contexts. Although findings in studies duplicating this methodology may not be identical, as this is based on participant perceptions, the finding of enablements, constraints and contradictions would be consistent across the research.

3.7. Significance of this study

By having done this research, students may in future be afforded opportunities to develop their professional identities or attitudes in the pre-hospital EMC discipline. By engaging with qualified practitioners as participants in this study the practitioners may become aware of the importance of clinical mentorship and education in the pre-hospital EMC discipline. The findings of the investigation into the clinical mentorship relationship in enabling or constraining learning in the pre-hospital EMC discipline may hold implications for theory and/or curriculum design for EMC programmes.

3.8. Chapter Summary

The qualitative investigation into the perceptions of mentees and mentors of clinical mentorship and their enablements and constraints to learning was made possible through an interpretivist (also known as constructivist) and a socio-realist approach for data analysis. The use of both interpretivism and socio-realism is common in research with aims of uncovering deeper meanings to participants' socially constructed reality, confirming the ontology and epistemology of this research as appropriate. With these approaches I was thus able to delve deeper into the minds of participants by analysing data to firstly reduce data into themes to understand constraints to learning, then to uncover contradictions within the activity system which would result in constraints to learning.

The sampling methodology used in this research, as well as the data collection tools, also aided with answering the research question: how do pre-hospital clinical mentorship relationships enable or constrain learning in emergency medical care? Purposive, convenience sampling best fit the nature of this study as insider research and the data collection tools enabled collection of rich data and allowed participants to voice the perceptions without restraint. Lastly the analytical frameworks, methodology and design of this study aided in reducing researcher bias as well as confirmed the credibility, transferability, dependability as well as confirmability of this research.

CHAPTER FOUR

4. INDUCTIVE THEMATIC ANALYSIS AND DISCUSSION

4.1. Introduction

Here, I will report on the data collected and analysed that aimed to unpack objectives A and B of this study: to explore clinical mentorship and learning in the pre-hospital EMC context and to gain understanding of the role and scope of community members. A two part data analysis method was used which is split over Chapters four and five. This Chapter involves inductive thematic analysis and thematization of data collected from diaries and focus group interviews, and this is where I describe how I have generated the themes. Chapter five involves the analysis and interpretation of these themes using a CHAT lens to reveal affordances, tensions and contradictions within and between elements of CHAT.

Areas of information which drew my focus was guided and informed by this research background and motivation, where problems to learning during clinical mentorship were identified. Some of the challenges experienced by mentees or mentors today sometimes resonated within my own experiences as a student. It was information like this, which revealed challenges for the clinical mentorship relationship that was identified, and formed the themes and subthemes discussed in this Chapter.

4.2. Data analysis

The methodology employed in this research was as discussed in Chapter three, using an interpretive epistemology, coupled with Braun and Clarke's (2006) six phase thematic analysis framework to reduce and organize data (Braun and Clarke, 2006). Appendix H[4] indicates phase two to five of the thematic analysis process of this research also detailed in Chapter three. Figure 4.1 provides a final image of the themes and subthemes that emerged from the data analysed (also indicated in phase five on Appendix H) and are described and discussed in this Chapter.

[4] Appendix H illustrates phase two to five of this research in accordance with Braun and Clarke (2006) thematic analysis framework. This involved generating initial codes (phase two), for example Mentor knowledge, autonomy, communication and mutual respect. Phase three involved me searching for themes from the codes and data sets, then reviewing those themes (phase four), and finally defining and naming those themes and subthemes (phase five)

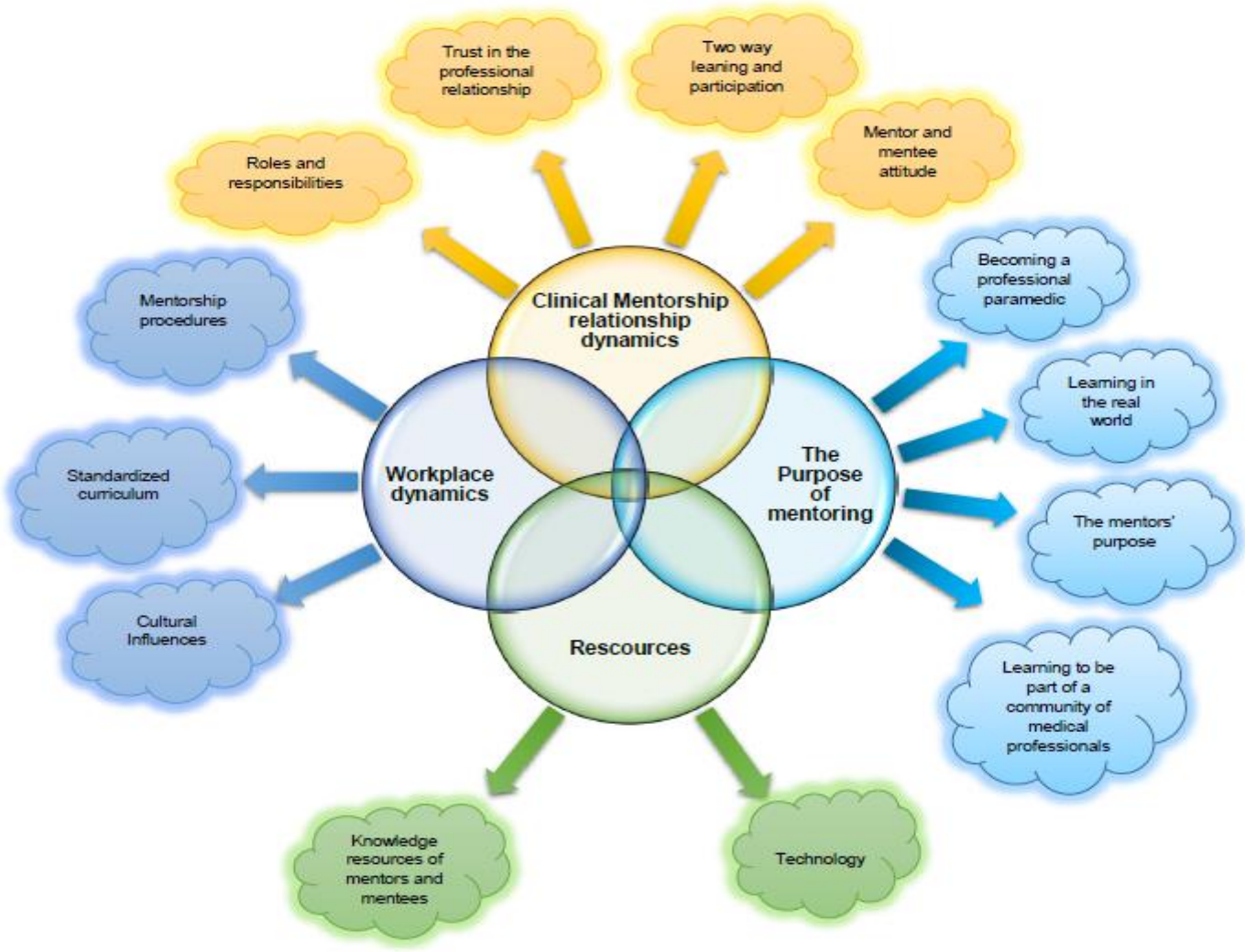


Figure 4.1 Thematic map

4.3. Theme 1: Clinical mentorship relationship dynamics

Relationship dynamics, such as roles and responsibilities, trust in the professional relationship, two way learning and mentor and mentee attitudes, emerged as subthemes that influenced both mentor and mentee experiences during clinical mentorship. The importance of this theme for learning during practice is discussed in the initial Chapters of this thesis.

4.3.1. Subtheme: Roles and responsibilities

The first role/responsibility identified was that of mentors as teachers (sometimes even leaders), and mentees as learners, particularly in terms of connecting theory and practice:

"I think you first have to go and sit with the theory because if you don't understand the theory then you can't learn in practice as well but then you have to, yourself, link the theory to the practical. You can't see it as two separate entities. So you have to make yourself quite used to the theory and then try and link to what you practically see on the road and try and broaden your knowledge and then that's also where you can ask practitioners because they can maybe give you that link that you at the moment can't really see."

"They see you, as the paramedic - as a senior paramedic now on duty at work you must show leadership. You must take these people under your wing. So it's a big role. It's not just something that you can overlook."

Although not all mentees believed that mentors were fulfilling their responsibility to teach:

"*They* [mentors] *were not interested in my learning and as such did not positively influence my shift."*

And some mentors did not seem to think it was their responsibility to motivate the mentee to learn:

"Because I cannot see why is it my job to motivate them to learn."

Clear communication and defining expectations (as responsibilities), early in clinical mentorship was also found to be important for the relationship between the mentor and mentee and may have avoided some of the misunderstandings, for example:

"So when you arrive they greet you. They come and tell you what they want from you. What you can do for them and they ask you what you would like to learn on that shift and so on."

4.3.2. Subtheme: Trust in the professional relationship

It was understood that some level of trust should exist to allow for mentees to participate in various tasks and to feel free to discuss their practices. Mentees explained how establishing this trust is affected by the limited time they have with their mentors:

"That trust is a very big issue. If you're working with a new practitioner that you haven't worked with before and they don't trust you yet, that's also a big issue because they're less willing to let you do things."

"…in your shifts you have to prove that you're not an idiot who will kill the patient. That it's okay for you to touch the patient."

"…you only have 12 hours to do that per shift …So the first 6 you spend trying to win their trust…"

"… if you work with a new practitioner all the time you have to build that trust during every shift…and often times you don't get that opportunity …to establish that trust with the practitioner."

Mentors also tried to explain the importance of trust in the clinical mentorship relationship and for learning, for example:

"*There is no, I mean if you work, if you take a student and do work with him for a period of time there is a relationship that is being built. How can I say, the student also, he falls into a comfort zone. He becomes more open. He or she starts to trust you and when it comes to, like for instance, when there's a resus [unclear] he won't feel intimidated. He won't feel – how can I say, am I doing the right thing. I don't know whereas there's a nicer relationship because he's worked a couple of times with you. He knows you're his mentor and he feels, he's open and so*

the things flow normally when he does do his practical on the patient and he does treat a patient. He will know that, okay I, what I'm doing is, you know, so right because I do have somebody that is guiding me, that is watching me, you understand."

4.3.3. Subtheme: Two way learning

The idea of two way learning during clinical mentorship was also picked up by some of the mentees:

"I think if they understand the potential that we (mentees) can be an asset to them on a shift and not just only with lifting stuff but also that we both can teach each other something. But I think a lot of the time it's the ego of being a paramedic for the last 15 years. There's nothing you can teach me whereas things keep evolving in medicine. Ja, so once again that mutual respect, I think will play a big part and the attitude of wanting to learn and wanting to be there, might also be a big thing."

Some mentors also shared their understanding of two way learning:

"These students do, when you talk to them and how can I say if you haven't been studying in a long time they, with our medicine there's research, there's continuous research. So they come with new info every time and new ideas and new things and you do actually learn from them. And then the same time they learn from you all the practical experience and so it works in a hand in hand, the relationship..."

4.3.4. Subtheme: Mentor and mentee attitudes

The attitude of mentors and mentees was also found to impact on learning during clinical mentorship, where poor attitudes contributed negatively and positive attitudes resulted in valued learning experiences for both mentor and mentee. It was understood that mentors and mentees attitudes and behaviours such as passion, pleasure, enthusiasm, and interest shape the learning during clinical mentorship, for example:

"And then you get practitioners that really have a passion and they try and pass that onto you and then as '[X]' said even if you don't have a single patient they just really teach you a lot and they even, sort of, try and teach you if you're not working with them, they tell you, you can contact them and you can ask them questions and that's very valuable because sometimes you just want a different perspective. Because your lecturers try and teach you at the best that they can but sometimes just a different wording makes it click for you."

"…The practitioner was willing and excited to work with students. She interacted with us while working with patients and allowed us to take lead in patient care."

"Some qualified personnel enjoys teaching - this is really helpful as we discuss scenarios, discuss each call, discuss different effects of treatment. They also allow us to take control and do not step in if it is not absolutely necessary. Unfortunately not all personnel are this helpful and this makes it a bit more difficult to learn…"

"It was really nice talking with them, they shared their knowledge eagerly and involved me with everything."

Just as positive attitudes of mentors contributed to valued learning experiences for mentees, poor or negative attitudes of mentors poorly impacted on clinical learning, however this may have developed the mentee in other ways that also contributes to the holistic learning of the mentee, for example:

"It would be unfair to generalise, thus in some instances I feel like passenger in a taxi - this however is not the majority of the time, but in my opinion every shift matters. These instances is not negative towards learning either as one can always learn how to NOT do something. …In some instances the questions are answered and that is valuable, other times you have to do more research or discuss it in class."

Willingness to learn as a positive attitude toward learning was also identified by mentee and mentors as a factor that influenced the clinical mentorship relationship, for example:

"Maybe it's a give and take with certain people. If you give a lot and you get a lot but with some practitioners if you give a lot you get nothing. If you give nothing you get a lot, it depends on the – it depends on your practitioner".

"…you have the duty to want to learn from a practitioner. I mean even if they want to teach you something, if you're not willing to learn they can't help you …you need to be involved with the learning process with the practitioners."

"…what I also noticed was that the more keen you seemed to learn the more they [the mentors] *facilitate your learning in the field."*

Mentors reported that more learning was possibly achieved when mentees were willing to learn, for example:

"I would say you get three types of students. The one that does what he was told. Let's say I was just told to come and witness. I mustn't do anything. You get those ones that are eager to do anything, even though it's not in their scope of practice they want to learn because they know they're going to get there eventually. And then you get those guys that just come into the vehicle, opens his books and sits at the back and that's it. You don't know if he's still awake or if he's still - because you're driving in front. So you'd prefer the one that wants to learn because it's easier to teach someone that's eager because he will always ask you questions and he keeps you up to date with what's happening. If you don't know a question you have to go look up or Google it while you're still busy calling free [unclear] or anything like that."

Mentors' lack of enthusiasm and willingness to teach and learn as attitudes toward clinical mentorship was also identified to poorly impact on learning during clinical mentorship, for example:

"They (mentors) *could have been more involved with me, but rather slept for most of the shift. The ILS*[5] *partner was valuable though, as through answering their questions about ALS*[6] *practice, I revised my own work."*

"*I think the paramedic could have shown some enthusiasm to teach us even if he only told us about patients and calls he has experienced in the past."*

[5] Intermediate Life Support Practitioner
[6] Advanced Life Support

Mentees also tried to rationalise and find motive for mentors' poor attitudes toward clinical mentorship, for example:

"*I think there's a few things that play a role. Obviously, their personal lives …If they have a bad day …But I think a lot of it is the strain of the system on them ...it seems that a lot of the people are just there for a paycheque. They don't really care about the patient. They don't really care about the system. They just want their paycheque at the end of the month."*

Mentees also explained cases where mentors explicitly expressed their dislike of students or mentorship despite the mentees attempts to be mentored, for example:

"…the practitioner would tell me straight off from the start, I do not like students. …*I still try and get them to talk to me and teach me and I try to help out wherever I can even if it's mopping the ambulance. …I try and get them to like us more but I think sometimes not everybody is as keen"*

"…*certain practitioners that just make it difficult for you* [some mentors]…*will have made very personal comments or be very degrading towards you*…*even though you've done nothing wrong or maybe you haven't noticed …on one or two occasions …it seemed like they were trying to make my shift unpleasant."*

4.3.5. Discussion

The importance of successful mentorship relationships also emerged from other studies in the literature, like Hudson (2016), who discovered that successful relationships are built on trust and respect amongst all parties. Malat (2014), found that mentors thought it important to define the relationship, including roles and responsibilities, and mentees thought the relationship was a unique experience that resulted in some change in them. This theme identified willingness to learn or teach in mentorship relationships to be important. Hudson (2016) also found that a mentor enthusiastic about mentoring could be foundational to the development of a positive mentorship relationship. There is a need for both mentors and mentees to portray 'desirable attributes and practices' (Hudson, 2016).

Other literature found that mentors and mentees know how to create and make use of learning opportunities during clinical mentorship because of defined roles and responsibilities, clear communication, shared participation and fostering appropriate behaviours or attitudes in their mentorship relationships (Hale, no date; Lave and Wenger, 1991; Valadez and Lund, 1993; Mitchell, 1998; Buckley and Farrell, 2007; Michau *et al.*, 2009; Cassidy, Goodsman and Lyons, 2013).

The attitudes of mentors and mentees also emerged as important for clinical mentorship experiences and are understood to enable or constrain learning. This also emerged from literature discussed in Chapter two, where the literature refers to attitude as one of the key principles of a successful relationship and of learning (Styles, 1995; Dunn, 2002; Buckley and Farrell, 2007; Hudson, 2016). It is also understood that attitude could also influence participation and trust (Buckley and Farrell, 2007). Other literature refers to trust as key to a successful relationship like Buckley and Farrell (2007) who found that trust is foundational in a mentoring relationship and is influenced by all aspects of a relationship which are all essential in thriving relationships (Styles, 1995; Buckley and Farrell, 2007; Mcwhirr and Gordon, 2014). In a community mentorship guide, Hale (no date) indicated that later into the establishment of the mentorship relationship, with trust and confidentiality, mentors and mentees are able to plan for their relationship a year ahead, which may imply that trust and confidentiality enables achievement or communication of goals in a mentorship relationship (Hale, no date).

Simms (2010) speaks of the creation of significant learning experiences requiring trust of self and others which could apply to both in and out of classroom contexts. Buckley and Farrell (2007), found the relationship between trust and influencing retention of mentees and mentors in organisations, in that the more trust is developed in mentorship relationships, the less likely staff were to leave (Buckley and Farrell, 2007).

4.4. Theme 2: Workplace dynamics

This theme includes subthemes which explicate workplace dynamics as experienced by mentors and mentees during clinical mentorship. The subthemes identified that affect workplace dynamics during clinical mentorship include mentorship procedures, standardised curricula and cultural influences.

4.4.1. Subtheme: Mentorship procedures

To contribute to the mentorship procedures, mentors suggested enabling the mentors to mentor by sharing information regarding the clinical mentorship of EMC students from a central source, in other words, a central coordinator serving as a connection between the mentors from the work place and the university. For example:

"It sounds like you need a mentor for the mentors. What I mean is there must be a mentor at each division that will give through this information because this will definitely not get to us. I can promise you now and I'm not blaming this institution. There's many things that, but there must be a responsible person who will start filtering the stuff through. That person must be nominated by the institution if we want this to work. We cannot just randomly take it from this institution that you're going to get students. We need somebody who keeps on telling us what to do, what to expect."

And:

"It boils down to, to all the institutions working together. Then you will see that everything will start going smoothly. Your – some - even those mentors that were not eager to take on students will start opening up because sometimes it's just a small glitch that or some problem that they don't want to take students from a certain particular institution because of whatever they heard before or what's going on between those two institutions. So if you bring everyone together to show them that EMS is a broad industry. We need to work together in order to accomplish whatever we did."

It was interesting that mentors who had better relationships with the universities where the mentees were from were more insightful to the mentee needs, for example:

"… I mean there will probably practitioners that have a good relationship with X (university) and those practitioners will often be much more pleasant to work with. …Then they have a better idea of what you know. What you're supposed to know, where you are, and so on. Then they can sort of tailor-make the learning to fit your style and your requirements basically."

The randomized nature of the clinical mentorship structure/process was also identified to influence learning during clinical mentorship. For example:

"I mean it is randomized. It's whoever who is on shift we get and then if there's five paramedics you just get given one, it doesn't matter. Even if you – like I worked a shift, number 6, I worked a shift once at a base where there two paramedics from our class on the shift and then I asked the Base Manager, can I please work with the one that is from my class and then he just assigned me to another paramedic that's not involved or was not in the class."

A lack of mentee and mentor autonomy during clinical mentorship and work placement processes was identified as another factor that contributed to negative experiences during clinical mentorship and also poorly affected learning in clinical mentorship relationships. For example:

"…we weren't able to choose our shift this year. For me, especially like the last – the previous two years we chose our shift. So we knew when we wanted to work when we didn't want to work and that made the experiential learning much better. But then this year we were actually told you're working this weekend. You're working that weekend and we couldn't – and then that also would affect our shift because we might not have wanted to be there. We might have had other things on or whatever and then that would have messed up the shift for me because if you have a bad attitude before you even get to the shift because you're supposed to be with your family or whatever, then you get to the shift and you're just like you know."

And:

"What I found especially this year is that we had a lot of double shifts over a weekend before writing. So then it becomes very difficult because …you want to prioritise your practical learning because that is limited. But you also really need to pass your test."

A lack of mentor autonomy added to mentors feeling alone and frustrated during clinical mentorship relationships:

"There is no structure …we have to do everything in the back of an ambulance. There's no structure, there's no support, nothing. You're the mentor. They give you the student and you must - for that 12 hours sit with the student."

Mentors suggested some ways of improving the clinical mentorship structure and procedure, which included assigning mentees to more appropriate (qualification and scope of practice) mentors. For example, one mentor suggests a sort of structure of assigning mentees to mentors as mentors are otherwise likely to be a lesser qualified mentor (BLS, ILS):

"I think that certain divisions, maybe there could be a type, a sort of structure. Not a perfect structure but I think there would be here and there a type of structure in a sense of they would first try and put the students with a paramedic before they put the person with any other crew because that's where you're going to learn the most. Certain bases will do that but not all of them. … if he (paramedic) doesn't go take that student that student will probably end up on a BLS or ILS [talking together] and then almost learn nothing, so to speak ja."

4.4.2. Subtheme: Standardised curriculum

For other mentors, a standardised 'curriculum' could improve clinical mentorship:

"If all the institutions, I think standardised learning then it, kind of, makes mentorship much easier because then there's a set standard that you're now lecturing a student. Whereas if I come maybe from KZN[7] *and I was taught this and then now I explain it to a student and then the student might look at me like… but this guy's talking nonsense because the paramedic that I*

[7] Kwa-Zulu Natal

worked with yesterday he explained it to me like this. So I would think that there needs to be a standardised, what's the word, curriculum that needs to be set out across the board so that whoever does mentor the student all mentor on the same wavelengths."

4.4.3. Subtheme: Cultural influences

Other workplace dynamics such as cultural influences (workplace and personal) were found to contribute to the lack of adherence to processes and structures as indicated in the examples below.

"*A very bad thing for me is that I look very young. So as soon as they see I'm a girl and I'm young, or look young, they don't really want me to do stuff. …I found that happened to a lot of other girls as well…, so it definitely plays a role."*

"I sometimes have the opposite advantage of looking older than what I am. But that's also sometimes an issue because then people think – and also if you work with a crew of a different culture who speaks a different language, there's a very big gap especially when the crew just speaks their native language…"

4.4.4. Discussion

The data reported on identified a lack of mentorship processes and structure, and showed that participants were concerned. This is an important finding, as much of the literature identified that a lack of mentorship procedures may adversely influence the clinical mentorship relationship as a whole (Kilminster and Jolly, 2000; Nikolou-Walker and Curley, 2012; Malat, 2014). The added randomized or non-standard practice of clinical mentorship, mentorship guides, manuals, recommendations, frameworks, and models all indicate the importance for standardisation of mentorship structures and procedures for more successful and effective mentorship relationships (Shelley, 2003; World Health Organization, 2006; Cramer and Prentice-Dunn, 2007; Komaratat and Oumtanee, 2009; South African Department of Health Clinical Mentorship Manual for Integrated Services, 2011; Stephen and Lewin, 2012).

In relation to standardised curricula for clinical mentorship, Gamble (2009) referred to the importance of implementing a curriculum with clear indication of bridging the theory-practice gap to develop well rounded competent graduates. In Gazza's (2004) study on mentorship, the explanations from participants in this research elicited how cultural influences and norms could adversely influence processes and subsequently learning. Her literature further advises that for a mentorship relationship, a nurturing environment should be established to produce commitment, retention, and teamwork for institutions.

4.5. Theme 3: Resources

This theme is explicated by two subthemes, namely, knowledge resources of mentors and mentees, and technology. Knowledge content and the use of technology are both subthemes that have the ability to enable or constrain learning during clinical mentorship.

4.5.1. Subtheme: Knowledge resources of mentors and mentees

Having the appropriate content knowledge as mentors was identified as a factor that influenced the quality of mentorship, and possibly poorly affected learning for the mentee, for example where a mentor had the appropriate level of content knowledge:

"Most often they help by clarifying points you are confused about during or after calls. The greatest help lies with discussions around theoretical concerns while (or after) dealing with the concept in a practical setting…"

And, where content knowledge was lacking:

"…not everything could be discussed in detail though not because it was refused, but more the knowledge content."

And:

"If the paramedic was better qualified e.g. BTech, she would have been able to answer some of my questions better"

Or in some cases, the mentees may perceive that they have more up to date knowledge than their mentors:

"I learned skills but the paramedic did not influence them… To be honest, I felt like I knew more than my crew - example they did not know how to set a non venti-pac ventilator..."

Sharing knowledge as resources for both mentor and mentee can be considered two way learning, as discussed in section 4.3. However, the interest for this subtheme was the existing and relevant content knowledge mentors and mentees possessed in order to interact with one another during clinical mentorship. In the case where mentees served as resources for mentors, development of the mentor was also possible, for example:

"*I did however help the practitioner out with one of her assignments and provided her with some information… where she struggled to understand…"*

And from the perspective of mentors:

"…that you teach them [the mentee] …*from your experience side and then the student will give you the latest as to what must be done when you encounter a certain disease or what. So you're joining both together and you're staying current both and the student is learning. So that's more what you want to have…that kind of relationship with the student."*

For mentors, though, there may be a fear that mentees with less relevant content knowledge are just taking them for granted, for example:

"What I find often is that they [mentees] *use you* [mentors] *for cheap education. There's certain things that they definitely must know that they don't know."*

4.5.2. Subtheme: Technology

Another factor identified to have influence over learning was use of and access to technology as resources. In the quote below a mentee refers to mentors/practicing professionals' use of the internet to share knowledge about cases. Students are then able to access the internet site to aid their own learning, for example:

"But what happened or what has happened also is that there's a lot of Facebook groups that they have designed where they actually post things as a teaching method. So then you can look at it whenever you want and then there's interesting cases being put up or interesting scenarios or new drugs or equipment that they talk about as well. So it's not to say on a shift that the community has made, sort of, these social media groups available where you can actually also learn and ask questions. I think that's valuable."

However, mentors described how use of online resources may, in some instances, constrain learning during clinical mentorship, for example, when it is used on site:

"…*nowadays everyone is on a social network or something. So …when you get into a patient's house, I always tell my students that …I don't want to hear you answering your phone while we're busy with a patient. Because imagine it's your parent now, the family looking at you you're on your phone. They don't even know if you're Googling something or …you're trying to find out what it is. They're just going to say he was busy on Mxit or Facebook while my mother was dying. So …it puts a barrier because if you want to Google you do it afterwards because the patient is sorted and then we can now go back and relax again and …debrief on our call."*

4.5.3. Discussion

The first theme, clinical mentorship relationship dynamics, highlighted the importance of communication and mutual respect between mentor and mentee to enable use of resources (Valadez and Lund, 1993; Hudson, 2016). During clinical mentorship and the interaction of the mentor and mentee in their relationship, the mentor/mentees' existing knowledge or deficiencies of knowledge were reported to impact on the learning for either the mentor and/or mentee. As discussed in theme 4.3, much of the literature identified that depending on the attitude/attributes of the partners in this relationship, learning can either be enabled or constrained as the attitude/behaviour of mentors and mentees could determine the extent to which they are used as resources during clinical mentorship (Kilminster and Jolly, 2000; Schrubbe, 2004; de Waal, 2012). The attitude/behaviour of the mentee and mentor then may also influence the way in which the mentor guides and teaches (pedagogical knowledge/teaching skills) the mentee, and how the mentee would learn (Schrubbe, 2004; Jacobsen, Eggen and Kauchak, 2009; de Waal, 2012; Cassidy, Goodsman and Lyons, 2013).

Although previous literature identified that historically, people have commonly assumed mentors to be wise and knowledgeable, mentors in this research were of the opinion that they should not be misused as resources; instead, the relationship should be symbiotic in nature, where both parties benefit (Valadez and Lund, 1993; Wyatt, 2003). Like de Waal (2012) and Moodley (2016) in their research on mentorship perceptions, experiences and preparedness, this theme also identified the level of EMC qualification of the mentor in relation to the mentee as important, but also identified the use or access to technology as a contributing factor to learning during clinical mentorship.

Both positive and negative influences on clinical mentorship were identified when mentees and/or mentors made use of or had access to various kinds of technology. Although access or non-access to technology was not described in some literature, what was described was how the use of technology enabled learning and contributed to positive experiences for all (Nikolou-Walker and Curley, 2012; Rambe, 2012).

4.6. Theme 4: The purpose of mentoring

Knowing and/or understanding the purpose of clinical mentorship was uncovered as a possible factor that could enable or constrain learning. More than one purpose was identified and explicated as subthemes in this section, namely learning to become a paramedic professional, learning in real and difficult situations and becoming a part of a community of medical professionals.

4.6.1. Subtheme: Learning to become a paramedic professional

The purpose of mentoring was understood to be about learning to become a professional paramedic, as something which is more than just learning at the university. For example the 'rough and tumble' of real work cannot be adequately captured in the laboratory or classroom, as this mentor describes:

"These students need to learn. They need to, I mean for instance, these students are - for the first years' they come fresh out of school. They work on the road with a paramedic or whoever

they work with an AEA or BAA, whoever NDip[8]*. They need to see what's happening out there. They need somebody that can guide them, can show them, can practically teach them everything and then also when that student leaves he must be able to leave with some kind of, how can I say, not background but with some little experience and say today I'm going home. At least I learned something from this man (referring to himself) I can go home and say this man taught me a lot, understand? There are certain things they also need to know, you know, besides academic is what you must do and what not to do. Also, I mean they don't teach you in training that, they teach you hazards, yes. They teach you basic stuff but out there on the road its totally different. You must be aware of your surroundings. You know that's where you as a mentor, somebody that's there to assist and say, listen guys, you're going to do this now but also look behind you, you know."*

4.6.2. Subtheme: Learning in real and difficult situations

The subtheme of learning in real and often difficult situations was also echoed by the mentees, for example:

[the purpose of the mentorship is] *"To actually learn how to do things or to practice doing things."*

"The busier the shift is generally the more exposure you have to patients and the more opportunities you have to learn."

"You learn a lot of things that, like that aren't discussed in class… and you learn from your mentor."

As too, was the idea of two way learning:

"So if it's a good shift I think it benefits both people because then we learn and they learn from us so it's more enjoyable."

4.6.3. Subtheme: Becoming part of a community of medical professionals

Related to the purpose of learning to become a professional paramedic was learning to become part of the community of medical practitioners, to act in a proper, caring and professional manner. However, the last part of the quote below is vital to understanding some of the tensions in working in the sector, and is picked up on again later:

[8] National Diploma in Emergency Medical Care, also referred to as ALS

"…what I think is good for mentorship is the students start getting into the circle of EMS. So people start knowing you on the road and partnerships or networking …that is important for your patient care at the end of the day. So I think they're more visible and part of the network already once they finish because the biggest challenge is when you're young and you're qualified to work with older people who are not qualified."

And,

"…it was the fact of how she approached the patient and even if we had a patient, who was not a red patient, did not need a paramedic. But was a patient who had ill health in general and needed a general assistance. We stood there for an hour explaining to the family what will be best, what are the options and just her manner of speaking and her bedside manner was the thing that I've learnt the most from."

Although mostly seen as beneficial to both mentees and mentors, some mentees were concerned about their mentors' purpose, and how this may affect their own learning:

"You're [referring to the mentors and to the aspirant students] *there for different reasons. Some people are there for money and perhaps they're just burnt out or whatever…"*

More importantly mentees (students) raise the issue of working with practitioners who may not always be best qualified to teach them, who have not kept up with best practices. Under these circumstances, the envisaged purpose of learning to become a paramedic, of learning to become a professional, may not be achieved (see also above):

"It is very much dependant on the practitioner. If you have a person that's willing to learn and that is passionate about the field, about patient care and about teaching, I mean that's, those shifts are always the most valuable. Even if you don't have a single patient it's still valuable because you have interesting discussions with them and so on. But other times you will have a practitioner that's just interested in the field, in patient care, in teaching and so on. And even if you have the most amazing cases and it's a busy shift and there are lots of learning experiences it's still a negative learning experience sometimes. Especially when you have people that have practices that are maybe questionable in terms of what best practice is and you have to, sort of, on your own try to identify what those practices are. Because there are a lot of things that we, that I've experienced maybe in first and second year then in third year you come to realise that that's actually bad practice."

4.6.4. Discussion

Literature published on mentorship also spoke of identifying clear goals or purposes of the mentorship as important in establishing successful mentorship that fosters growth and development (Kilminster and Jolly, 2000; Gazza, 2004; Cassidy, Goodsman and Lyons, 2013). In relation to development, through the data analysed, learning through clinical mentorship as a purpose was also identified as an important purpose for clinical mentorship. More importantly, as other scholars have identified, learning for both mentor and mentee was noted as an important purpose of clinical mentorship (Fenwick, 2001; Quay, 2003; Matthew, Taylor and Ellis, 2012; White, 2012).

A lack of further education or appropriate education could have an undesired impact on the clinical mentorship relationship where scholars believe that further education and development for both mentor and mentee to be important for successful clinical mentorships (Barnett, 2004; Nikolou-Walker and Curley, 2012; White, 2012)

4.7. Chapter summary

The inductive thematic analysis framework applied to this Chapter was useful in reducing and organising the data into themes and sub-themes. For ease of reference, Table 4.1 represents the theme and its findings through short descriptions of the subthemes analysed and discussed in this Chapter. The enablements and constraints to learning discovered during the literature review (Chapter two) closely related to those discovered in this Chapter. Although these enablements and constraints were not identical one could identify relations such as the need for students to be afforded opportunities, through guided practice, to link foundational competence (theory) to practical competence (in Chapter two). In this Chapter a similar constraint to learning was discovered where students often needed to make the link on their own, with limited guidance and/or afforded learning opportunities. Furthermore, some mentors perceived mentees to have a lack of foundational knowledge making learning during clinical mentorship difficult. The literature reviewed also spoke to the curriculum bridging the gap between theory and practice, and here it was found that there is a need for standardised curriculum for clinical mentorship to enable better learning opportunities, in other words, to bridge the gap.

There was also a need for reflective events to be afforded in COPs and during mentorship to develop reflexive and applied competence. This in turn, would aid the students (mentees) with moving from participation at the periphery to full participation as discussed in Chapter two. This closely aligns to what was found in this Chapter where mentees and mentors alike perceived that participation from both parties was required to use the opportunities that clinical mentorship afforded to learn. Opportunities to learn in the EMC context was identified (through the literature reviewed) to pose possible challenges to learning with the nature of EMS and the criticality of patient care. In this Chapter however, mentors and mentees alike agreed that difficult and challenging situations afford many learning opportunities, with some learning opportunities being used regardless of the mentors' participation or guidance.

It was understood that for learning to be better enabled through guided practice the mentor would need pedagogical knowledge, and for this Chapter a similar discovery was made where a lack of mentor content and pedagogical knowledge was perceived to constrain learning. Successful mentorship was reported to contribute positively to recruitment and retention of staff. With the understanding gained in this Chapter a lack of trust in the clinical mentorship relationship could thus not only constrain learning, but make difficult retention and recruitment of staff. Where this Chapter identified that a lack of standardised mentorship procedures constrained learning, Chapter two brings the understanding and cautions that learning is socially constructed could create difficulty for systems or processes. What was discovered in this Chapter and did not clearly reflect in the literature reviewed was the negative impact poor attitudes (from any person in clinical mentorship) had on the clinical mentorship relationship and learning as a whole. Mentees and mentors alike perceived the need for clearly defined roles and responsibilities in the clinical mentorship relationship and the EMC context to afford learning opportunities during WIL. Likely, the notion of clinical mentorship being two way learning, and access to appropriate resources was also found to be important in enabling learning during clinical mentorship The influence of personal and workplace culture practices did not reflect clearly in the literature reviewed in Chapter two, however, it was was found to constrain learning in this Chapter.

The discussions of these findings, though insightful and valued, still lacked the ability to identify the possible root causes of what enabled or constrained learning during clinical mentorship. It also lacked the ability to identify elements that can be worked upon to improve clinical mentorship. For this reason, Chapter five was necessary to make possible further and deeper analysis using the CHAT as the analytical framework.

Theme		Subtheme summary
Theme 1	Clinical mentorship relationship dynamics	Relationship dynamic factors identified to contribute to good clinical mentorship experiences and learning was that of understanding and defining the role and responsibility of the mentee and mentor in the clinical mentorship relationship. Attitude was also identified as a factor that possibly shaped the learning during clinical mentorship by influencing the degree of participation a mentee is allowed. It was also found that undesired attitudes contributed to poor learning experiences during clinical mentorship. Two way learning and participation also affected learning during clinical mentorship. Trust also played a role in the nature of the clinical mentorship relationship and the success thereof.
Theme 2	Workplace dynamics	Lack of mentorship structures and process was the key workplace dynamic that contributed to poor clinical mentorship experiences for both mentors and mentees alike. Suggestions from both mentors and mentees of collaboration and standardised curricula was made in the hope of improving the workplace dynamics experiences during clinical mentorship. Cultural influences also played a role in the learning during clinical mentorship, where poor workplace cultural practices or beliefs negatively affected learning for the mentee.
Theme 3	Resources	Resources that impacted on the clinical mentorship relationship was identified as mentor and mentee knowledge as a resource, as well as the use of, or access to, various types of technology. Where the use of technology both positively and negatively influenced clinical mentorship in that it could serve as a great resource, but also be damaging to the professionalism of the mentor and organisation when used at inappropriate times.
Theme 4	The Purpose of mentoring	For the purpose of mentoring, becoming a paramedic professional was equally important for both mentor and mentee as was two way learning and participation during clinical mentorship. Learning in real and difficult situations was also shown to pose challenges for clinical mentoring in pre-hospital emergency medical care. What was also identified as the purpose for mentoring was learning to become part of a community of medical professionals.

Table 4.1 Summary of themes and findings

CHAPTER FIVE

5. CHAT ANALYSIS AND DISCUSSION

5.1. Introduction

With the Cultural Historical Activity Theory (CHAT) perspective in mind, this Chapter will discuss and explore the data analysed in Chapter four, so as to meet the objectives for this research; to gain an understanding of what enables and/or constrains learning in the clinical mentorship activity system in pre-hospital EMC, to explore clinical mentorship and learning in the pre-hospital EMC context, and lastly, to gain an understanding of the role and scope of community members in the clinical mentorship activity system.

In understanding CHAT, and now applying it as an analytical tool to the findings of Chapter four, I was able to better understand clinical mentorship. I am now able to understand the primary unit of analysis (first principle of CHAT) for this research to be the clinical mentorship programme as the activity system, and include community members such as the mentors, shift managers, other EMS personnel, the mentee and the academic staff at the Universities of Technology. The first principle of CHAT also involved identification of the elements of the activity system and is described in section 5.2 of this Chapter, the CHAT analysis. Findings where mentor and mentee experiences or opinions differed (primary-level contradictions) display the multi-voicedness of this activity system (second principle). The reduction and understanding of the data in Chapter four made possible further discussion by means of identifying and gaining understanding of the historicity and cultural roots of the primary and secondary-level contradictions identified in the clinical mentorship activity system (third principle).

With CHAT, identifying primary and secondary-level contradictions enables ‘knotworking’ of these contradictions by gaining an understanding of these contradictions as historically and culturally embedded, and allows us to uncover and understand the root cause of these contradictions for improvement (Engeström *et al.*, 1996; Engeström, 2001; Engeström and Sannino, 2015). Gaining understanding of these contradictions through identification of their historical and cultural roots was inopportune during this research as the information was not available during primary or secondary data gathering of this study.

This lack of information was probably due to the less appropriate data collection tools and methods used as well as the manner in which information was sought from participants as these were less ideal for gaining insight into the historical and cultural roots of an activity system as the more appropriate method would be through change laboratories (Engeström and Sannino, 2015). Secondary research conducted identifying historical and cultural roots of the clinical mentorship activity system was not available and research involving change laboratories for EMS mentorship was not available at the time of completing this research. Thus, historical and cultural roots or reasons for many contradictions identified in this Chapter could not be further discussed in this study.

5.2. CHAT analysis

With the analysis of themes using CHAT as a framework (Figure 5.1), as described in Chapter three, and with the understanding of the various elements of an activity system, I was firstly able to identify what kind of information gathered would fit with which element. I was then able to identify which data sets from themes and subthemes in Chapter four fit which element of the clinical mentorship activity system. What follows from this is the CHAT guided identification and discussion of tensions and contradictions within (primary-level contradiction) and between (secondary-level contradiction) the elements of the clinical mentorship activity system.

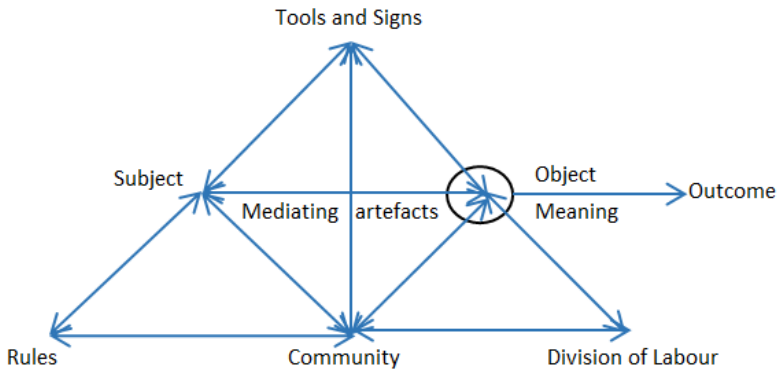


Figure 5.1 CHAT activity system adapted from (Engeström, 2001, p. 135)

5.2.1. The subject and the community of the clinical mentorship activity system

For this activity system the subjects are defined as both mentees and mentors, as they use tools/resources or mediated activity during clinical mentorship for learning. However, it is understood that mentors mainly act as community members (a key member) and resources (mediating artefacts) available during clinical mentorship. Thus, the subject for this activity system mainly refers to the mentee. However, in cases where the mentor is also involved in holistic development or growth of themselves, the subject of this activity system may refer to them as well. This ties in with the DoL element of this activity system comprising of shared tasks and activities and often included information from participants indicating two way learning and their roles and responsibilities as means of describing the shared tasks or activities.

The community for this activity system included any persons involved in or invested in the purpose of mentoring. These persons usually interact with the subject whilst they are working on the object, but also include the subject as part of this community. For the clinical mentorship activity system, it is understood that the community ranges from the mentee and mentor to the academic personnel from the HEI and the EMS personnel from both the pre-hospital and hospital sectors. Thinking of the community as one which involves co-participation, Billet (2002) proposes it as a basis for pedagogy of community founded on activity engagement and interactions that is created in communities like workplaces. He emphasizes the importance of the extent to which those workplaces allow the individual to participate (DoL) and be guided (TR), and therefore Billet (2002) proposes co-participation as the basis for interdependence between situations and students (Billet, 2002). This proposal is extremely important when one considers all who are involved in the students' learning.

5.2.2. The object of activity for the clinical mentorship activity system

For participants in this research the object of activity of mentoring included working on tasks that enabled becoming a professional paramedic, enabled learning in real and difficult situations, and that enabled becoming a part of a community of medical professionals. The object of activity referred to related to the purpose of mentorship as expressed by both mentors and mentees, and included information on why or for what reason they partake in clinical mentorship or their reasons why they think clinical mentorship is important, for example:

"They need to see what's happening out there. They need somebody that can guide them, can show them, can practically teach them everything and then also when that student leaves he must be able to leave with some kind of, how can I say, not background but with some little experience."

Also:

"You learn a lot of things that, like that aren't discussed in class… and you learn from your mentor."

Becoming a part of a community of professionals was also identified as an important purpose for clinical mentorship, for example:

"…what I think is good for mentorship is the students start getting into the circle of EMS. So people start knowing you on the road and partnerships or networking …that is important for your patient care at the end of the day. So I think they're more visible and part of the network already once they finish because the biggest challenge is when you're young and you're qualified to work with older people who are not qualified."

Although participants appeared to have a clear understanding or idea of the same objects of activity for this activity system, contradictions between elements identify how working on any one of the objects of activity may be constrained. These contradictions will be identified through analysis of the remaining elements of this activity system.

5.2.3. <u>The division of labour (DoL) of the activity system:</u>

This involves how the work is divided between members of the community and the subject whilst working on the object of activity. In essence, it is understood that this element includes information on how mentee and mentor work together on a task or in activity (object) to achieve a shared desired goal (outcome). An analysis of the data in Chapter four, revealed one of the primary roles and responsibilities of mentors as teachers or leaders that guides or enhances mentee learning during clinical mentorship, and also revealed challenges where mentors expressed their dislike of students.

Contrasted to this, mentors were also not accountable for their roles and responsibilities creating learning difficulties, for example:

"*The paramedic we were assigned to wasn't feeling well. He was also on leave the following day and therefore did not want to work. Halfway through the day the paramedic went to the doctor got a sick note and left, leaving us at the base with no one else to work with, so we left half way through the day. Not once during the morning did he offer help or advice. Early the morning he informed us he was sick and in a foul mood so we couldn't expect anything from him. He also started with how screwed up the base were and so on, making us extremely uncomfortable."*

Another relationship dynamic both mentors and mentees thought important to acknowledge was the need for mentors and mentees to understanding their responsibility for two way learning for example:

"The crew loved their work, had frustrations in the workplace, but overall had a positive view. They were eager to share their knowledge. It was a quiet day, with not much serious calls, it would have been nicer and better experience if we had more calls. The practitioner is a BEMC student as well, thus was worried a lot about her own studies, thus we discussed rescue a lot. - I did not mind this, but would have preferred to discuss possible case studies and treatments."

5.2.3.1. Primary-level contradictions

Mentees expectations and experiences of mentors' roles and responsibilities to teach and guide were good, however not all mentees had good experiences and this was understood to be conflicted with the mentors' acceptance of such roles. This uncovers a primary-level contradiction where mentees expectations were not met or their experiences with mentor roles and responsibilities were poor, possibly constraining the ability to work on the object of activity. Though attitude can be viewed as a hidden rule in clinical mentorship, data sections that explicate DoL indicate that attitude for this activity system by enlarge determined who does what during clinical mentorship whilst working on an object of activity. More specifically, poor attitudes of mentors' placed tension on mentors' teaching and leadership roles and responsibilities so much so that it constrains working on the object of activity.

5.2.3.2. Secondary-level contradictions

Working on the object of activity is also constrained by contradictions between the DoL, the Rules and TR of the activity system, where the lack of procedures and randomized nature of assigning mentees to mentors (Rules) possibly results in being paired with inappropriate or unprepared mentors who cannot completely fulfil their role and responsibilities, such as teaching or leadership (DoL), as required during clinical mentorship. The desired DoL is in conflict with the lack of knowledge content of mentors and mentees and equipment (TR) of this clinical mentorship activity system adding to the difficulty in working on the object of activity. Furthermore, the mentees value of two way learning as responsibilities of both mentee and mentor seemed to be echoed by mentors. However, mentors involved in learning that was not relevant to the mentees progression, was in contradiction with the desired two way learning which possibly constrains working on the object of activity.

5.2.4. <u>The rules of the clinical mentorship activity system</u>

The rules of this activity system include both hidden and overt rules established between the mentor and mentee, the Academic institution and mentee, the Academic institution and the workplace, the workplace and the mentor, the workplace and the mentee as well as the Academic institution and the mentor. Hidden rules in the workplace for this activity system included workplace cultural influences and historical practices such as development of trust between colleagues and between mentor and mentee, as well as formal and informal historical methods and processes used in clinical mentorship. Overt rules for this activity system included curriculum from the academic institution and/or the procedures for mentorship in provincial government ambulance services. Other procedures for clinical mentorship identified as rules that impact on the clinical mentorship relationship include operational procedures and practices from the dispatching centre, receiving hospitals (i.e. Ministry of Health) and possibly ethical rules and regulations stipulated by the PBEC and the HPCSA. Where there was a lack of clear curricula and mentorship procedures in this clinical mentorship activity system suggestion of improvement was made by participants, for example:

"So let's get this on paper and then so that everyone knows what is it about. Why we're writing it down to just avoid all these hassles to make it work for everyone. Because we're supposed to work together even though we're different entities like university, private and public sector. It could be because one thing I've learned in this industry is there's too many breakage in communication and everyone takes it for granted because it doesn't affect him or it's not his responsibility to fix it. So all the procedures must be at the college somewhere where the students can see it and at the sectors where all the practitioners can know. "

And:

"…when I go to work that morning I am not going to work as a mentor until the officer comes to me and then says you've got a student working with you. That is the only time then that I know that I am going to be a mentor. So, ja that's what I feel and like it's only up until that point that I know. So the other thing is whether the managers know about the policy or things, I'm not sure. Or the link between the universities, colleges and you know. …and also the other thing is the university, colleges also need to understand the staff compliment of an organisation. Like, for example there could maybe a private service that might have that qualification that a university would want their student to work with. …for example, like if a university wants their fourth year students to work with a B.Tech[9] *but they're sending them to an organisation where they might not have B.Techs. So where they could have sent that student to maybe another organisation which could have been beneficial for that student. So, I think, it's the powers above the mentor that needs to have their house sorted out first and then after that filter it down to the mentors."*

Poor workplace cultural influences and a lack of trust in the relationship as hidden rules in this activity system was identified to impact negatively on participation and learning during clinical mentorship, this too was identified as constraints to learning in Chapter four.

[9] Baccalaureus Technologiae in Emergency Medical Care, registered as an Emergency Care Practitioner (ECP) with HPCSA and sometimes referred to as ALS

5.2.4.1. Primary-level contradictions

The primary-level contradiction identified to mostly impact on the rules element involves a lack of communication as a hidden rule in contradiction with implementation of the clinical mentorship processes (overt rule) in the clinical mentorship activity system. This makes difficult the ability of the mentor to adhere to clinical mentorship processes and possibly affecting the desired outcome of clinical mentorship.

5.2.4.2. Secondary-level contradictions

Where rules are understood to mediate learning, the lack of standardised and overt Rules (as identified in Chapter four) could constrain the DoL by negatively influencing defining of the roles and responsibilities of mentors and mentees as mentees have less time to develop their clinical mentorship relationship. A lack of trust as a hidden rule, as well as poor workplace cultural practices (Rules element) of this clinical mentorship activity system, is in contradiction to how work is divided or completed (DoL element) which constrains working on the object of activity making achievement of a desired outcome of clinical mentorship difficult.

The randomized, unstructured nature and sometimes poorly informed mentorship procedures of the clinical mentorship process from academic institutions involving the pre-hospital EMS, specifically when scheduling and assigning mentees to mentors often involved mentees scheduled to work with or assigned to inappropriately qualified or unprepared mentors creating difficulty or tension between the desired DoL and the Rules of this activity system. This is possibly owing to the assigned mentors not necessarily having proper communication and/or the appropriate pedagogical or content knowledge required for clinical mentorship making learning difficult. More so, the DoL between the academic institution and the workplace in working on the object of activity is constrained by poor communication and mentorship processes. With a CHAT perspective, I understand that this could be rooted in the historical practices of clinical training where mentorship occurred within provincial training structures and seemingly resembled supervision and instruction rather than mentorship, and with the formalization of EMS related qualifications, procedures for mentorship may have changed little with time (Dalbock, 1996; de Waal, 2012; Stein, Wang and Louw, 2012; Moodley, 2016).

The Rules of an activity system may serve to create conditions of trust where, as identified and discussed in Chapter four, the level of trust a mentor has for the mentee may influence the way in which he/she would delegate tasks (DoL). Thus, a lack of trust may negatively influence working on the object of activity in the clinical mentorship activity system. For a socio-realist, trust in many relationships can be viewed as a cultural norm, or a fundamental concept, a reality, without which a relationship cannot flourish (Buckley and Farrell, 2007). This suggests that it may become a rule on which a relationship is based, or a rule that determines the purpose and longevity of that relationship. According to Buckley and Farrell (2007) trust in professional relationships are mostly fuelled by the worth of rewards poised by the fear of costs violation (Buckley and Farrell, 2007). While Pauls (2013) is of the opinion that trust in professional relationships can be viewed as a persons' ability to perform a role as well as his/her attitudes and perceptions to his/her workplace, implying a secondary-level contradiction between the DoL, Rules of activity system and the desired TR (Pauls, 2013). For better chances of achieving the desired outcome in the clinical mentorship activity system the importance of building trust is vital for interactions that foster healthy learning environments and enable working on the object in the activity system.

5.2.5. The tools and resources for the clinical mentorship activity system

In this clinical mentorship activity system, tools/resources included any clinical or non-clinical technology used during clinical mentorship. For this activity system, the tools/resources is understood to be materialistic, such as the actual equipment or technology, as well as non-materialistic such as pedagogical or content knowledge shared by a community member of the activity system (mediating artefacts). It also included clinical and diagnostic equipment, radio communication devices, internet accessibility, academic text books, protocol books and electronic resources accessible via mobile smart devices. Some of these resources such as clinical or diagnostic equipment are provided by the EMS and other resources like protocol books, electronic resources and technology (for example, mobile smart devices) are brought to shifts by the mentees or mentors. Mentors and mentees knowledge as resources was also understood as resources that play a crucial role in the clinical mentorship activity system and working on the object of activity. The appropriate level or lack of pedagogical and content knowledge was identified in Chapter four, as factors that contributed to poor (where knowledge was lacking) and good experiences (where knowledge was appropriate) for learning during clinical mentorship.

Lastly, the availability and accessibility of technology or equipment type resources identified in Chapter four, also influenced learning during clinical mentorship, for example:

"I have worked with crews (BTech) that has a lot more insight and is a lot more concerned about the patient. Those crews give more appropriate answers and treat according to diagnosis. At times the crew was distracted with personal issues. A lot of equipment didn't work or wasn't enough."

5.2.5.1. Primary-level contradictions

The most prominent primary-level contradiction involved both mentor and mentee acquiring or having the appropriate level of content knowledge is in contradiction with one another as a lack on either the mentee or mentors part makes difficult achieving the desired outcome of clinical mentorship as this places challenges with learning or teaching during clinical mentorship.

5.2.5.2. Secondary-level contradictions

The lack of access to and use/non-use of equipment and technology (TR) places tension on the DoL, making working on the object of activity difficult. For mentors and mentees as resources, the level of existing and developing content knowledge for both mentors and mentees was identified in Chapter four as a factor that positively and negatively contributed to learning during clinical mentorship. Mentors who had the appropriate knowledge content or was developing their knowledge were viewed as 'better' mentors by mentees as they experienced better guidance whilst working on the object of activity, where guidance was a crucial factor in mentorship (Ralph, 2000; Jackson *et al.*, 2003; Hudson, 2016; Mcwhirr and Gordon, 2014).

Various resources that were able to access the internet and store electronic content were identified in this Chapter and Chapter four, as quite versatile and handy to have, as they aided their treatment of a patient, as well as their academic discussions that followed treatment. Having these types of devices could be beneficial to both mentors and mentees alike as it could serve as tools (mediating artefacts) that could enable their ability to work on the object. A relevant concern raised was that these devices, although useful may portray mentees and mentors as unprofessional health practitioners.

From the subtheme, technology in Chapter four, it was understood that these devices may enable learning, whilst it may also tarnish the health practitioners' rapport with the patient and family members when devices are assumed to be used for personal reasons. This uncovers tension between the element TR and the Rules (governing the use of technologies) of this activity system, a secondary-level contradiction. Perplexed with this, it was understood that mentors were given mentees and was expected to guide them in achieving an outcome by working on an object of activity, but if the mentors are limited with resources available to them (TR element), or lacked involvement or communication with clinical mentorship processes (Rules element), helping the mentees achieve the desired outcome of clinical mentorship would become more difficult (Nikolou-Walker and Curley, 2012; Greene, 2014).

5.3. Chapter summary

With reference to Figure 5.2, the primary level contradictions identified in this Chapter for the DoL element of this activity system was a lack of accountability or acceptance of roles and responsibilities (DoL) which constrained who does what in the DoL and ultimately working on the object. As indicated in Figure 5.2, poor or negative attitudes (DoL) toward work, teaching and learning constrained acceptance or accountability of their roles and responsibilities, as well as made difficult who was assigned what task (DoL), and thus, also poorly impacted on the ability to work on the object of activity to achieve a desired outcome. For the Rules element (Figure 5.2), a lack of communication (rules) constrained implementation of mentorship processes (rules) and thus decreased working on the object of activity to achieve a desired outcome. Within the TR element of this activity system, a lack of content and pedagogical knowledge (as resources) of mentors constrained learning opportunities (resources) for mentees just as a lack of foundational knowledge in mentees (resources) constrained the use of technology, equipment, the mentor as resources and learning opportunities afforded to them.

With further reference to Figure 5.2, depicting the contradictions identified, the secondary level contradictions discovered through the CHAT analysis indicated that the DoL (who does what), was conflicted and constrained by a lack of and/or non-standardised mentorship processes (rules) thereby constraining working on the object of activity.

In conflict with the DoL (who works on what), were the use, non-use and/or lack of content and pedagogical knowledge of mentors, foundational knowledge of mentees, smart devices, and equipment, (TR) thereby reducing the ability to work on the object of activity to achieve a desired outcome. A lack of trust (hidden rule) and poor workplace cultural practices (hidden rule) was also found to be conflicted with DoL (who does what), and working on the object of activity. Likewise a lack of and/or poor communication and mentorship processes (rules) between HEIs and workplaces constrained the DoL (who was responsible for doing what), between the mentor and mentee which ultimately constrained working on the object of activity. Last, but equally important, the mentorship processes (rules) was found to have influenced resources available or used (TR) by mentor and mentee, thus, a lack of and/or poor mentorship processes negatively impacted on resources available and thus constrained the DoL (who did what), and working on the object of activity to achieve a desired outcome.

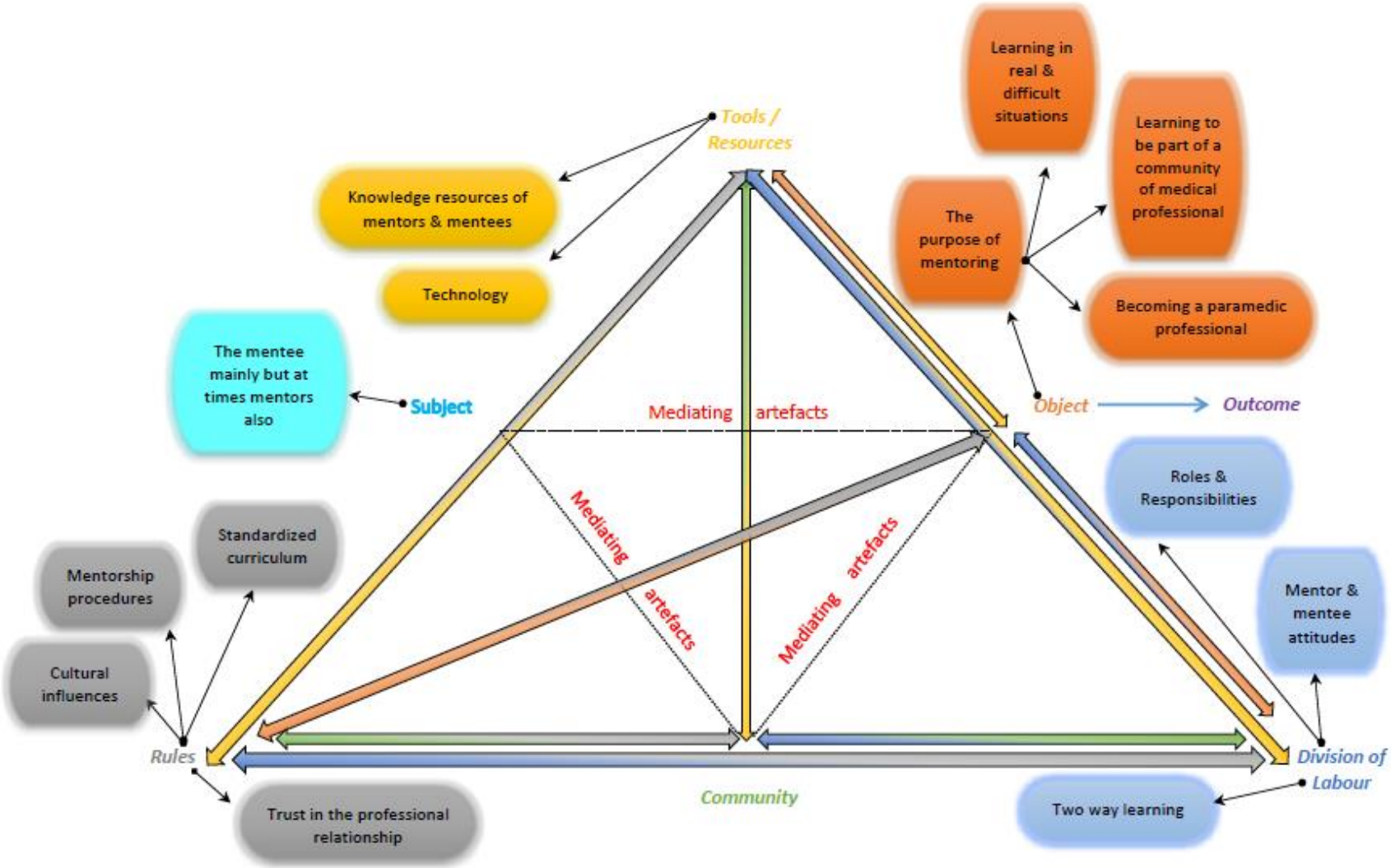


Figure 5.2 Illustrative summary of contradictions

CHAPTER SIX

6. CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

This research aimed to present an analysis of clinical mentorship relationships in pre-hospital EMC. To do this the three objectives needed to have been met: to gain understanding of what enables and/or constrains learning in the clinical mentorship activity system in pre-hospital EMC, to explore clinical mentorship and learning in the pre-hospital EMC context, and to gain understanding of the role and scope of community members in the clinical mentorship activity system. This was achieved through a two part analysis of data collected from mentee diaries and focus group interviews with mentors and mentees.

Chapter four involved a thematic analysis to reduce and analyse data. The interpretation of the data analysed in Chapter four revealed many challenges to learning. The theme, Clinical mentorship relationship dynamics, uncovered the need for the identification of roles such as teaching and learning, and the detrimental effect of poor attitudes toward teaching and learning had on learning experiences. The theme also uncovered the negative impact a lack of trust in the professional relationship had on the clinical mentorship relationship and learning. The theme, workplace dynamics, found that mentorship structures need improvement and should include autonomous learning, and require appropriate content and pedagogical knowledge of mentors to better enable learning. There were suggestions for standardised curriculum for better mentorship enabled by mentors understanding the mentee requirements. The theme, resources, found that teaching skills (pedagogical knowledge), knowledge (content), and qualification of mentors mattered when mentoring students. This theme also found that mentees knowledge acted as resources during the clinical mentorship relationship. Technology was found to be resourceful, but placed both mentor and mentee at unprofessional and unethical medical practice risk. The last theme, the purpose of mentoring, found that mentors and mentees understood mentorship to aid in learning to become a paramedic professional in real and difficult situations. Learning workplace culture and practices, as well as the ‘secret’ ins and outs of the workplace, whilst learning to become a part of that community of medical professionals were all purposes of mentorship that emerged.

The inductive thematic analysis was, however, limited, as these challenges to learning only highlighted the enablments and constraints to learning, but did not uncover the root cause of the constraints to learning. Thus, further analysis using CHAT as an analytical framework (Chapter five) was required, where data was interpreted with a socio-realist approach. Through this analysis, the clinical mentorship relationship and its community was identified as an activity system that is both culturally and historically situated. This two part data analysis and discussion (Chapter four and five) therefore brought to light challenges or constraints to learning (Chapter four) as well as primary and secondary-level contradictions (Chapter five).

From discussions in Chapter one and two, I am reminded of the historical origin of mentorship and the importance thereof in developing and growing individuals to provide quality clinical emergency care. Added to this is the requirement to develop individuals adept at research and clinical diagnostic abilities. With this research uncovering similar poor clinical mentorship structures and poor attitudes as one has experienced more than ten years ago as a student implies that this clinical mentorship activity system has undergone little change, with possible historical practices and cultures present in today's clinical mentorship. Other researchers, such as de Waal (2012), also exposed difficulties during work placement of paramedic students, however, did not analyse these difficulties systematically, and thus could not uncover why these difficulties existed. In this research, using CHAT to evaluate the clinical mentorship activity system holistically, learning and development in general was found to be constrained for both mentor and mentee. Learning for the mentee was challenged in many ways, and contradictions discussed in Chapter five aided in identifying how learning was constrained. Understanding or uncovering the historical and cultural roots and possible reasons for these contradictions was described as difficult, and in most instances, impossible due to a lack of related information in the data of this research, as well as a lack of relevant information in literature specific to EMS mentorship. Hence, further exploration by means of CHAT of the clinical mentorship activity system may be required to enable identification of ways to improve the system.

For this research the main primary-level contradictions that poorly contributed to working on the object of activity and a desired outcome included a lack of accountability or acceptance of roles and responsibilities (DoL) which was conflicted with who does what (DoL).

Poor attitudes toward work, teaching and learning (DoL) on both mentor and mentee parts also negatively impacted on the DoL (tasks worked on), whilst working on the object of activity. Adding to the tension within the clinical mentorship activity system, which challenged learning, was a lack of communication (Rules), as it constrained implementation of standardised mentorship processes (Rules). Within the TR element, a lack of appropriate content knowledge of mentors challenged their ability to teach (pedagogical knowledge), likewise a lack of foundational knowledge of mentees (all within TR) decreased the ability to work on the object of activity.

The noteworthy secondary-level contradictions found to significantly impact learning during clinical mentorship involved the 'who does what' (DoL) in the relationship as being conflicted and constrained by a lack of and/or non-standardised mentorship processes (Rules). Similarly, how tasks were divided or assigned (DoL) was conflicted and constrained by the lack of TR (knowledge, equipment, technology etc.). Also, a lack of trust established between mentor and mentee (hidden rule) as well as poor workplace cultural practices (hidden rule) was conflicted with and constrained with 'who does what' whilst working on a task (DoL). The lack of communication coupled with poor mentorship processes (Rules) between the HEIs and the workplace found in Chapter five also placed constraints on the DoL (roles and responsibilities) between HEIs and workplaces as well as between the mentor and mentee when working on the object of activity. Poor mentorship processes (Rules), such as assigning mentees to mentors at the start of the shift, and not well in advance, also impacted negatively on the TR (such as books, equipment, prepared mentors as teachers and guides) that were available to the mentee and mentor, as rules often determined what was available or appropriate to use, which then constrained how a task is completed and 'who does what' (DoL) with mentors and mentees whilst working on the object of activity.

6.2. Recommendations

With the primary level and secondary level contradictions identified in the clinical mentorship activity system, one cannot ignore the influence of rules such as curriculum, mentorship processes as well as hidden rules (for example, workplace cultures) has on affording students with opportunities to learn. Where it is understood that the curriculum should aid in bridging the theory-practical gap and that systems or processes could be challenged, developed and even improved with what is really happening in practice, or actual social constructs (much like clinical mentorship) of learning (Dewey, 1904; Billet, 2002; Gamble, 2009; Michau *et al.*, 2009). This too, would aid in development of reflexive and applied competence (Gamble, 2009). Students could, for example, do much more problem-based work in which they are specifically expected to challenge what they have learnt and to apply and change it according to these real problems. For holistic development of mentees and development of professional identities within a COP, they should be guided by a more 'experienced or significant other' during practice (Lave and Wenger, 1991; Valadez and Lund, 1993; Wawrzynski, 2004; Levine *et al.*, 2008; Mcwhirr and Gordon, 2014). The aforementioned implies that the way in which tasks are worked on (DoL) and the degree of participation of mentor and mentee could determine the levels of success achieved in the clinical mentorship relationship, which would require some levels of trust (Jackson *et al.*, 2003; Buckley and Farrell, 2007; Matthew, Taylor and Ellis, 2012; Hudson, 2016; Mcwhirr and Gordon, 2014).

What could improve mutual trust, is for mentors to actually work with students in the university laboratories, so as to get an understanding of what the students are capable of doing; mentors could observe students performing complex procedures competently. Stronger mutual participation could, in addition, be improved by much more engagement between students, academics and mentors, perhaps through shared on-line sites where problems can be discussed. This would serve to improve two way communications. Lastly, a manual on teaching/mentoring, and perhaps a short course, should be developed for mentors. This could be part of mentors' CPD point's accumulation, as well as helping to improve mentees experiences.

Pertinent to these contradictions is that they will remain as challenges within the clinical mentorship activity system with very little change over time unless otherwise worked on (Engeström *et al.*, 1996; Engeström, 2005; Engeström and Sannino, 2015). It is thus recommended that a future approach to analysing clinical mentorship relationships should draw on the work of Yrjö Engeström. In his work, Engeström used the basic unit of analysis (an activity system) to develop his concept of expansive learning specific to investigating learning in the work place while incorporating the implementation of interventions based on the constraints identified, which he called 'change laboratories' (Engeström, 2005). The process of a change laboratory involves extensive work with the community members in that activity system, where after contradictions are identified by the members, they are investigated and explored in group sessions, involving the community members, for the cultural and historical origins. From this, the participants in the change laboratory would develop new practices or processes, and would implement change in their organisation (Engeström *et al.*, 1996). This change would then be later explored for further contradictions, and the process would begin again. During this process Engeström believed that the form of learning that had occurred was expansive as participants were able to work on and solve problems (Engeström *et al.*, 1996).''

Using a CHAT perspective to investigate, analyse and uncover enablement's and constraints of learning through clinical mentorship relationships was prolific and helpful in meeting the aim and objectives of this research. Thus, one would recommend that mentors, mentees, the HEI and the EMS organisation work together and participate in a CHAT Change Laboratory using the tensions identified in this research and aim at structuring or improving the clinical mentorship programme specific to the object/s of activity identified and outcomes needed to be achieved through the clinical mentorship activity system (Engeström *et al.*, 1996). This would open the opportunity for expansive transformation for all stakeholders involved (Engeström *et al.*, 1996; Engeström, 2001; Engeström and Sannino, 2015). Engeström (1987) explains that expansive transformation *"…is accomplished when the object and motive of the activity are reconceptualised to embrace a radically wider horizon of possibilities than in the previous mode of the activity. A full cycle of expansive transformation may be understood as a collective journey through the zone of proximal development of the activity"* (Engeström, 1987, p. 174).

With dissemination of this research findings, local and international stakeholders such as Universities of Technology where EMC programmes are offered, the HPCSAs PBEC and local and international organisations that host and mentor EMC mentees, could use the findings of this research to inform policy, curriculum and regulations that are responsible for implementing, coordinating and evaluating clinical mentorship. This study further recommends development of procedures and measures that promote closer collaboration between the University of Technology, the mentor and the organisation to increase chances of successful clinical mentorship relationships and the desired object of activity for clinical mentorship activity systems.

REFERENCES

Barnett, R. (2004). 'Learning for an unknown future', *Higher Education Research & Development*, 23(3), pp. 247–260. doi: 10.1080/0729436042000235382.

Billet, S. (2002). 'Workplaces, communities and pedagogy, An activity theory view.', in *Distributed Learning; Social and cultural approaches to practice*. The Open University, London and New York. Routledge-Falmer, Taylor & Francis Group, pp. 83–97.

Billet, S. (2009). 'Realising the educational worth of integrating work experiences in higher education', *Studies in Higher Education*, 34(7), pp. 827–843. doi: 10.1080/03075070802706561.

Binks, F. (2011). *Retention Strategy of Paramedics in South Africa*, *MBA Thesis, Unpublished, UNISA*. University of South Africa.

Blåka, G. and Filstad, C. (2007). 'How does a newcomer construct identity? A socio-cultural approach to workplace learning', *International Journal of Lifelong Education*, 26(1), pp. 59–73. doi: 10.1080/02601370601151406.

Braun, V. and Clarke, V. (2006). 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, 3(2), pp. 77–101. doi: 10.1191/1478088706qp063oa.

Brink, H. (2006). *Fundamentals of Research Methodology For Health Care Professionals.* Second Edi.

Buckley, F. and Farrell, C. (2007). 'The Role of Trust in the Mentoring Experience of Trainee Lawyers and its Influence on Intention to Stay in Irish Law Practices', *Learining Innovation and Knowledge (LINK) Research Centre Working Paper Series*, WP 01-07, pp. 1–14.

Burns, N. and Grove, S. (2005). 'The Practice of Nursing Research: Conduct, Critique and Utilization.', *Elsevier Saunders*. St Louis mo.: Elsevier Saunders, St Louis mo.

Cassidy, C., Goodsman, D. and Lyons, S. (2013). 'UK Program Teached Prehospital Care Through Mentorships', *Journal of Emergency Medical Services*, (May 2013).

Clarke, V. and Braun, V. (2013). 'Teaching thematic analysis: Over- coming challenges and developing strategies for effective learning', *The Psychologist*, 26(2), pp. 120–123. Available at: http://eprints.uwe.ac.uk/21155%5Cnhttp://www.thepsychologist.org.uk/archive/archive_home.cfm?volumeID=26&editionID=222&Article.

Clements, R. and Mackenzie, R. (2005). ‘Competence in prehospital care: evolving concepts.’, *Emergency Medicine*, 22, pp. 516–519.

Council on Higher Education (2011). *Work-Integrated Learning : Good Practice Guide*. Pretoria: Council on Higher Education.

Cousin, G. (2009). *Researching Learning in Higher Education. An introduction to contemporary methods and approaches.* New York and London: Routledge.

Cox, R. (2006). *The Evolution of Mentoring in Prehospital Emergency Medical Services: A Case study*. The Pennsylvania State University.

Cramer, R. and Prentice-Dunn, S. (2007). ‘Caring for the while person: Guidelines for advancing undergraduate mentorship’, *College Student Journal*, 41(4), pp. 771–778.

Dalbock, G. (1996). ‘A history of ambulance practitioners and services in SA’, *South African Family Practice*, 17(March), pp. 118–121.

Dewey, J. (1904). ‘Relation of Theory to Practice in Education’, in *Teacher Education in America*, pp. 140–171.

Dewey, J. (1938). *Logic : The Theory of Inquiry*. New York: Holt, Rinehart and Winston, New York.

Dreyfus, H. (1986). *Mind over Machine; the power of human intuition and expertise in the age of the computer.* Oxford, Basil Blackwell.

Dunn, L. (2002). ‘Learning and Teaching Briefing Papers Series’, pp. 2–4.

Edwards, A. (2005). ‘Let’s get beyond community and practice: the many meanings of learning by participating’, *Curriculum Journal*, 16(1), pp. 49–65. doi: 10.1080/0958517042000336809.

Ehrich, L., Hansford, B. and Tennent, L. (2001). ‘Closing The Divide: Theory and Practice In Mentoring.’, *Paper for ANZAM Conference, ‘Closing the Divide’,Auckland, New Seland, 5-7 December 2001.*, (December 2001), pp. 5–7.

Engeström, Y. (1987). ‘Learning by Expanding: an Activity-Theoretical Approach to Developmental Research, Orienta- Kosultit Oy, Helsinki.’ Helsinki.

Engeström, Y., Virkkunen, J., Helle, M., Pihlaja, J., and Poikela, R. (1996). ‘Change laboratory as a tool for transforming work.’, *Lifelong Learning in Europe*, 1(2), pp. 10–17.

Engeström, Y. (2001). ‘Expansive Learning at Work: Toward an activity theoretical reconceptualization’, *Journal of Education and Work*, 14(1), pp. 133–156. doi: 10.1080/13639080020028747.

Engeström, Y. (2004). ‘New Forms of Learning in Co-configurative Work’, (January), pp. 1–10.

Engeström, Y. (2005). ‘From Learning Environments and Implementation To Activity Systems and Expansive Learning.’ Helsinki.: University of Helsinki.

Engeström, Y. and Sannino, A. (2015). ‘Activity Theory, Learning and Change Laboratories’. Cape Town, South Africa: Hosted by University of Cape Town and Cape Peninsula University of Technology.

Etikan, I., Musa, S.A. and Alkassim, R.S. (2016). ‘Comparison of Convenience Sampling and Purposive Sampling’, *American Journal of Theoretical and Applied Statistics*, 5(1), p. 1. doi: 10.11648/j.ajtas.20160501.11.

Felce, A. (2011). ‘Cross-university collaboration for work-place learning: a case study’, *Higher Education, Skills and Work-based Learning*, 1(1), pp. 63–77. doi: 10.1108/20423891111085401.

Fenwick, T. (2001). *Experiential Learning: A Theoretical Critique from Five Perspectives.*

Furco, A. (1996). ‘Service Learning- A Balanced Approach to Experiential Education’, in *Building Connections*.

Gamble, J. (2009). ‘The relation between knowledge and practice in curriculum and assessment’, (October).

Garraway, J. (2011). ‘University and Work: Curriculum Enquiry from an Activity Theory Perspective’, in *University and work: Curriculum enquiry from an activity theory perspective.*

Gazza, E. (2004). ‘Establishing a Supportive Culture through Mentorship.’, *Phi Kappa Phi Forum*, 84(4), pp. 47–48. Available at: http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=15211679&site=bsi-live&scope=site.

Gordon, P. (2000). ‘The road to success with a mentor.’, *Nursing*, 18, pp. 30–3.

Greene, M. (2014). ‘On the Inside Looking In: Methodological Insights and Challenges in Conducting Qualitative Insider Research.’, *Qualitative Report*, 19(29), p. 1. Available at:

http://ezproxy.leedsbeckett.ac.uk/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=edb&AN=97272692&site=eds-live&scope=site.

Gruppen, L., Mangrulkar, R. and Kolars, J. (2012). 'The promise of competency-based education in the health professions for improving global health.', *Human Resources for Health; Biomed Central Ltd.*, 10(43), pp. 1–7.

Hale, E. (no date). 'Stages of a Mentorship Relationship', *Baylor University's Community Mentoring for Adolescent Development*. Baylor University, pp. 56–78.

Hardman, J. (2005). 'Activity theory as a potential framework for technology research in an unequal terrain', *Sajhe*, 19(2), pp. 378–392. doi: 10.1017/CBO9781107415324.004.

Harold, J. (2013). 'President's page: the future of cardiology starts with mentors.', *Journal of the American College of Cardiology*. Elsevier Inc., 61(13), pp. 1459–60. doi: 10.1016/j.jacc.2013.02.008.

HPCSA (2006). *Emergency Medical Care Protocol*. HPCSA.

Hudson, P. (2016). 'Forming the Mentor-Mentee Relationship', *Journal of Mentoring and Tutoring*: Partnership in Learning. 24 (1) pp. 30-43

Igira, F. and Gregory, J. (2012). 'Cultural historical activity theory', *… of Research on Contemporary Theoretical Models …*, pp. 360–366. doi: 10.4018/978-1-60566-659-4.ch025.

Jacelon, C. and Imperio, K. (2005). 'Qualitative Health Research.', *Sage Publications*, 15(7), pp. 991–997.

Jackson, V.A., Palepu, A., Szalacha, L., Caswell, C., Carr, P.L., and Inui, T. (2003). '"Having the right chemistry": a qualitative study of mentoring in academic medicine.', *Academic medicine : journal of the Association of American Medical Colleges*, 78(3), pp. 328–34. Available at: http://www.ncbi.nlm.nih.gov/pubmed/12634219.

Jacobsen, D. A., Eggen, P. and Kauchak, D. (2009). *Methods for Teaching: Promoting Student Learning in K-12 Classroom*.

Kilminster, S. and Jolly, B. (2000). 'Effective supervision in clinical practice settings: a literature review.', *Medical education*, 34(10), pp. 827–40. Available at: http://www.ncbi.nlm.nih.gov/pubmed/11012933.

Kivunja, C. and Kuyini, A.B. (2017). 'Understanding and Applying Research Paradigms in Educational Contexts', *International Journal of Higher Education*, 6(5), pp. 26–41. doi: 10.5430/ijhe.v6n5p26.

Kolb, A. and Kolb, D. (2005). 'The Kolb Learning Style Inventory — Version 3 . 1 2005 Technical Specifi cations', pp. 1–72.

Kolb, D.A. (1984). *Experiential learning: Experience as the source of learning and development.* New Jersey.

Komaratat, S. and Oumtanee, A. (2009). 'Using a mentorship model to prepare newly graduated nurses for competency.', *Journal of continuing education in nursing*, 40(10), pp. 475–480. doi: 10.3928/00220124-20090923-02.

Kreuger, K., Russel, M. and Bischoff, J. (2011). 'A Health Policy Course Based on Fink's Taxonomy of Significant Learning', *American Journal of Phafrmaceutical Education*.

Lave, J. (1991). 'Situating Learning in Communities of Practice', in *Situating Learning*, pp. 63–82.

Lave, J. and Wenger, E. (1991). 'Legitimate Peripheral Participation', in *Situated Learning*, pp. 25–43.

Lazarus, J. (2013). 'All Together, Pull', *March, Vol 37;3*, March, p. 3.

Levine, L.E., Fallahi, C.R,. Nicoll-senft, J.M,. Tessier, J.T., Watson, C.L., and Wood, R.M. (2008). 'Creating Significant Learning Experiences Across Disciplines', *College Teaching*, 56(4), pp. 247–254.

Le Maistre, C. and Paré, A. (2004). 'Learning in two communities: the challenge for universities and workplaces', *Journal of Workplace Learning*, 16(1/2), pp. 44–52. doi: 10.1108/13665620410521503.

Malat, K. (2014). 'The Power of One : Understanding Key Variables in Transformational Mentoring Relationships'. East Eisenhower Parkway: Proquest LLC.

Matthew, S., Taylor, R. and Ellis, R. (2012). 'Relationships between students' experiences of learning in an undergraduate internship programme and new graduates' experiences of professional practice', *Higher Education*, 64(4), pp. 529–542. doi: 10.1007/s10734-012-9509-4.

Maxwell, J.A. (2012). ‘The Importance of Qualitative Research for Causal Explanation in Education’, *Qualitative Inquiry*, 18(8), pp. 655–661. doi: 10.1177/1077800412452856.

McMilllan, J. (2005). ‘Through an Activity Theory Lens : Conceptualizing service learning as “ boundary work ”’, *Gateways: International Journal of Community research and engagement*, 2, pp. 39–60.

Mcwhirr, S. and Gordon, R. (2014). ‘A Holistic View of Formal Mentoring Relationships : Can Activity Theory Bridge the Gap ?’, in, pp. 1–2.

Michau, R., Roberts, S., Williams, B., Boyle, M (2009). ‘An investigation of theory-practice gap in undergraduate paramedic education.’, *BMC medical education*, 9, p. 23. doi: 10.1186/1472-6920-9-23.

Mitchell, T. (1998). ‘Mentorship as leadership’, *ProQuest Education Journals*, 30(1), p. 48.

Moodley, K. (2016). *An investigation into the clinical practicum experience of ALS paramedic students and their preparedness for professional practice.*, *February*. Durban University of Technology.

Mwanza, D. and Engeström, Y. (2003). ‘Pedagogical Adeptness in the Design of E-learning Environments : Experiences from the Lab @ Future Project’.

Neary, M. (2011). ‘Defining the role of assessors , mentors and supervisors : part 1 De fi ning the role of assessors , mentors and supervisors : part 1’, pp. 1–9.

Nicholl, H. (2010). ‘Diaries as a method of data collection in research.’, *Paediatric Nursing*, 22(7), p. 16–20.

Nikolou-Walker, E. and Curley, H. (2012). ‘An examination, evaluation and analysis of work-based learning leadership within a higher education setting’, *Higher Education, Skills and Work-based Learning*, 2(2), pp. 186–200. doi: 10.1108/20423891211224810.

Pauls, N. (2013). ‘WiMSA: Addressing the professional needs of women working in the mining industry’, *Women in MIning South Africa*, 4(1).

Quay, J. (2003). ‘Experience and Participation: Relating Theories of Learning’, *Journal of Experiential Education*, 26(2), pp. 105–112. doi: 10.1177/105382590302600208.

Ralph, E. (2000). ‘Enhancing mentorship in the practicum: Improving contextual supervision’, *Revue des Sciences de L’Education de McGill*, 38(1), pp. 28–49.

Rambe, P. (2012). ‘Activity theory and technology mediated interaction: Cognitive scaffolding using question-based consultation on Facebook’, *Australasian Journal of Educational Technology*, 28(8), pp. 1333–1361. doi: 10.14742/ajet.775.

Russell, D. (2001). ‘Looking beyond the interface: Activity theory and distributed learning, in Distributed Learning.’ Edited by M. Lea and K. Nichol. London: Routledge Falmer, pp. 64–82.

Russell, D. (2010). ‘Writing in Multiple Contexts: Vygotskian CHAT Meets the Phenomenology of Genre’, in *Traditions of Writing Research*. Ed. Charle. New York: Routledge, pp. 353–364.

Schön, D.A. (1987). *Educating the reflective practitioner.* San Francisco.

Schrubbe, K. (2004). ‘Mentorship : A Critical Component for Professional Growth and Academic Success Leadership: When the’, *Journal of Dental Education*, 68(3), pp. 324–328.

Shelley, S. (2003). *Radiography Clinical Supervision Framework*. First Edit. London: The College of Radiographers. doi: 10.1037/e613452007-001.

Simms, M. (2010). ‘Raising the Bar for All Learners: Creating Significant Learning Environments’, *Southwestern Business Administration Journal*, 10(1), pp. 1–16.

South African Department of Health Clinical Mentorship Manual for Integrated Services (2011). *Clinical Mentorship Manual for Integrated Services*. Republic of South Africa.

South African Qualifications Authority. (2016). *South African Qualifications Authority Registered Qualification Bachelor Degree: Emergency Medical Care*. Available at: http://allqs.saqa.org.za/showQualification.php?id=63129 (Accessed: 20 March 2017).

Stein, C., Wang, C. and Louw, N. (2012) .‘Position Statement on The Health Professions Council of South Africa’s Intention to Close the Short Course-Related Professional Registers’, pp. 1–7. Available at: http://www.ecssa.org.za/images/pdf/pos_statements/pos_statement_01-12.pdf.

Stephen, J. and Lewin, S. (2012). ‘Mentoring skills participant manual’.

Styles, M. (1995) ‘Building Relationships with Youth in Program Settings: A study of Big Brother/Big Sisters.’ Philadelphia: Philadelphia: Public/Private Ventures.

Valadez, A. and Lund, C. (1993). 'Mentorship: Maslow and me.', *Journal of continuing education in nursing*, 24(6), pp. 259–263.

de Vos, A. (2011). *Research at grass roots; For the social sciences and human service professions.* Fourth Edi. Van Schaik Publishers.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Cambridge, MA: Harvard University Press.

de Waal, B. (2012). *Paramedic Student Perceptions , Beliefs and Attitudes towards Work-Place Learning*. Stellenbosch University.

Wawrzynski, M. (2004). 'Creating Significant Learning Experiences', *Journal of College Student Development*.

White, T. (2012). 'Employer responsive provision: workforce development through work-based learning', *Higher Education, Skills and Work-based Learning*, 2(1), pp. 6–21. doi: 10.1108/20423891211197703.

Williams, B., Brown, T. and Winship, C. (2012). 'The Mismatch Between Perceived and Preferred Expectations of Undergraduate Paramedic Students', *Journal Of Allied Health*, 10(4), pp. 1–8.

World Health Organization. (2006). *WHO recommendations for clinical mentoring to support scale-up of HIV care, antiretroviral therapy and prevention in resource-constrained settings.* World Health Organisation.

Wyatt, A. (2003). 'Paramedic Practice – Knowledge Invested in Action', *Journal of Emergency Primary Health Care*, 1(3–4).

Appendix A: Diary

Participant: _____ Shift number:_____

(For researcher use only)

DIARY TEMPLATE

SHIFT ONE

Reflect on your previous shift. Write whatever comes to mind with the themes:

'I found this shift to be valuable/invaluable because…'

'What I learned in the last 12 hours was…'

'What made it difficult for me to learn during this 12 hour shift was…' Provide examples	'What I would have liked from the practitioner during the last 12 hours to assist my learning is…' Provide examples

'The other persons in the experiential learning process who helped me with my learning in the last 12 hour shift were…' 'How they help me…'	'I would have liked assistance from….' 'Because…'

'The relationship between me and the practitioner for this 12 hour shift was…'	'How this shift helped or made it difficult for me to understand my emergency medical care theory was…' Provide examples

'This was the ? amount of times I have worked with this practitioner and it...' (write about your experience)	Write anything about the last 12 hour shift and the practitioner that comes to mind. Be free to be as critical and honest as you want.

SHIFT TWO

Reflect on your previous shift. Write whatever comes to mind with the themes:

'I found this shift to be valuable/invaluable because…'

'What I learned in the last 12 hours was…'

'What made it difficult for me to learn during this 12 hour shift was…'
Provide examples

'What I would have liked from the practitioner during the last 12 hours to assist my learning is…' Provide examples

'The other persons in the experiential learning process who helped me with my learning in the last 12 hour shift were…' 'How they help me…'

'I would have liked assistance from….' 'Because…'

'The relationship between me and the practitioner for this 12 hour shift was…'

'How this shift helped or made it difficult for me to understand my emergency medical care theory was…' Provide examples

'This was the ? amount of times I have worked with this practitioner and it...'
(write about your experience)

Write anything about the last 12 hour shift and the practitioner that comes to mind.
Be free to be as critical and honest as you want.

Appendix B: Focus Group Interview Guide

Group: _____

Through having experienced mentorship first as a student in emergency medical care, then as an operational paramedic mentoring students, I had the opportunity to get an insider perspective of clinical mentorship. I was also privy to the experiences of my fellow students' and it was during this period that I observed practices that may not have promoted learning. This is when my interest in clinical mentorship in relation to significant learning began.

The purpose of this study is to qualitatively document the pre-hospital clinical mentorship relationship and its' enablement's and constraints of significant learning in emergency medical care.

1 What do you think your role is in Experiential learning?

- Rank responsibilities as a practitioner/student

2 What has been your experience in Experiential learning, and mentorship as a student/practitioner?

3 What do you think enables learning during experiential learning and mentorship?

- Technologies & resources available vs. used
- Who does what
- Community support
- Rules or policy

4 Do you think pairing students with mentors will enable learning?

5 What constrains learning during in experiential learning

- Technologies & resources available vs. used
- Who does what
- Community support
- Rules or policy

6 What do you suggest be done to improve mentorship relationships?

7 How does experiential learning and mentorship benefit the student and the mentor?

- Do you as a practitioner/student learn anything from a practitioner/student?
    - What types of things have you learnt?

Appendix C: Participant consent form

CONSENT FORM

TITLE OF STUDY: A critical analysis of pre-hospital clinical mentorship to enable learning in emergency medical care.

PURPOSE & BENEFITS OF THIS STUDY:

Cape Peninsula University of Technology (CPUT) students receive mentoring whilst they are engaged with experiential learning at the public and various private emergency medical care services in the Western Cape. Students are assigned to practitioners for that specific 12 hour work shift. From my experience, the nature in which students are assigned is unknown or at least not standardized and this may mean that students are less likely to be assigned to work with and be mentored by the same practitioner with each shift placement. Also, students may not be exposed to the same or similar quality of mentorship, and thus the student's or practitioners' mentorship relationship may differ significantly therefore possibly influencing the clinical experience and learning of both the student and the practitioner.

It is for this reason that one would like to do a qualitative analysis of the pre-hospital clinical mentorship relationships to enable learning in emergency medical care.

Your role in this study:

You are requested to participate by completing a diary (student participants only) and/or complete a questionnaire with the researcher at a time and venue that is mutually agreeable. If you require clarity on any question, please feel free to ask. If any question/s make you feel uncomfortable or causes you to become stressed, you are welcome not to answer the question and move on to the next question. You may be invited to attend a follow up group discussion. The aim of this group discussion is to explore common and uncommon findings in the questionnaire.

All information will be treated as highly confidential; in the research paper you will not be referred to by name, student number, practice number or any other personal number that may identify you. By signing this consent form you agree to participate in this research study for as long as required. You also acknowledge that you were not forced or coerced into participation, and that you may withdraw from the study at any time, with absolutely no consequence. You also note that participation may incur discomfort or distress on your part, and should you feel this you may stop at any time.

If you have any questions for clarifications you are welcome to contact myself or my research supervisors whose details appear below:

Nuraan Liebenberg (Liebenbergn@cput.ac.za) or Associate Professor James Garraway (GarrawayJ@cput.ac.za) or Mr Lloyd Christopher (LloydC@cput.ac.za)

A copy of the findings of the research will be provided and presented to you. You will be given an opportunity to change your response if you feel that the transcript is not a true reflection of your response.

INITIAL AND SURNAME: _____ SIGNITURE: _____

DATE: ____/_____/_20_____ CONTACT NUMBER: _____

Appendix D: Cape Peninsula University of Technology research ethics committee approval

Cape Peninsula
University of Technology

HEALTH AND WELLNESS SCIENCES RESEARCH ETHICS COMMITTEE (HW-REC)
Registration Number NHREC: REC- 230408-014

P.O. Box 1906 • Bellville 7535 South Africa
Symphony Road Bellville 7535
•Tel: +27 21 959 6352 • Fax +27 21 953 8490
Email: danielso@cput.ac.za

27 June 2013
CPUT/HW-REC 2013/H26

Faculty of Health and Wellness Sciences
Emergency Medical Sciences Department

Dear Mrs Nuraan Liebenberg

APPLICATION TO THE HW-REC FOR ETHICAL CLEARANCE

Approval was granted on 13 June 2013 by the Health and Wellness Sciences-REC to Nuraan Liebenberg for your application. This approval is for research activities related to a Master of Emergency Medical Care at this institution.

Title: A critical analysis of pre-hospital clinical mentorship to enable significant learning in emergency medical care.

Internal Supervisor: **Prof J Garraway**
Internal Co-supervisor: **Mr L Christopher**

Comment:
Approval will not extend beyond 27 June 2014. An extension should be applied for 6 weeks before this expiry date should data collection and use/analysis of data, information and/or samples for this study continue beyond this date.

Note:
The investigator(s) should understand the conditions under which they are authorized to carry out this study and they should be compliant to these conditions. **It is required that the investigator(s) complete an annual progress report that should be submitted to the HW-REC in December of that particular year, for the HW-REC to be kept informed of the progress and of any problems you may encounter.**

Kind Regards

Zulcika Nortjé
CHAIRPERSON – ETHICS RESEARCH COMMITTEE
FACULTY OF HEALTH AND WELLNESS SCIENCES

Appendix E: Provincial government Emergency Medical Services Director consent for research

DIRECTORATE: **EMERGENCY MEDICAL SERVICES**
ENQUIRIES: **Dr Shaheem de Vries**
shaheem.devries@pgwc.gov.za
☎: +27 21 932 1367

Attention: Nuraan Liebenberg

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN THE WESTERN CAPE EMERGENCY MEDICAL SERVICES

Dear Mrs Liebenberg,

Your letter on the above matter refers.

Thank you for the request to conduct research within the Western Cape Government Emergency Medical Services. Your proposal has been evaluated by the Emergency Medicine Division Research Committee and has been recommended for approval by this office.

I am therefore pleased to inform you that such approval is hereby granted.

I wish you well in your endeavor and trust that you will keep this office and its department informed of your findings when these become available.

Yours sincerely

Dr Shaheem de Vries
Head: Emergency Medical Services
Western Cape Government Health

Date: 18th December 2013

WCG Health: EMS - Emergency Communications Centre
Private Bag X24, Bellville ☎ (+27) 21 932 1367 🖷 (+27) 21 931 8490
www.capegateway.gov.za

Appendix F: Department of Emergency Medical Sciences Head of Department consent for research

Cape Peninsula University of Technology

FACULTY: HEALTH & WELLNESS SCIENCES
Department: Emergency Medical Sciences
Contact: Ms N Deliwe (DeliweN@cput.ac.za)
Telephone: 021 953 8408 Fax: 021 959 6190

Ref: 184/EMC/13
Date: 09 May 2013

Student Number: **205111165**
Student Name: Mrs Nuraan Liebenberg
8 Sierra Park,
Woodlands Road
Ottery
7808

Dear Mrs Liebenberg

Re: Proposed MEMC study at CPUT, EMS

Your application to this department to pursue Master: EMC study and to use the Department of Emergency Medical Sciences as a study site has reference.

Your study titled: "*A critical analysis of pre-hospital clinical mentorship to enable significant learning in emergency medical care.*" is of great relevance to the profession and to the Department. Your application has been studied and Departmental permission is hereby granted to collect data from our students on the following conditions:

1. Participation is voluntary and informed consent will be attained.
2. There will be no unauthorized disruption of the learning programme.
3. You attain Faculty Research and Ethics Committee approval as well.
4. That due consideration is given to the principle of group harm.

We wish you well on your post-graduate endeavor.

Kind regards

Mr. Lloyd Christopher
Head of Department: EMC

Appendix G: Provincial Health Ethics board research consent

Western Cape Government
Health

STRATEGY & HEALTH SUPPORT
Health.Research@westerncape.gov.za
tel: +27 21 483 6857; fax: +27 21 483 9895
5th Floor, Norton Rose House,, 8 Riebeek Street, Cape Town, 8001
www.capegateway.gov.za)

REFERENCE: RP 164 /2013
ENQUIRIES: Ms Charlene Roderick

8 Sierra Park
Woodlands Road
Ottery
7808

For attention: **Nuraan Liebenberg**

Re: A critical analysis of pre-hospital clinical mentorship to enable significant learning in emergency medical care

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.
Please contact the following people to assist you with any further enquiries in accessing the following sites:

Emergency Medical Services **S De Vries** **Contact No. 021 932 1966**

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final report within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).
3. The reference number above should be quoted in all future correspondence.

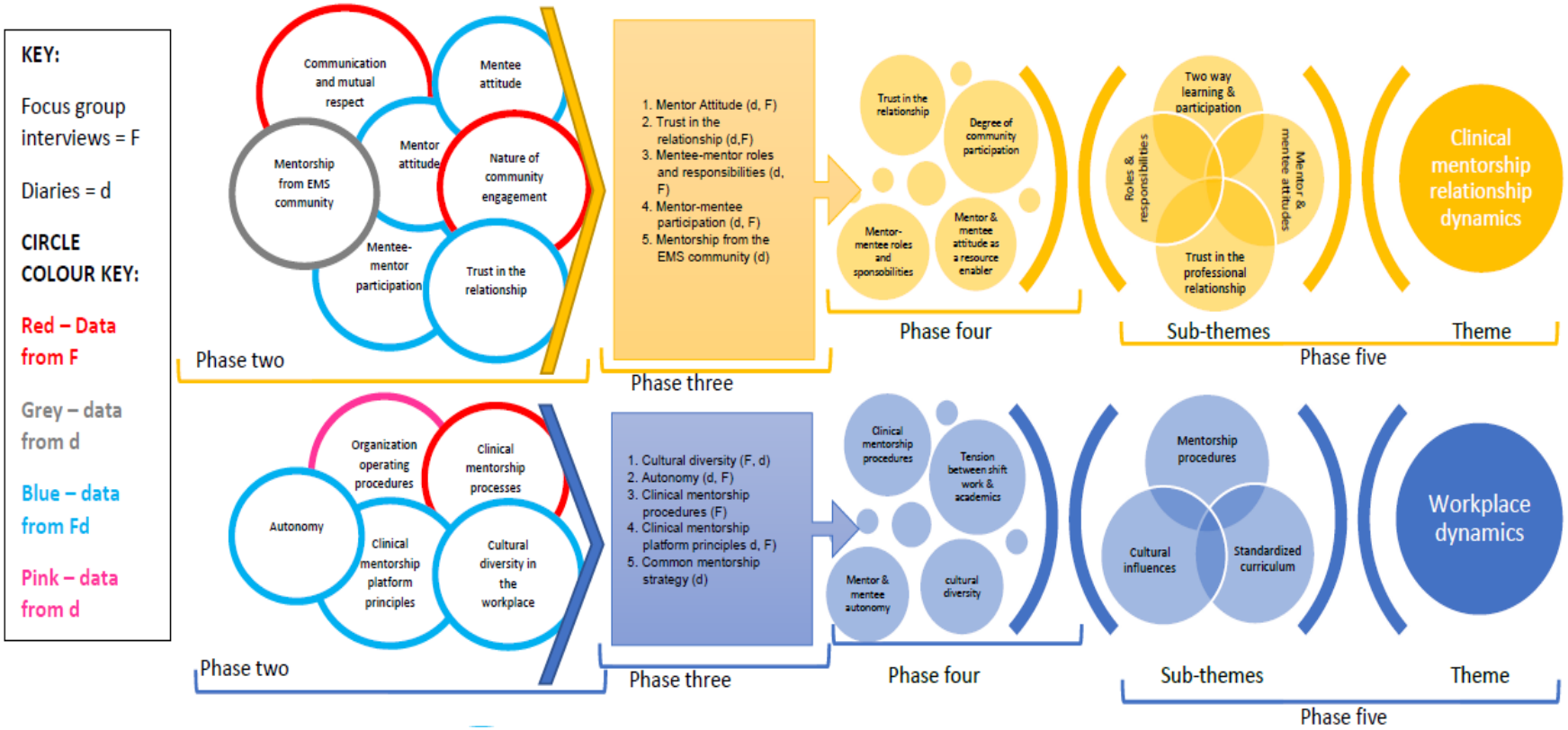
We look forward to hearing from you.

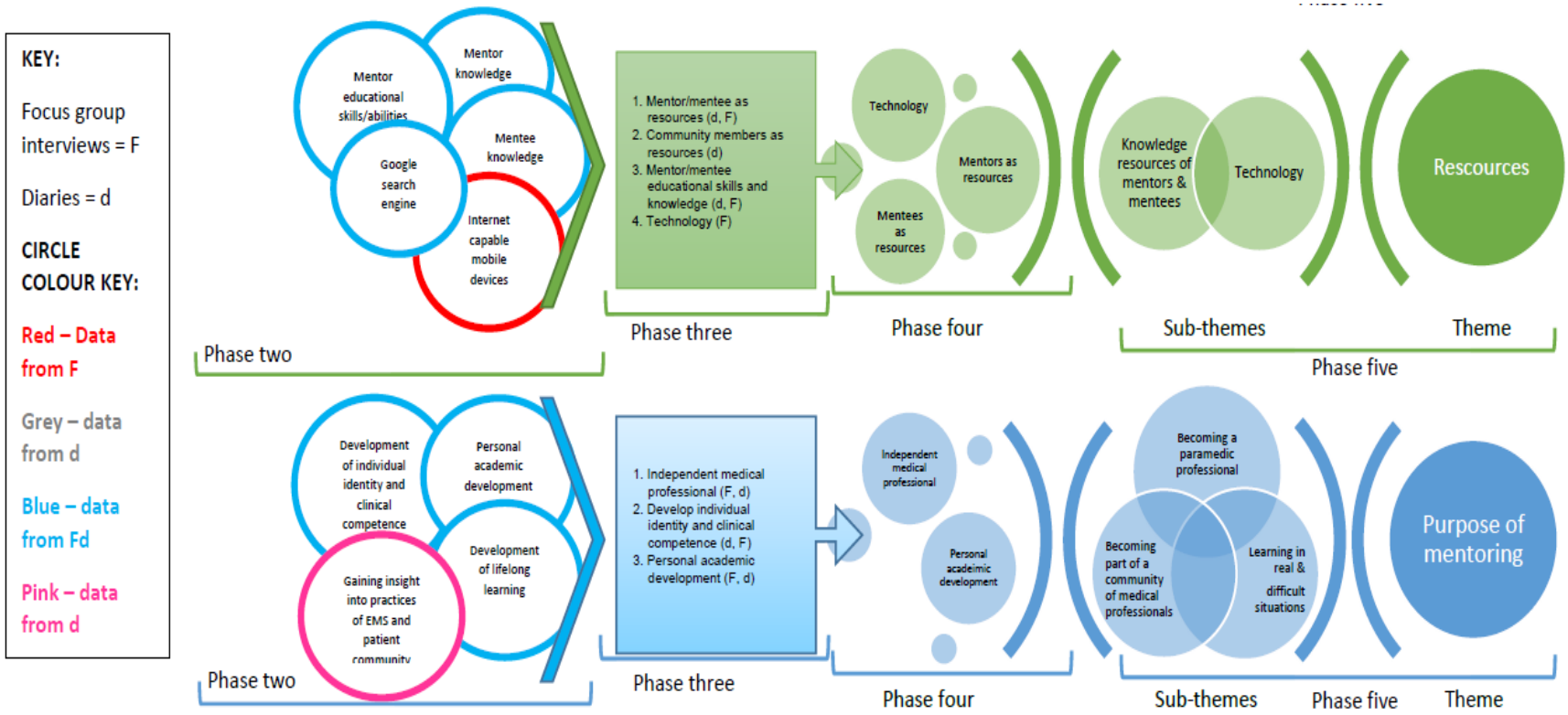
Yours sincerely

DR NT Naledi
DIRECTOR: HEALTH IMPACT ASSESSMENT
DATE: 20/12/2013
CC **S DE VRIES** **DIRECTOR: EMERGENCY MEDICAL SERVICES**

Page 1of 1

Appendix H: Phase 3 to 5 of Braun and Clarkes' (2006) 6 phase thematic analysis




KEY:
Focus group interviews = F
Diaries = d
CIRCLE COLOUR KEY:
Red – Data from F
Grey – data from d
Blue – data from Fd
Pink – data from d
Mentor educational skills/abilities
Mentor knowledge
Google search engine
Mentee knowledge
Internet capable mobile devices
Phase two
1. Mentor/mentee as resources (d, F)
2. Community members as resources (d)
3. Mentor/mentee educational skills and knowledge (d, F)
4. Technology (F)
Phase three
Technology
Mentors as resources
Mentees as resources
Phase four
Knowledge resources of mentors & mentees
Technology
Rescources
Sub-themes
Theme
Phase five
Development of individual identity and clinical competence
Personal academic development
Development of lifelong learning
Gaining insight into practices of EMS and patient community
Phase two
1. Independent medical professional (F, d)
2. Develop individual identity and clinical competence (d, F)
3. Personal academic development (F, d)
Phase three
Independent medical professional
Personal academic development
Phase four
Becoming a paramedic professional
Becoming part of a community of medical professionals
Learning in real & difficult situations
Purpose of mentoring
Sub-themes
Phase five
Theme