Perspectives of teamwork: Looking at teamwork leadership through the lens of student Emergency Medical Technicians in the State of Qatar.

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March, 2022.

This thesis is submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

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This thesis results entirely from my own work and has not been offered previously for any other degree or diploma. The word length of this thesis conforms to Lancaster University's Faculty of Educational Research permitted maximum. The word count of this PhD thesis is 47047 words.

Signature 

Abstract

Paramedics play a crucial role in the medical community and society as a whole. To become a paramedic, learners must acquire knowledge of emergency medicine, but also procedures and skills in time management, communication skills and teamwork. Learning these goals can be daunting. Part of the challenge is becoming proficient in successfully managing medical emergencies in a high-fidelity simulated learning environment which leads to one's shortcomings being exposed. These simulation-based learning environments are designed for students to hone the technical and also communication skills taught in the classroom. Other challenges relate to their interactions with the high-fidelity simulated patient. This study explores the interactions between team members in treating a heavily pregnant female Muslim high-fidelity simulated patient with multi-trauma injuries and the interactions between the patient and the team members.

This investigation took place at an emergency medical technician diploma program at a Canadian technical college in the State of Qatar. Participants are second year students in the simulation lab course who were tasked with treating, stabilising and transporting a multi-trauma patient. Interpretative phenomenological analysis and activity theory are used to bring depth to the analysis of the data from semi-structure interviews and observations.

The results of this work revealed a number of findings. All student participants had received the same information on how a paramedic team

should function in a medical emergency. However, their personal views of how a well-functioning team should work were different from that of their colleagues and of the program. Thus, conflict in critical care management transpired. Another finding revealed that the student participants actions and language showed their view of the mannequin fluctuated between seeing it as an artefact to an actual patient. Also revealed was how religion influences the decision-making process, ultimately, leading to hesitation in treatment. These findings raise important questions on how to further maximise learning opportunities in simulation-based medical training environments.

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Acknowledgements

Writing this thesis has been a long journey that would not have been possible without the guidance and support of my supervisor Dr. Julie-Ann Sime. She provided timely advice and encouragement when I needed it most. I would also like to thank the people at the simulation centre where this study took place. In particular, the chair and head instructor of the advance paramedic program who were extremely helpful in providing me free and unlimited access to the simulation-lab facilities and in welcoming me into their community. Additionally, the student participants as this study would not be possible without them making themselves available to be interviewed during their busy schedules.

Last and definitely not least, I would like to give my heartfelt thanks to my family. My wife for her steadfast support and understanding of my frequent absence. Also, my three kids, who understood that their dad wanted to play with them but needed time to study. This in itself acted as a motivator in pushing me forward to complete this thesis.

List of abbreviations

CCI	Country Co-Investigators
CEM	Computer Enhanced Mannequins
CHAT	Cultural-Historical Activity Theory
CLT	Culturally Endorsed Implicit Leadership Theory
CNAQ	College of the North Atlantic – Qatar
CRM	Crew Resource Management
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
ER	Emergency Room
GLOBE	Global Leadership and Organizational Behaviour Effectiveness Research Program
HFS	High Fidelity Simulation
IBM	International Business Machines Corporation
ILT	Implicit Leadership Theory
IPA	Interpretative Phenomenological Analysis
OR	Operating Room
SBME	Simulation-Based Medical Education
TDT	Team Dimensional Training
VR	Virtual Reality
ZPD	Zone of Proximal Development

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Chapter 1 Introduction and Background

Paramedics or emergency medical service (EMS) personnel provide a vital link in the chain in delivering emergency care to people in need. They are frequently the first medical professional a person requiring medical aid encounters. These encounters range from a person breaking their leg to someone with multiple trauma injuries. In addition to addressing the medical issues of a patient, they also are required to deal with the emotional side of a medical incident such as keeping a patient and their family calm and/or bystanders (Shields & Flin, 2013). The extent paramedics manage these complexities has a direct impact on the medical outcomes of the patient (Murad and Husum, 2010). Thus, it is important that paramedic students receive the education and training needed to be proficient in their field of work.

Educating paramedics involves classroom courses in anatomy, pharmacology, health and fitness, incubation, and various courses in emergency medical care. In addition, the practical aspect of their profession is taught. Specifically, students implement what they learned in the classroom in a number of simulated learning environments, e.g., task trainer simulation, mannequin-based simulation, standardised patient simulation, virtual reality simulation and tissue-based simulation. Accompanying the theoretical and implementation of the technical aspects of paramedic training are physical training and communicative strategies. There is also a classification of EMS

providers according to the Paramedic Association of Canada which has associated levels of training: Emergency Medical Responder (EMR), Primary Care Paramedic (PCP), Advanced Care Paramedic (ACP) and Clinical Care Paramedic (CCP). Relevant for this thesis is the education of ACP providers and their communication training.

At the institution where this study took place, which will be explained in detail below, fourteen courses are offered in a school year. Of those, fourteen percent are devoted to communication. Thus, workplace communication is not stressed to the same extent as the technical aspects of the program. The importance of team communication in the medical profession cannot be underestimated. "(C)ommunication failures have been uncovered at the root of over 60% of sentinel events…" (Lingard, et al., 2004, p. 330) (see also Blaber, 2008; and Lerner, Magrane, and Friedman, 2009). Productive and efficient team communication in medical emergencies can be the difference between a successful outcome and an unsuccessful outcome.

The role of teamwork in medicine is one that has received a great amount of focus in academia (see Brock, et al., 2013; Davies, 2005; and Lingard, et al., 2004). However, the vast majority of this research has explored teamwork within a hospital environment. Within an educational medical setting, teamwork is discussed with regards to interdisciplinary work environments such as the operating theatre. The focus of these investigations is on improving patient outcomes as studies have found that preventable medical errors are frequently

caused by poor communication amongst medical personnel (Kohn, Corrigan, and Donaldson, 1999).

Though academic research into paramedic education that focuses on teamwork does exist (see Dobson et al., 2001; Cork, 2008; Blaber, 2008; Acharya and Dasbiswas, 2017; Bennett, Mehmed and Williams, 2021; and Webster, et al., 2008); most studies focus on the technical aspects of paramedic education. Alinier (2007) suggests that the focus on teamwork (communication and leadership) in a simulated paramedic environment is not commonplace within academia. Instead, the focus is on the applied aspects of treating a patient. That is, the physical medical interventions that are provided to stabilise the patient for transport to the nearest hospital utilising the newest medical devices or on optimising current medical devices. Communication, when discussed, mostly, centres on interactions with the patient and secondly on the workplace. The focus of this research is specifically, the perspectives of the paramedic students communicating amongst themselves in a high-fidelity simulated medical environment (an environment that utilises a high-fidelity mannequin - the SimMan 3G, and training equipment).

To gain an understanding of the learning environment where this study took place, I briefly describe the healthcare education system in Qatar and my motivation in exploring paramedic education simulated learning environments, an overview of the study, the theoretical framework and methodological approach of the study. This will be followed by an overview of the analysis and findings in this study.

1.1 Healthcare Education in Qatar

To bring some understanding to the current learning environmental structure of the educational system in Qatar, I first explore the development of education in Qatar. Countries in the Arabian Gulf, otherwise known as the Persian Gulf, have gone through enormous changes since the 1950s (Khodr, 2011; Hamdy, et al. (Part 1)**,** 2010). For the Arabian Gulf country Qatar, there was no formal system of education prior to the 1950s. In fact, education centred on understanding the Qur'an as a means of gaining knowledge of the Islamic faith and learning how to read and write by literate men and women at a Kuttab (Brewer, et al., 2007). Put differently, "some children memorized passages from the Qur'an and learned to read and write in a Kuttab, an informal class taught in mosques or (usually the case for girls) homes by literate men and women knowledgeable about Islam" (Brewer, et al., 2007, p. 20). The use of Kutatib (plural form of Kuttab) to educate youth was not exclusive to Qatar but also included other Arabian gulf countries (Khodr, 2011). The introduction of an academic curriculum to guide the education of young male Qataris' in addition to Islamic studies, began in 1948 with the opening of a boys' school. Eight years later, a public school for girls was established from the Kuttab. Qatar, and other Arabian Gulf countries sought to make improvements to their educational systems in order to meet international basic educational standards (ibid). However, the lack of technical and vocational training as well as the managerial expertise to

implement and maintain these educational systems proved challenging. Attempts to remedy these issues involved administrative changes as well as educational delivery systems; yet issues persisted.

Another issue that was addressed was educating all residents of Qatar who were not Qatari. Arab expatriates and non-Arab expatriates needed a place to educate their children. To solve this problem, four types of Kindergarten to grade twelve educational models were created: government-sponsored public schools for the local Qatari population; community schools for specific expatriate communities, e.g. Indian, that is sponsored by a specific country's embassy and follows the prevalent public school curriculum of that country; international schools for Qatari and expatriate children that follows a foreign curriculum; and private Arabic schools that follow the traditional Qatari curriculum and are targeted towards Arab speaking students be they Qatari or otherwise (Brewer, et al., 2007). In addition to providing educational alternatives to the residents of Qatar, the government also made education free for Qatari nationals and expatriate children whose parent or parents were working for the Qatar government. A concurrent issue that was addressed focused on providing higher education to residents of the State of Qatar.

For those students desiring higher education, options were scarce. Specifically, the system of education did not meet the higher educational needs required to specialise in areas like medicine, engineering, and sciences. Thus, Qataris and expatriates sought education elsewhere. For the majority of Qataris seeking medical degrees, this meant attaining qualification

at Egyptian universities (Hamdy, et al, (Part 2), 2010). Others went to universities in Lebanon or other Arab speaking countries. It was not until 2002 that major educational reforms were initiated to address these issues with higher education (Khodr, 2011).

The Emir of Qatar, at the time Sheikh Hamad Bin Khalifa Al Thani, sought to modernise educational institutions in the country by initiating policies to improve the educational infrastructure (Brandenburg, 2012). One measure involved inviting internationally recognised educational institutions into the State of Qatar to improve the post-secondary school system. As a result, many educational institutions have built satellite campuses, like Weill Cornell medical college, Texas A&M, Virginia Commonwealth, University of Calgary and the College of the North Atlantic amongst others. These institutions sole purpose is to prepare Qatari nationals in all areas of academia as well as technical training.

1.2 Personal reasons for this study

My reasons for pursuing and obtaining a doctorate are numerous. Yet the link that binds my reasoning is to understand how learners react and perform in simulated learning environments with a desire to harness technological advancements and apply these new tools to improve student outcomes. My research interests are in those projects that provide other researchers with information they can apply to their research; and to practitioners in

educational settings where the knowledge uncovered can be applied to their set of circumstances. In other words, I want to help to further researchers' and practitioners' understanding of simulation-based learning environments thus building upon existing research in the field with a special focus on the student's perspective. It is my hope that I have provided relevant information for practitioners to improve their practice and to provide researchers with an alternative perspective of learners' views of simulation-based learning in a multicultural team environment.

My interest in students' relationship with education from their perspective has been building over a number of years. I have worked in education as a teacher's assistant for children and teenagers with various degrees of activity limitations and/or participation restrictions. After working in this field, I altered course and became a language instructor working in Japan and in Qatar. I have been involved in this field for twenty years. While working in Qatar, I became interested in simulation-based education as well as learners interactions with the learning environment, particularly team environments. I started exploring ways of directly linking my students' future careers with their English language development. As time progressed, I became particularly interested in medical team environments amongst a diverse group of learners. I saw first-hand how team dynamics were influenced by who was on the team. This perspective in observing how the students interact with each other during class time and outside of class gave me an insider's perspective on the classroom dynamics.

In the following sections I provide an overview of this study.

1.3 Study Overview

There are a number of factors that influence the student participants' learning experience of this investigation. It is a time when they gradually integrate themselves into a new professional community and new learning environment which focuses on teaching them how to save lives. It is also a time when they begin to work together with other students some of whom hold different cultural identities than their own and communicate in their second language – English. For this particular study, the student participants had been in the program for one full school year. Thus, they had one year to adjust and integrate themselves with their classmates and their new learning environment. Yet, their second year of studies, when this study takes place, involves the learners practicing the skills taught in the classroom in the simulation lab where the students had limited exposure. It is here that I explore the perceptions and experiences of five teams of learners in a simulation-based medical learning environment in treating a high-fidelity mannequin portraying a pregnant female Muslim patient with multiple traumatic injuries due to a traffic accident in the State of Qatar. Specifically, I explore team dynamics amongst team members, and between the patient and the team members. With this in mind, this investigation seeks to answer the following questions:

1. How do paramedic students experience leadership in multicultural teams in a high-fidelity simulation-based training environment?

2. What role does the SimMan 3G (the high-fidelity mannequin) play in a simulation-based paramedic training environment?

1.3.1 Theoretical framework

To explore how the learners, experience their interactions with all aspects of their learning environment, two approaches were taken to gain a greater understanding of the learners' perceptions: an interpretative phenomenological analysis approach and an activity theoretical approach. I wanted to explore the lived experiences of the learners to provide a different perspective of how the learners think about their experiences. With this in mind, I utilised interpretative phenomenological analysis as researchers who use this approach "seek to attain an "insider perspective' of lived experiences." (Noon, 2018, p. 75). To bring a deeper understanding to these lived experiences I utilised Salas and Cannon-Bowers (2001) four behavioural elements of leadership coupled with implicit leadership theory (ILT) as envisioned by House, Hanges, Javidan, Dorfman and Gupta (2004) (see also Green 2017). ILT brings a means of understanding how culture plays a role in how people view leadership. In addition, I sought to better understand the student participants "in their natural everyday life circumstances, through analysis of the genesis, structure, and processes of their activities" (Kaptelinin

and Nardi, 2006, p. 31) by utilising activity theory. The focus is the activity a subject has in interacting with objects along with "the place(s) of engagement in an activity system" (Engeström, 1987, p. 78). Specifically, I utilised Engeström's second generation activity theory and incorporated, what Kaptelinin and Nardi's (2006) call a key concept of activity theory, functional organs. "Functional organs combine natural human capabilities with artifacts (sic) to allow the individual to attain goals that could not be attained otherwise" (Kaptelinin and Nardi, 2006, p. 64).

1.3.2 Methodological approach

I decided that a qualitative multi-methodological approach was best for this study. Specifically, interpretative phenomenological analysis as my methodological approach. I wanted to relay a thorough picture of the student participants experiences in how they shared information during the activity as well as explore the thoughts and feelings the student participants had while immersed in the simulated medical activity. I video recorded the simulation activities of all the teams as well as the focus group discussions. At the end of each simulation session, I scheduled semi-structured interviews with the student participants of the study. Each interview was recorded and then transcribed. In analysing the data, themes emerged. Chapter 3 (Methodology) describes these procedures in detail.

1.3.3 Scope

The number of student participants for this investigation was conditional. At first, I had sought to have sixteen or more student participants in this study. However, this was not possible due to a few students not meeting the course prerequisites. As a result, eleven paramedic student participants participated in this study. Despite this setback, this investigation provided rich insights into the experiences and perceptions of paramedic students involved in treating a trauma patient in a simulation-based medical educational setting.

1.3.4 Overview of analysis and findings

The results of this work revealed a number of findings. The student participants had all received lessons on how a paramedic team should function in a medical emergency. However, their personal views of teamwork were different from their colleagues and that of the program. Thus, conflict in team communication transpired. Another finding revealed mediation between the student participants' view of the mannequin which fluctuated between seeing the mannequin as an artefact and as an actual patient. This was revealed in their actions and language usage. The findings also revealed how religion and cultural influences the decision-making process. Ultimately, leading to hesitating in treating the patient in a timely manner. These findings raise important questions on how to further maximise the learning in simulation-based medical training environments in Qatar.

Chapter 2 Literature Review

2.1 Introduction

As mentioned in chapter 1, this thesis explores the experiences of eleven paramedic students attending a Canadian college in the State of Qatar who are honing their medical skills in a high-stakes technology enhanced learning environment whilst working in multicultural teams. To explore these students' experiences, I utilised a multi-methodological approach. The aim is to shed some light on understanding paramedic students' perspectives on simulation-based paramedic education as experienced in multicultural teams attending a multi-trauma event. As such, this chapter seeks to explore the literature to highlight research that has examined this phenomenon directly and indirectly. Specifically, this chapter explores the existing academic literature on the subject of simulation-based medical education, teamwork, and crisis management. What I discovered in searching the academic literature on the search engines One Search, Google Scholar, and ERIC, to name a few, is that the majority of these papers focus on learners in hospital settings who are learning how to manage crisis situations (See Lerner et al, 2009, Alinier 2011). Very few papers concentrate on paramedic education, let alone crisis management, multicultural teamwork and importantly for this thesis, the paramedic learner's perspective. The articles I found focused on the technical aspects of teaching and the experiences of the instructors, not the students.

To bring this into context, this chapter first explores the literature on simulation-based medical education with a focus on paramedic education. Next, I examine the literature on teamwork, crisis management and leadership. Then, I explore research on culture and multiculturalism as it relates to the student participants of this study, and the educational institution where the research took place. Finally, I review the existing literature on the links between culture and ethical issues in healthcare.

2.2 Simulation-based Medical Education

The Qatari government has spent vast sums of money to financially support higher education by bringing other educational institutions to the country and providing the support structure for them to succeed, particularly in healthcare education (Brandenburg, 2012). Part of this healthcare education structure is providing state of the art simulation centres to assist educators in engaging students in their learning experience. The use of simulation-based learning environments is "now firmly established as a central constituent of healthcare education" (Kneebone, 2016, p. 1). According to Kneebone (ibid), discussions on the effectiveness of simulation-based healthcare training have been overtaken by dialogues on how best to embed and support this type of learning experience in the curriculum. For the purposes of this research, it is important to gain an understanding of the types of simulated learning environments available to educators.

2.2.1 Types of simulation

Simulation in medical education comes in all forms with the overarching goal of affording medical education providers the tools to create learning environments that prepare their students for the demands of their chosen profession. According to Davitadze et al (2022), simulation-based learning appears to be "superior to LBL (lecture-based learning) in teaching situation awareness and acquisition of critical assessment and management skills." In creating learning environments, one factor educators need to determine is the level of fidelity of the simulated environment. The level of fidelity corresponds to how immersed the instructor wants the learner to be in the simulated environment. As such, the issue of fidelity is becoming increasingly important. As Hastra, Brydges, Hatala, Zendejas, & Cook (2014, p. 387) stated, "simulator fidelity has emerged as a potentially significant instructional design feature, with the assumption that greater fidelity will result in enhanced learning" (see also Tun, Alinier, Tang, & Kneebone, 2015; and Zenios, 2020). Fidelity is an important issue for learners as well as instructors as it relates to the realism of the learning environment. But what is fidelity?

Within academic circles, the word 'fidelity' as it relates to simulation is complex and is often inconsistently used (Paige and Morin, 2013). This is problematic as fidelity is deemed vital (Tun, Alinier, Tang, & Kneebone, 2015). For instance, Maran and Glavin (2003), define fidelity as the degree to which the appearance and behaviour of a simulation correlates with the simulated

system's appearance and behaviour. Rehmann, Mitman, & Reynolds (1995) on the other hand, suggests categorising fidelity into three parts. One is equipment fidelity. That is, the equipment provides a "duplication of the appearance and feel of the operational equipment…." (ibid, p. 8). For example, does the appearance of the cockpit in an airplane simulator look real within the flight simulation program. Or in a medical context, does the equipment and the patient (a mannequin) give the appearance of realism. Another facet is the sensory cues or environmental fidelity (Rehmann, et al, 1995). In keeping with the flight simulation program, do the controls, sounds, vibrations, etc. match those sensory cues a pilot would experience during a real flight. This view of fidelity has a direct bearing on how engaged learners are with their environment. The last category of fidelity is psychological fidelity. This relates to how realistic the simulation is at mimicking the demands of the task as perceived by the participant(s).

Another discussion of fidelity is brought forth by Hochmitz and Yuviler-Gavish (2011) who delve into the complexity of fidelity. Their research explored the ability of students to successfully transfer procedural skills from the simulated environment to real working environments using physical or cognitive fidelity. The core of physical fidelity is rooted in the ecological approach of perception and action. Hochmitz and Yuviler-Gavish (2011, p. 490) state that "perception is primarily determined by affordance, which can be described as the set of potential behaviors (*sic*) available to an individual in a given situation and environment." They go on to state that transferring skills learned in training is "dependent on the physical similarity between the simulator and the real

world" (ibid, p. 490). The second approach focused on the cognitive fidelity. Taber (2014, p. 272) describes cognitive fidelity as "the degree to which a simulation replicates psychological and cognitive factors such as stress, anxiety, situation awareness and decision-making requirements found in a real-world environment." This does not necessitate that the simulated environment physically mirrors a real situation. Instead, it focuses on creating an environment that mimics the appropriate stimulated response (Lathan, Tracey, Sebrechts, Clawson and Higgins, 2002). Put differently, the reactions and behaviours of the participants in this type of simulated training session are the same as if the exercise were real. As a way of training people (like paramedics, firefighters, pilots, etc.) with the potential to be working in exceptionally stressful situations, cognitive fidelity training is a means of mentally preparing individuals to make vital decisions during extreme events. The third aspect of fidelity that is important to educators is how much do the learners immerse themselves into the simulation exercise. Do the learners forget they are in a simulated environment while immersed in the exercise? Are they, in other words, able to "suspend disbelief as they immerse themselves in a realistic, dynamic, hands-on, complex situation, requiring critical thinking, problem solving and decision making (sic) capabilities" (Reilly and Spratt, 2007, p. 544)? It is in combining these aspects of fidelity that simulation-based medical education proves beneficial in determining a scenario's makeup. How these aspects of fidelity are addressed is further determined by the learner outcome the educator wishes to focus upon.

An educator has a number of simulators to choose from which are typically

classified as low, medium and high-fidelity. Low fidelity simulators are seen as task trainers whose principal use is to focus on one specific procedural skill on a particular body part. For instance, the endotracheal intubation simulator assists educators in steering their students to focus on the intricacies of successfully managing the airway of a patient, i.e., airway management (see McGaghie, Issenberg, Petrusa, & Scalese, 2010; Kennedy, Cannon, Warner, & Cook, 2014). Medium fidelity (or mid-fidelity) simulators, on the other hand, are ones that encapsulate a life size person (mannequin) which mimic the breathing, the pulse and other simple bodily functions of a real patient (Rosen, 2008). High-fidelity simulation (HFS) utilises advanced technology that is "designed to replicate the clinical signs and symptoms seen in real patients" by using high-fidelity mannequins (Stewart, Kennedy and Cuene-Grandidier, 2010, p. 91). These mannequins are basically computerised mannequins which mimic the physiological functions of a real patient and to a lesser degree the behavioural ones (Decker, Sportsman, Puetz, & Billings, 2008). In utilising this type of educational technology in simulation medical educators can, with the use of computer software, create a variety of physiological parameters that can be altered during a scenario to respond to the actions or inactions of the students (Stewart et al., 2010).

Of particular interest to this research study is that of high-fidelity simulations utilising high-fidelity mannequins, otherwise known as computer enhanced mannequins (CEM) within a 'realistic' paramedic scenario. CEMs are life-sized mannequins that can produce bodily functions by being actively or interactively managed by a computer user (e.g. instructor) to create "normal

and pathophysiological function(s)" (Issenberg and Scalese, 2008, p. 36). That is, the computer user manages the CEM to create common or uncommon medical ailments for a student, groups of medical students from a single discipline, or a multidisciplinary team of students to practice their practical and critical thinking skills. The CEMs also help in providing students with complex situations in realistic scenarios (Flood & Thompson, 2011). These high-fidelity simulated learning environments are designed to mimic the "complexity of teamwork situations in the real world" (Miller, Riley, Davis, and Hansen, 2008, p. 106). The literature is abundant with describing the scenarios physicians, nurses, and other healthcare providers, that are directly involved in the physical medical needs of patients in the hospital, experience when in a real situation. Yet, literature on simulated scenarios related to situations paramedics in the Arabian Gulf may encounter is limited. This is of particular interest for this research.

Simulation also encompasses non-physical forms as well. That is, within the virtual world or gaming simulations which can be found in computer and smartphone applications, or on the World Wide Web on sites like Second Life (Rosen, 2008), and virtual reality (VR) through gaming or augmented reality (AR) (see Bertram, Moskaliuk, and Cress,2015; Di Loreto, Mork, Mora and Divitini, 2013). These VR or AR generated learning environments are being used to assist learners to have a better understanding of the human anatomy (Izard, Mendez, and Palomera, 2017), surgical procedures or ethical training (Gisondi, Smith-Coggins, Harter, Soltysik and Yarnold, 2004).

To help clarify simulation fidelity, it is important to define simulation and simulator as the literature uses these terms interchangeably (Dieckmann & Rall, 2007). I define a simulator as the vehicle which permits students and educators to conduct simulations. As described above, a simulator can be a physical object, a virtual object, or an imaginary object, e.g. SimMan 3G, virtual anatomy clinic, mental simulations. A simulation, on the other hand, is "an activity that represents real or potentially real-world activities, including hypothetical situations" (Tun, et al., 2015, p. 161).

2.2.2 Paramedic Education and Simulation

As alluded to above, the use of simulation-based education in paramedic education is relatively new. According to Alinier (2010), the first use of simulation, i.e., low – fidelity simulation, in paramedicine occurred in 1964 with students being trained in cardiopulmonary resuscitation skills (Also see Winchell & Safar, 1966). Since then, there have been many changes in terms of educational delivery and tools. Today, a variety of teaching methods are utilised by paramedic educators to deliver paramedic training, e.g. problem-based learning (Savery, 2006), experiential based learning (O'Meara, Hickson, and Huggins, 2014), and case-based learning (Boyle, Williams, Cooper, Adams, and Alford, 2008). With technological advances, educators have found themselves in the position of continually responding to how these advances affect the learning environment (Brooks, Moriarty, & Welyczko, 2010). Put differently, paramedic instructors are frequently exploring ways to

maximise the technological educational tools available to them, so they can provide their students with clinical experiences appropriate to their current students' training level. This is proving challenging.

Some researchers have suggested that the educational systems in place are not, in a lot of ways, prepared to harness this technology to meet student needs today (Oliver, 2010). Technological innovation has created new opportunities for learners to engage with other learners and also their instructor. Yet, how this engagement transpires is complex. Students' level of familiarity with technology differs as does their preferences (Benfield, Ramanau, & Sharpe, 2009). Added to this complexity is the rapid evolution of technology being incorporated into simulation based educational tools. With such change, educators must respond to these transformations by bringing educational approaches that meet the teaching and learning needs of the present environment (Brooks, Moriarty, & Welyczko, 2010). Ball (2005, p. 896) stated that within paramedicine a "more of the same attitude to service provision" is not enough to meet the educational environment educators experience in healthcare education. In other words, the teaching model medical educators utilise to educate their students is not as effective as it once was. The challenges that healthcare educators currently face are not being effectively addressed.

To utilise the ever expanding uses of technological advanced healthcare educational tools, educators are exploring various avenues to simulate medical events. The goal is to create a scenario that makes the environment

realistic whilst accentuating the focus of the lesson. In other words, have levels of fidelity that assist students to meet the learning objectives the instructor has deemed necessary for successful completion of the planned targeted skills the student must acquire. With this in mind it is important to understand the meaning of the word 'fidelity' which brings its own question.

As mentioned earlier in the chapter, fidelity is currently understood to be connected with how realistic and how similar a simulation is to a real event. Yet, this understanding of fidelity leads to the question of what are the degrees of realism in this sense? Tun et al (2015) state that a variety of definitions of fidelity exist in the literature which is problematic. Specifically, "various types of fidelity described in the literature, a spectrum of definitions ranging from those that are more weighted on an objective, positivistic approach to fidelity (physical, engineering, objective) and those that have more emphasis on subjectivity (psychological, perceptual) appears to exist." (ibid., p. 162). There are however issues with these views of fidelity.

If we look at fidelity from a subjectivity approach, students could have different views of fidelity from their educators, depending on their medical training and exposure. For instance, a beginner paramedic student may view a simulated cardiac arrest scenario as very realistic whereas a professional paramedic would quickly notice the inaccuracies in the scenario. In creating high-fidelity simulations, the users' perceptions of what the event must look like and that of representing a realistic clinical environment must be addressed by the creator of the scenario, in this case the educator (Dieckmann, Gaba, & Rall, 2007).

The educator's goal is to create a buy-in situation for the student. Specifically, the aim of simulation is for the student to "suspend disbelief (in order) to take advantage of an opportunity to change their future activity in the targeted work environment" (Horcik, Savoldelli, Poizat, & Durand, 2014, p. 95). A key component of this environment are high-fidelity simulators as they provide learners the ability to immediately observe the causes and effects of their interventions (Klein, 2018) through a computerised control system which imitates numerous pharmacological, physiologic and physical constraints (Bradley, 2006).

There are many ways to create these targeted work environments. The staple of these targeted work environments has been the "use of task trainers together with role play and peer-to-peer learning…" where students "learnt, practiced, and gained competency in simple techniques and procedures" (Rudd, Freeman, & Smith, 2010**,** p. 17). Today, this format of developing scenarios has expanded with advances in simulators. Technological advances have allowed educators to create more 'realistic' patients with the use of high-fidelity mannequins. Most healthcare educators who utilise these types of mannequins create simulated scenarios which mimic clinical settings, e.g. triage in the hospital. Their goal is to expose healthcare students to work related environments (Walnder, & Olson, 2007). However, these clinical settings are not conducive to the types of work environments paramedics students will encounter after their studies. One type of work environment that paramedic educators build and that is of interest to this research, is out–of–centre simulation events, such as in a patient's home or on the side of the

road (Lindsay, 2006). These environments provide “an additional dimension that has the potential to contextualise the experience for paramedics” (Rudd, et al., 2010, p.17) thus, making the environment ‘real’ so the students become immersed in the scenario.

Simulation-based learning in healthcare has another purpose as well as providing healthcare students avenues of ‘realistic’ training and preparation for their clinical training in the field. It helps to minimise risk to the patient. Research into patient risks in prehospital environments due to medical and medication errors is vast (Hobgood, Bowen, Brice, Overby & Tamayo-Sarver, 2006). Simulation training has been a conduit to reinforce medically appropriate technical aspects of care so as to minimise mistakes. For example, when a patient requires medication, healthcare student practitioners can repeat a procedure until they have mastered it routinely through repetitive practice. It can also be used to reinforce proper sanitary practices in treating a patient.

Other aspects that can be covered in simulation training are improving teamwork and teamwork communication. A study by Kohn, Corrigan and Donaldson (1999) found that a large number of medical errors were the direct result of dysfunctional or non-existent teamwork amongst medical teams. Thus, the importance of teamwork and making critical decisions that will increase the patient’s chance of survival is vital in healthcare (Lerner, Magrane, & Friedman, 2009) (see also Rayner & Wadhwa, 2021; and Cormack, Scott & Stedmon, 2020). Interestingly, within paramedic or EMS

literature, I did not find any academic literature on this aspect of patient care. The academic literature found, focused on the technical aspects of patient care.

2.2.3 Medical Education – Simulation

Another aspect of simulation-based medical education that is important to be aware of is its history. This will bring scope to the issues currently experienced. To start a definition of the word 'simulation'. It "is a technique (not a technology) to replace or amplify real experiences with guided ones, often "immersive" in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion" (Lateef, 2010, pp. 349 – 350). In educating medical students, simulated learning environments have been in existence for hundreds of years with the sole purpose of preparing students for their chosen profession. Use of simulated learning environments in healthcare training, research, and assessing students is becoming more prominent due to the current challenges of healthcare education and patient safety (Tun, Alinier, Tang, and Kneebone, 2015) (see also St. Pierre, Grawe, Bergstrom and Neuhaus, 2022).

The birth of simulated learning environments is rooted in the 18th century (Moran, 2010) when Madame du Coudray, a French midwife and educator, was exploring means to better educate and prepare her students to safely deliver babies. At the time, midwife students only listened to lectures, read

textbooks and observed a midwife to learn how to deliver babies. Du Coudray wanted her students to obtain a more practical experience whilst not endangering the patient. With this in mind she constructed the first childbirth simulator.

Since her invention, simulation in medical education has evolved. Each evolution focused on providing healthcare students, from various fields, a practical means of applying what they have learnt in class. Today, simulation-based medical education plays an integral role in training healthcare professionals due to economical and ethical considerations in healthcare education. Educators must account for the surging costs in medical training as well as the ethical consideration concerning patient safety and access to patients. Patients do not stay in hospitals as long as they did in the past (see Gaba, 2004; Carroll & Messenger, 2008). Thus, technological advances in simulation-based medical education have made it a more attractive option for training healthcare providers. Teteris, Fraser, Wright, & McLaughlin (2012) argue that this appeal is linked to providing medical educators the ability to control the learning environment whilst offering students a safe place to practice their skills without harming patients from unintentional errors.

2.3 Teamwork and Decision Making

Teamwork and the decision-making process play a prominent role in this study. In searching for academic literature on paramedic teamwork and

decision-making in a learning environment, I accessed OneSearch, Google, Google Scholar, EBSCO online library, CiNii, and Scopus to locate articles and books on the following combination of search terms in connection with paramedic and emergency medical technician: teamwork, simulation training, simulation-based education in teamwork, high-fidelity education, decision-making, high-stakes learning environments and paramedicine. This search proved unsuccessful in locating literature specific to paramedic education. As such, I explored the literature on teamwork in simulation-based learning environments with an emphasis on high-stakes environments. Consequently, in this section I look at the meaning of the word team and teamwork and then teamwork training in high-stakes simulated learning environments.

2.3.1 Definition of a Team

An important aspect of this research is understanding the meaning of the word 'team'. It is frequently quoted in the academic literature as "a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable" (Katzenbach and Smith, 1993, p. 45). However, there is more to the meaning of the word 'team'. Discussions on a team and its relationship with task interdependencies was also found in the literature. Specifically, within a team no job can be done by one person. Entwined in these interdependencies is the distribution of task-relevant knowledge amongst all team members which is evident in a team demonstrating effective

team performance (Salas and Cannon-Bowers, 2001). This performance is reflected in team competency (i.e. attitude, knowledge and skills of team members) which is another important part of team dynamics. "These team competencies allow organizations to establish the appropriate requirements for their teams and strategies to enhance teamwork and performance" (Lerner, Magrane and Friedman, 2009, p. 319). In addition to these aspects of maximising team performance is team cohesion. How individuals on a team feel about one another with regards to competency and the task at hand. (Baker, Day and Salas, 2006). Also, within teams working in high stakes environments, like paramedic and surgical teams, members on the team must have the procedural and technical skills to complete a given task be it simple or complex (Hochmitz & Yuviler-Gavish, 2011).

The literature points out that these elements of team and teamwork, regardless of individual team member's background, develop over time from an immature team to a productive and mature team. Thus, learning to develop skills to effectively work in a mature team will take much longer. However, this development is important to creating an effective team, according to Wells (2002). Part of team development is having conflict(s) within the team. Katzenbach and Smith (1993) state that episodes of team conflict help forge bonds in that they reveal the expectations, perspectives and values of people on the team which help foster cohesiveness when openly and constructively discussed within the team. The situations that a team may frequently encounter is also a factor in team dynamics. That is, in emergency situations teams need the skills to manage a crisis where soft

skills, like stress management, time management, communication styles and team management are important (Di Loreto, Monk, Mora & Divitini, 2013). As Roberts and Lajtha (2002, p. 181) stated:

> "The key to effective crisis management lies not so much with the writing of detailed manuals (that have a low likelihood of being used) and practicing location evacuations as with structured and continuous learning processes designed to equip key managers with the capabilities, (but in the) flexibility and confidence (of team members) to deal with sudden and unexpected events."

2.3.2 Crisis management

As mentioned, in medical emergency situations, crisis management plays an important role in team cohesiveness and successful patient outcomes. This became evident in the findings which will be discussed in chapter 5. Di Loreto, Mork, Mora and Divitini (2013, p.1) state that "crisis management is complex and costly, requiring a combination of approaches and techniques to acquire not only technical skills, but also to develop the capability to cooperate and coordinate individual activities towards a collective effort." Schaafstal, Johnston and Oser (2001) suggest that for teams to endure crisis situations that are in dynamic settings and unstable, teamwork skills highlighting communication and coordination are needed. This is evident in paramedic emergencies situations where there is a possibility of a patient showing benign medical emergency conditions rapidly changing to a critical

condition. It is this sudden change that means paramedics need to quickly diagnose the problem, create an action plan and then enact the plan, which has “to conform to approved protocols of action” (Di Loreto, Mork, Mora, Divitini, 2013, p. 2). With these changes in condition, the emotional state of team members alters. In training environments, it is important that the emotional state of the trainees should be triggered so that they are similar to those encountered in an actual medical emergency (see Bacon, Windall, & MacKinnonn, 2012; and Rowland, Adefuye, & Vincent-Lambert, 2021). As will be noted in the next chapter, the simulated scenario for this study was created to evoke an emotional reaction in the learners.

To navigate the emotional tribulations trainees may encounter in simulated scenarios, learners need to work effectively in crisis situations. This crisis training is complex. It involves not only learning the technical aspects of the profession but also a focus on the soft skills. Di Loreto, Mora, and Divitini (2012, p. 1) states that these soft skills from a leadership perspective are the “capability to cooperate and coordinate individual activities towards a collective effort.” Specifically, a communicative style that facilitates team management, time management, and stress management (ibid, 2012).

2.3.3 Theories of Teamwork

As one of the focuses of this study is teamwork, it is important to further explore teamwork theories. Various definitions of the composition of

teamwork exist in the literature. One definition of teamwork is provided by Salas & Cannon-Bowers (2001) who view it as the ability of a group of people who are members in a team, to effectively communicate with one another, foresee and meet one another's demands and stimulate one another's confidence ending in a harmonised collective action. As such, team performance is linked to the critical importance of teamwork. Salas & Cannon-Bowers, (2001) list four crucial behavioural elements that illustrate the connection between team performance and teamwork as: performance monitoring, feedback, closed-loop communication, and backup behaviour (see also Lerner et al., 2009; and Burke, Shuffler & Weise, 2018). Without teamwork, performance suffers and within medicine so does the patient. Lerner et al (2009) also stress the importance of recognising that "(t)eamwork is a set of interrelated behaviors, (sic) cognitions, and attitudes" (p. 320). Yet there are other factors involved in teamwork. One factor is to acknowledge that each person on a team has a varied personal and professional history which can affect the efficiency of a team. As van Knippenberg, De Dreu, and Homan (2004, p. 1008) state, "(w)ork group diversity is a fact of organizational (sic) life." This diversity has an influence on team effectiveness.

Within a medical setting teamwork is critical in helping to ensure a successful outcome. People on the team rely on each member of the team; they anticipate their teammates' needs; and adapt to the changing environment. They "have a shared understanding of how procedure(s) should happen in order to identify when errors are occurring and how to correct for these errors" (Lerner, Magrane, & Friedman, 2009, p. 320). The importance of teamwork

becomes vital in high-risk and high-intensity work environments as it relates to less errors. Put simply, good teamwork leads to less errors than poor teamwork. This has been highlighted in the airline industry where interpersonal communication, decision-making and leadership were the main factors in airline crashes when human error was to blame (McConaughey, 2008). This awareness led to a focus on teamwork training. One such training program is Crew Resource Management which focuses on teamwork and behavioural skills training. An aspect of this training is to instil in aircrew personnel the belief that everyone in the crew is vital to the safety of the airplane. If one crew member believes that procedures are not being followed properly, then that crew member has the trust of the crew to speak up freely without repercussions. Another area of teamwork that involves high-risk environments are those experienced by many in the armed forces. The United States Navy's research department developed a program called Team Dimensional Training that focuses on communication, information exchange, initiative/leadership, and supporting behaviour (Smith-Jentsch, Cannon-Bowers, Tannenbaum & Salas, 2008). The core goal of these programs was to improve functionality of the team which would result in improved performance and safety in their unique high-risk work environments.

2.3.4 Medical Teams

High-risk environments are also experienced by medical teams. Teamwork within medical teams has been a focus of discussion as a means to reducing

medical errors (Lerner, Magrane, & Friedman, 2009; Risser, et al., 1999). Bleakley, Hobbs, Boyden and Walsh (2004) stated that the medical community needed to completely alter their views of teamwork if the medical community was to reduce the number of errors in medical practice. Despite this awareness, the transition to include teamwork training within medical education establishment has been gradual. The reason for this lack of attention has been suggested due to the individualistic nature of the professions (Bleakley, Bligh & Browne, 2011), even though medical teams and teamwork are a component of health care delivery. These teams are often interdisciplinary, like those found in the operating room, and emergency room (ibid), and they are a vital aspect of providing the delivery of safe healthcare (Patterson, et al., (2012) (see also Cheng, Nadkarni, Mancini, Hunt, et al. (2018)).

2.3.5 Paramedicine and Teamwork

Teamwork in the medical field has received a lot of attention as seen above. However, the academic literature specific to teaching teamwork to paramedic students is limited. I searched a number of search engines (e.g., OneSearch, Google, Google Scholar, EBSCO online library, CiNii, & Scopus) using various combinations of search words, and related synonyms connected with college education of paramedic students in high-fidelity simulated learning environments with few results. This is not surprising. According to Webster, et al., (2008), research into emergency medical services (EMS) have received

less attention and scrutiny compared to that of other high-risk medical environments where patients are being treated. This lack of focus on teamwork in paramedic literature is also highlighted by Backer (2015, online) who states, “EMS providers are never alone on a case, yet teamwork is often lacking.” Of the academic research found the majority of healthcare literature focused on hospital environments. Lerner, et al, (2009) state that the focus of most academic research in medical environments emphasises interdisciplinary teamwork where teams are involved in high-stakes situations. Within training environments, I found that the majority of academic literature relates to physician and nursing perspectives of teamwork. In fact, the final report by the Health Workforce Australia Agency (Rudd, et al., 2010) on the use of simulated learning environments in paramedicine stated that research into teamwork/leadership communication and decision-making was limited. My own academic literature search found that little has changed. The majority of research in medical team dynamics is focused on teams that work in a hospital (Alinier, 2011) as mentioned above.

Of the academic literature found on paramedic teamwork, a number of views were expressed. Van Scotter and Leonard (2022, online), state that all members on a paramedic team are “equally responsible for patient care, expected to find anything the other misses, supporting and covering for each other.” Backer (2015, online) similarly sees teamwork in emergency medical services paramedics as teams, with two or more members, who use the “combined skills and judgment of the team to potentiate one another’s skills.” Each team member has an understanding of the whole treatment/process

even though they have been assigned a specific task. There is also a collective responsibility to reach the shared goal with every case. This type of model is what Backer (2015, online) refers to as a functional team and one which is used by military organisations in high-stress environments and where errors can have severe consequences like that of carrier landings on a flight deck or in a multiple trauma event. He goes on to say that teams that are successful in providing care are those that rehearse and train as a unit. There is also a need for these environments to have a "high degree of delegation and flexibility" to meet the challenges of teams changing personnel frequently (Backer, 2015).

Breaux (2012, online) expands this explanation by specifying that teams in emergency medical service paramedic "organizational groups (are) composed of individuals or members of the team who share common goals and who coordinate their activities to accomplish the goals and response requirements. Additionally, the … team shares mission requirements and collective responsibilities." This collective responsibility according to Breaux (ibid) also relates to that of leadership, where it is viewed as shared amongst the paramedic crew. In their words, "(I)n an EMS team, leadership is shared between individuals of the crew to ensure effective response to critical EMS-related situations" (ibid). Within this same article, however, Breaux (ibid) discusses the effectiveness of a leader thus negating their statement on shared leadership in EMS teams. For example, they list three elements an EMS team leader must consider to be effective and maintain the team's focus on the shared team goal. These are: 1) the most appropriate actions taken to

support the shared goal; 2) ensure team dynamics are not impacted negatively by looking at the needs of the team when assigning tasks; 3) the best skill or function deemed appropriate for the emergency situation is determined by the leader. To build this feeling of shared responsibility, teams go through a development process. Tuckman (1965) in his theory of group development originally suggested that there were four stages of development that small teams experience. These are forming, storming, norming, and performing. Later, a fifth stage was added called adjourning (Tuckman and Jensen, 1977). While going through these stages of development EMS teams must build effectiveness into their functionality. That is, they need to master the ability to successfully be innovative and adaptable; be efficient; be responsive to the needs of the patient whilst resolving fewer problematic issues; and maintain an environment that the team members are still enthusiastic and professional in successfully treating the patient (Daft, 2005). The last element that Breaux (2012) states that successful teams expound is cohesiveness. That is, members of a team are united and remain as one unit in pursuing a common goal.

As illustrated above, defining and exploring the meaning of teamwork is complex. It is not simply a group of people striving to achieve a common goal. There is a tapestry of different threads and colours woven together to create a strong and cohesive team. These elements of teamwork are similar to those described by Salas and Cannon-Bowers (2000) which are the three competencies: attitude, behaviour/skills and cognition/knowledge. Along with these competencies, teamwork demands interaction, verbal and non-verbal

communication be done to create a collaborative team environment (Cannon-Bowers and Salas, 1998). Coupled with these competencies and communicative strategies to create a cooperative team atmosphere are the cultural and multicultural aspects each person brings to the team.

2.4 Culture and Multiculturalism

The composition of the multicultural teams in this study were comprised of various mixtures of students from Arab, Indian, South Asian and Western societies. These students' individual cultural backgrounds influence their behaviour and subsequently team dynamics. Added to the mix was the location of the study, Qatar, which has its own cultural norms and laws. That is, the makeup of a team can be influenced by the cultural background of the people on the team and that of the society in which they reside. To understand how culture influences team dynamics, we need to define the meaning of culture. This is problematic. There is no agreed upon definition of culture amongst social scientists (House, Javidan, Hanges, & Dorfman, 2002). Kroeber and Kluckhohn (1952) championed the idea that culture should be viewed in universal categories. One common categorisation or dimension of societies was through economic evolution. However, the link between economic evolution categorisation and culture is problematic. "Economic evolution is bound to be reflected in people's collective mental programming, but there is no reason why economic and technological evolution should suppress other cultural variety" (Hofstede, 2011, p. 4). Other means of

exploring culture besides economic ones were found. Hall (1976) explored the dimensions of culture through societies' communicative abilities and classified them as high-context and low-context communicative societies. Other one-dimensional explorations of culture exist in the literature as well (see Parsons & Shils, 1951; Kluckhohn & Strodtbeck, 1961). Yet, culture is more than one dimension. One researcher who explored this view was Mary Douglas (1973) who looked at the world in two-dimensions: Group and Grid. That is, the levels that exchanges amongst people are subject to rules (i.e. Grid) and the assertion of groups over those of members. For Douglas (ibid) this classification was a means to bring greater clarity to a very complex reality. However, Hofstede (2001) views her work as problematic due to the subjective choices of the classifications. He later suggested that there is a "lack of clarity about and mixing of levels of analysis (individual-group-culture)" which is methodologically weak (Hofstede, 2011, p. 5).

Hofstede (1980, 1991) likens culture to the programming of the mind by the environment where the person is living. This "(m)ental programming (is referred to as) patterns of thinking and feeling and potential acting" (Hofstede, 1991, p. 4). The source of this programming, which is instilled from birth by one's family and religious affiliation, comes from a variety of sources including the collective activities, dominant beliefs, language, jargons, myths, role models, and traditional clothing or dress of that society or area. Hofstede (1983) examined how these factors influence culture around the world with a research study of International Business Machines Corporation (IBM) staff over a 10-year period. As a result, four dimensions were identified and later a

fifth one. These dimensions are: power distance; individualism/collectivism; uncertainty avoidance; masculinity/femininity and long/short term orientation. Hofstede's work has garnered criticism, however.

In a study by McSweeney (2002), the idea that cultural boundaries within one nation were questioned in their research. That is, identifying a country as one type of culture is not an effective unit of analysis. Another criticism focuses on the masculinity and uncertainty avoidance dimensions. Sondergaard (1994) and Newman and Nollen (1996) point to how political influences within a country have a bearing on these dimensions. If the political climate is influencing uncertainty during the time of data collection, then it is problematic to view this data as reliable over the long term. The focus on a single company was also a concern for many scholars as the company, IBM, was de-centred (Shaiq, Khalid, Akram and Ali, 2011). Hofstede (1991) acknowledged this criticism and created the fifth dimension. Yet, this dimension was not included in the survey sent out to IBM employees worldwide. "The shortcoming of one company response is that the respondents respond according to company and their own needs and interest" (Shaiq, Khalid, Akram and Ali, 2011, p.104).

One means of researching culture that expands on Hofstede's work is The Global Leadership and Organizational Behaviour Effectiveness research program (GLOBE). The impetus to creating this program began when House (1998) wanted to explore the cross-cultural differences in the neocharismatic leadership paradigm. After examining the literature on cross-cultural studies,

House (ibid) determined the best course of action was to consult social scientists who specialise in cross-cultural studies. At the end of this process, they built nine cultural dimensions mainly based on the research of Hofstede (1980), Inglehart (1997), Schwartz (1994), and Smith and Peterson (1995). The GLOBE program has expanded since. This program involves nearly 170 social scientists from 62 cultures around major regions in the world (Javidan & Dastmalchian, 2009). These scientists' focus of study is to explore the "interrelationships between societal culture, organizational culture, and organizational leadership" (House, Javidan, Hanges, & Dorfman, 2002, p. 4). Most of the country co-investigators (CCI) are locals of the area where the data is being collected. In addition, some of these researchers have cultural expertise outside of their native culture. As a group they defined culture as "shared motives, values, beliefs, identities, and interpretations or meanings of significant events that result from common experiences of members of collectives and are transmitted across age generations" (House, et al, 2002, p. 5). To collect data on various countries around the world the researchers utilised qualitative and quantitative methods to gain a comprehensive picture. Specifically, they used qualitative methods to help in constructing the quantitative instruments to collect the data which was primarily done through questionnaires (Grove & Grovewell, online). Of the questionnaires sent 17,000 middle managers from 951 organisations in the telecommunications, banking and food industries from around the world responded (Javidan & Dastmalchian, 2009). With this data they then clustered the data into ten cultural blocks. That is, they grouped countries with shared modal values into cultural blocks. (see table 2.1 below).

Anglo – Australia, Canada, England, Ireland, New Zealand, South Africa (white sample), USA	Latin Europe – France, Israel, Italy, Portugal, Spain, Switzerland (French – speaking)
Nordic Europe – Denmark, Finland, Sweden	Germanic Europe – Austria, Germany Switzerland, The Netherlands
Eastern Europe – Albania, Georgia, Greece, Hungary, Kazakhstan, Poland, Russia, Slovenia	Latin America – Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Mexico, Venezuela
Sub–Saharan Africa – Namibia, Nigeria, South Africa (Black sample), Zambia, Zimbabwe	Middle East – Egypt, Kuwait, Morocco, Qatar, Turkey
Southern Asia – India, Indonesia, Iran, Malaysia, Philippines, Thailand	Confucian Asia – China, Hong Kong, Japan, Singapore, South Korea, Taiwan

Table 2.1: Societal Clusters and the associated societies (Javidan and Dastmalchian, 2009)

These countries were grouped as they commonly shared societal cultural values, i.e. cultural dimensions, that the GLOBE program created of which nine were deemed sufficient. (see table 2.2 below). In creating these dimensions, the researchers of the GLOBE program were not only influenced by the work of Hofstede (1980), but also Kluckhohn and Strodrbeck (1961) and McClelland (1985).

These nine cultural dimensions are:

Power Distance:	The degree to which members of a collective expect power to be distributed equally.
Uncertainty Avoidance:	The extent to which a society, organisation, or group relies on social norms, rules, and procedures to alleviate unpredictability of future events.
Humane Orientation:	The degree to which a collective encourages and rewards individuals for being fair, altruistic, generous, caring and kind to others.
Collectivism I:	The degree to which organisational and societal institutions practices encourage and reward collective distribution of resources and collective action.
Collectivism II:	The degree to which individuals express pride, loyalty, and cohesiveness in their organisations or families.
Assertiveness:	The degree to which individuals are assertive, confrontational and aggressive in their relationships with others.
Gender Egalitarianism	The degree to which a collective minimizes gender inequality.
Future Orientation:	The extent to which individuals engage in future-oriented behaviours such as delaying gratification, planning, and investing in the future.
Performance Orientation:	The degree to which a collective encourages and rewards group members for performance improvement and excellence.

Table 2.2: Nine Cultural Dimensions (House, et al, 2002).

From a theoretical perspective, GLOBE's roots are an amalgamation of a number of theories. Specifically, it is an "integration of implicit leadership theory …, value/belief theory of culture, …, implicit motivation theory,… and structural contingency theory of organizational form and effectiveness…" (House, et al., 2002, p. 8).

2.5 Multiculturalism and teamwork

Multicultural teams are becoming more evident, particularly in the Persian/Arabian Gulf. The growing number of people who are traveling abroad to seek work or begin new projects is continually growing. This is particularly true in the Persian/Arab Gulf in the Middle East where the vast majority of workers are not nationals of those countries, with the exception of Iran. As such, working in multicultural teams is common place. In this section of the literature review, I explore the literature on multiculturalism with specific emphasis on how it is viewed in the paramedic community. I will also look at teamwork and how this is defined in the paramedic community as well as special emphasis on the various cultures involved in this study.

2.5.1 Arab Culture

Part of the issue is in defining what is Arab culture. Does it encompass all people living in the Middle East or the Middle East and inhabitants of North

African countries? Are the inhabitants of these countries viewed as Muslims or do they also include Christians, and Jews? According to Merkin (2012) a large body of academic literature does not specify what is Arab culture (Feghali, 1997; Iancu, et al., 2011). However, there is some consistency in the literature as to the composition of an Arab society.

Frequently cited in the literature are the four cultural dimensions coined by Hofstede (1986, 1991). He named these dimensions as: power distance, individualism, uncertainty avoidance, and masculinity/ femininity. In this body of work, Hofstede (n.d, para 3) has classified Arab culture in Saudi Arabia as people who accept a "hierarchical order in which everybody has a place" and where "an organization is seen as reflecting inherent inequalities, centralization is popular, subordinates expect to be told what to do and the ideal boss is a benevolent autocrat." It is also a collectivistic society where loyalty to the group is paramount, which "over-rides most other societal rules and regulations" (para 5). Hofstede (ibid, para 9) also states that Arab cultures "maintain rigid codes of belief and behaviour and are intolerant of unorthodox behaviour and ideas." This is enforced, he (ibid, para 8) contends, by 'leaders' being "decisive and assertive, the emphasis is on equity, competition and performance and conflicts are resolved by fighting them out." However, some researchers have criticised Hofstede's work on the basis of validity, and reliability. Specifically, McSweeney (2002) has criticised the generalisations made, and the methodology employed in the research. Fang (2003) has noted the cultural overtones woven into the

language used to describe the individual dimensions. Another criticism focuses on the gender issues (Merker, 1982).

Al-Krenawi, Graham, Al-Bedah, Kadri, & Sehwail (2009, p. 28) have characterised Arab culture as high context which emphasises the "collective over the individual" and where "social relations may be patriarchal and spontaneous. Particularly important in this characterisation is the family. For them, the family is very important to the homologous interrelationship between the individual and the group, and may profoundly determine individuals' social and economic status." They further expand this view by stating "any decision to seek help may be forged in the context of the collective, as with many major life decisions, and may be perceived to have a bearing on that collectivity's combined status" (ibid, p. 32). In Merkin and Ramadan's (2010) view, Arab culture emphasises an authoritarian social structure where stress is placed on conformity and submissiveness. They expand on the extent this can be seen by examining the various communication strategies employed which are dependent on the interlocutor. In other words, is the person speaking to someone within or outside his or her tribe. As such, concern for one's collective is paramount over their concerns for themselves. Feghali (1997) suggests that these communicative and organisational strategies are used in Arab cultures as a means of "ensuring cohesion and group survival" by maintaining "conformity of group members" (Al-Omari, 2008). By accepting these hierarchical structures within the family and the society at large, group harmony is maintained (Merkin, 2012).

2.5.2 Western Culture

Numerous academic research papers describing Western culture are available. Dominant in the literature is the view of Western cultures as being low context. Put differently, in this type of culture non-verbal behaviours, physical environments and situational surroundings are not valued to the same extent as in high context cultures (Yamazaki, 2005). In individualistic (low context) cultures emphasis is placed on the verbal message. Zaharna (1995, p. 242) explains that low context "cultures, such as American culture, tend to place more meaning in the language code and very little meaning in the context. …communication tends to be specific, explicit, and analytical." As such, attention is paid to "rationally detached analyses" (Yamazaki, 2005, p. 525) in interactions with others to the extent that they may harm personal relationships (Wong & Tsai, 2007).

The extent of these individualistic behaviours can also be seen in the ethics of Western culture. In their paper on the cross-cultural differences between Chinese (high context) and Western culture, Bedford and Hwang (2003) describe ethics in Western culture as focusing on the positive and negative aspects of the individual as opposed to the family or the group. In their words, "the importance of negative duties, which require abstention from action that harm other's rights" are seen in individual statements (ibid, p. 131). "'Do not kill', 'do not cheat', and 'do not steal', are examples of negative duties." Alternatively, they describe positive duties as 'duties of commission' where

the number of personal choices that an individual makes is determined by the individual and not by society. There is not a sense of duty to help the other, nor a sense of piety (Joy & Kolb, 2008).

Thus far, this section has briefly reviewed aspects of the literature on Arab Muslim and Western Culture. Uncovered in the literature is that collectivism and individualism are, respectively, seen as the basis of various forms of communicative exchanges between people. How these various views are portrayed with regards to guilt and shame within a medical educational context is discussed in the next section.

2.5.3 South Asian Culture

In addition to Western and Arab societies being relevant to this study, it is important to explore South Asian societies as some of the participants were from this region of the world. To be specific, when I refer to South Asian countries, I am following those designated by the GLOBE study (Gupta, Surie, Javidan, & Chhokar, 2002) which are: India, Indonesia, Philippines, Malaysia, Thailand and Iran. Within this cluster the prominent religions are Hinduism, Buddhism, and Islam. An exception to this religious footprint is that of the Philippines where Christianity is the dominant religion. Of interest to this study is that of Christianity and Islam. In the Philippines, Christianity was introduced to their culture by the Spanish who colonised the country in the

16th century and who sought to convert the Filipinos to Christianity (Hawkley, 2014).

Islam on the other hand is found in the other countries in the south Asian cluster. Within Islam there are two main faiths: Sunni and Shi'ah. According to Gupta et al (2002), Sunni Islam, which is the dominant Islamic religion of the two, focuses on the customs and the majority views of the community and not that of the groups in the periphery as the means of obtaining consensus in reaching decisions. Put differently, "the community is expected to embrace accommodation, catholicity and synthesis" (ibid, p. 20). Shi'ah Islam, on the other hand, sees the Imam as the source of cohesion and knowledge and the person who is the decision maker (ibid). All Muslims share the belief that the Qur'an relays the message from God (Kabasakal, Dastmalchian, Karacay, & Bayraktar, 2012), though various interpretations exist. According to Sirois, Darby, and Tolle (2013, p. 106), the Qur'an as a whole is "believed to imply diversity and respect"; and that all humans are equal yet not identical. Clothing that covers the whole body is another aspect of the Islamic religion. However, this style of attire is not mandated. The key with clothing is to show modesty (ibid) (see Metcalfe, 2006). The GLOBE study (ibid) points out that within South Asia cluster, religious tolerance is evident. The religious diversity of this cluster is also matched by the wide range of ways each community expresses their culture through dance, language, food, clothing, and customs. These variations are seen as a means of creating cohesion in these cultures. That is, there is unity in the diversity of these cultures (Tirmizi, 1993).

The GLOBE study (Gupta et al, 2002) found that as a whole, south Asian cultures have strong group culture mentality, power distance, and humane orientation. However, gender egalitarianism was rated low. In other words, the importance of group orientation and collectivism are extremely valued as are practices in humanity. Yet, equality between the sexes is less valued. The authors suggest that the reasoning is rooted in the manner females are socialised into the community. In their words, “a woman typically grows up learning that her salvation lies in observing the commands of her father during childhood, of her husband and in-laws after marriage, and of her (*male*) children after they grow up” (Gupta, et al, 2002, p. 20). The authors of the study also note that south Asian society’s organisational structures are hierarchical. It goes without saying that each of these cultures do have a degree of variance. Within the study, the Philippines were noted as being a society where cooperation and helping one another, be it within the local or neighbouring community, is cherished. The authors also state that Filipinos are performance-oriented, feminine and assertive.

2.6 Leadership

Within any team the manner in which leadership is determined plays a crucial role in team dynamics. Yet what exactly is a leader of a team? In section 2.4, an exploration of what a leader was given. However, there is a cultural dimension to defining leadership that needs to be considered. This is no easy task. As Chhokar, Brodbeck and House (2008, p. 1) state “(c)ulture and

leadership are probably among the most written about and the least understood topics in the social sciences." One particular view of the interaction between culture and leadership that is frequently cited in the literature is that of the GLOBE project, which is mentioned in section 2.4. This project looks at both the etic and emic aspects of leadership in their quest to understand cultural influences in leadership. Specifically, the GLOBE project explores the universal aspects of social behaviour and also the specific events of behaviours that are the root meaning of these universal views of leadership (ibid). In this vein, the GLOBE project researchers have utilised Implicit Leadership Theory (ILT) and expanded it to include cultural influence in leadership. It is called the Culturally Endorsed Implicit Leadership Theory. Put differently, GLOBE researchers have taken ILT, which states that "individuals have certain type of beliefs about the kind of attributes, skills and behaviors (sic) that facilitate or impede outstanding leadership" (Kabasakal, Dastmalchian, Karacay & Bayraktar, 2012, p. 520), and added the cultural influences the organisation or society where they are leaders into their leadership style. Thus, being able to become an effective leader in the society they are in. House, Hanges, Javidan Dorfman, and Gupta (2004) lists these attributes as 1) charismatic/value-based, 2) team oriented, 3) self-protective, 4) participative, 5) humane oriented, and autonomous.

2.7 Ethical Issues and Healthcare

From the eyes of a paramedic, treating patients is not simply assessing, stabilising and transporting the patient. There is the issue of cultural sensitivity. That is, there are a number of other issues paramedics must address. Healthcare education and the issue of teaching ethics in the classroom is one aspect of the curriculum that has been debated; yet the consensus is that within emergency medicine it should be part of the curriculum (Hamilton, & Marco, 2003; Hobgood, Sawning, Bowen, & Savage, 2006). However, this view is not held by some healthcare providers in the field who view treating every patient equally as sufficient (Yosef, 2008). One issue that the medical community addresses is those situations with ethical reverberations. Ethical concerns play an important role in the decision-making process that a medical team or an individual makes in providing support and treatment of the patient. In conducting my literature review on the subject of medical ethics in Arabian Gulf, I found literature difficult to obtain. The majority of academic literature concerns the relationship between the patient and the healthcare provider within western societies. On the other hand, Arab Gulf societies were more concerned about ethnic and cultural diversity. What this entails is cultural awareness on the part of the healthcare providers. Specifically, “healthcare providers (need) to understand and respond to the unique cultural needs brought by patients to the health care encounter” (Cultural awareness and emergency care, 2008, p. 189). They “should consider the patient’s culture as it relates to the patient’s history and

presenting symptoms in recommending a treatment plan that is mutually agreed upon by the patient and physician" (ibid, 2008, p. 189).

In being culturally sensitive healthcare providers need to be cognisant of visual clues that signal a person's cultural identity. They may be in a situation where the patient is unconscious or otherwise incapacitated and the patient's attire and/or identification relays their cultural identity. In Qatar, the Qataris frequently wear traditional Islamic dress, particularly the women. Specifically, men wear a thobe, which provides cover from the ankles up to the neck, and the head piece called the ghutra. Women, on the other hand, wear the abaya and a hijab or shayla hijab. The abaya covers the whole body from the neck down, even the feet are covered. They also wear a hijab that leaves only the face exposed (Sirois, et al, 2013). An alternative head covering for Islamic woman is the niqab which they may opt to wear. The niqab not only covers the woman's hair but her face as well leaving only the eyes exposed to the public. In wearing these types of clothes, the person is demonstrating modesty. Women who wear these head pieces only expose their hair and/or face to other women and immediate male relatives in the family, i.e., brother(s), father, and husband. For expats living in Qatar, residence cards are issued by the Qatari government which denote the nationality and religion of the holder of the card.

It is this modesty that raises concerns for healthcare providers as it can hamper the treatment of the patient. Al-Oraibi (2009), states that Muslim patients have a strong preference for being medically treated by a fellow

Muslim of the same gender and with a proper medical background. If this is not possible, a person of the same gender as the patient but not Muslim can treat the patient. If either of these conditions cannot be met, a healthcare provider of the opposite sex to that of the patient but Muslim can treat the patient. "(I)n the case of grave necessity, these restrictions are widened (e.g., birth, orthopaedic fracture, etc.) so that the doctor must treat the woman whose life is at risk, on pain of infringement of the fundamental principle of necessity to save human life" (Atighetchi, 2007, p. 40). Thus, it is permissible for a non-Muslim healthcare provider of the opposite sex to treat the patient.

Another ethical consideration healthcare providers must consider is consent. In countries where the legal system is based on Shari'a law, ultimate consent for medical treatment is determined by the closest male relative of the female patient (Atighetchi, 2007). That is, the female patient's husband, father, or brother determines if the healthcare provider can deliver medical treatment. The decision is not in the hands of the female patient herself. Another instance healthcare providers must be cognisant of in treating female patients is accessibility to the patient. In other words, access to a female patient's injury by male paramedics might be an issue. For example, in 2014 a female student at Riyad University in Saudi Arabia was not availed medical care for a suspected heart attack as the attending male paramedics were denied entry to the female-only campus (Saul, 2014). Subsequently, the patient died.

2.8 Summary

This chapter has explored the literature on simulation-based education in healthcare in general and more specifically its application in the Arabian gulf. Literature on perceptions of realism of simulation-based education were also reviewed. In addition, literature on multiculturalism and culture were explored. Furthermore, literature on teamwork and decision-making were examined with attention paid to groups in paramedicine and team members from different cultural backgrounds. In the next chapter, I present the methodology utilised to uncover the phenomenon being explored.

Chapter 3 Methodology

3.1 Introduction

3.1.1 Aims and objectives

This chapter presents the methodology selected for this multi-method qualitative research project. Discussed in this chapter is some personal background as well as some background on the setting of this research project. I will also discuss the six aspects of the research method: (1) research design, (2) research context, (3) researcher's role, (4) data collection methods, (5) data management and (6) data analysis.

3.2 Research questions and analysis overview

What this research project proposes to discover is how multicultural teams of paramedic students share knowledge in simulation-based learning. With this in mind, this project seeks answers to the following questions:

1. How do paramedic students experience leadership in multicultural teams in a high-fidelity simulation-based training environment?

2. What role does the SimMan 3G (the high-fidelity mannequin) play in a simulation-based paramedic training environment?

3.2.1 The Qualitative Researcher

At the start of my academic journey, I outwardly extolled the virtues of positivistic ideals in research. However, as I explored and questioned my internal beliefs a constructionist viewpoint slowly emerged. My journey as a qualitative researcher began at a Canadian university. Where my North American educated professors utilised quantitative researched articles as the means of bringing students to understand a phenomenon. I found this interesting but not appealing. I thought there must be more to research than quantifying. These thoughts gained traction when I took some courses from European guest lecturers. I noticed that my thought processes were more akin to these guest lecturers from European countries than those from North America.

Advance many years down the road, these burgeoning thoughts plus my Masters and PhD studies caused me to re-evaluate my views with greater scrutiny through the works that I found compelling. I found myself relating to studies with qualitative theoretical underpinnings, particularly ethnographic and phenomenographic studies. The research papers that I wrote during my post-graduate studies also had these leanings. Yet, for some reason I wanted to hold onto some positivistic views. It was when I embarked on this current

thesis, I came to the full realisation that constructivist research is a way of conducting research that I can completely embody.

3.3 Ontology and Epistemology

My worldview has changed greatly since embarking on my journey to obtain my PhD. As mentioned above, my world view was within the postpositivist camp at the beginning of my expedition. Yet, through living and working in different countries, this view has slowly moved to the constructivist camp. My own personal ontological views have synthesised further while conducting this thesis. Socio-cultural influences and ethical constructs affect learning, learning outcomes and teaching. Learning is a collaborative endeavour where meaning is negotiated personally and organisationally. It is the nature of our understanding and of how ideas and information are constructed within a social landscape that allows learning to flourish positively or negatively. Attached to these influences are the artefacts around us, which became perfectly clear to me during this study. The influence of one's social, cultural, and historical background on the sharing of information and how that information is conveyed are presented clearly, in my view, with the use of activity theory.

Closely linked to ontology are one's epistemological perceptions. My epistemological views are in continual flux. How knowledge is determined/built is a question that continually challenges me. I see the

construction of knowledge as created through collaboration with others through environmental, societal, and personal relationships. However, there will be, in my view, biological influences, which influence one's ability to acquire knowledge. This creates a sense of torment in that I have lived in a mythical bubble of John Rousseau where we are born equally. How we gain knowledge is not based on equality, but on biology and circumstances.

3.4 Methodology

When embarking on exploring the experiences of paramedic students in the simulation lab, I considered a number of methodologies. My first thought was to conduct an ethnographic study as it would provide the reader an insight into the behaviours, perceptions and social interactions that occur in groups of paramedic learners (Reeves, Kuper & Hodges, 2008). It was also a methodology I was very familiar with as I had used it to conduct my Master's degree thesis. However, one key aspect of ethnographic research is in participant observations which I was unable to adhere to. As mentioned, I was not a member of the health science faculty, so I had not been with these groups of students for sufficient time to justify participant observation status as determined by **(**Singer, 2009; Shah, 2017). I was also unable to integrate myself into the paramedic program to an extent I felt met ethnographic criteria due to work commitments. Specifically, I was only able to dedicate two hours a week in the simulation lab with the student participants out of the six hours

they were in the lab. As such, I determined a multi-methodological approach was best.

What is a multi-methodological approach? A multi-methodological approach is sometimes confused with a mixed-methods approach. This confusion is described by Collier and Elman (2008) who discuss the three ways a multi-methodological approach can be defined. It can be viewed as a heterogeneity of qualitative methods. Alternatively, it can be viewed as linking qualitative, quantitative and statistical tools to bridge the loss of data either methodology may miss. The third view they reveal in their article sees a multi-method approach concerning the "relationship with interpretativism and constructivism" (ibid, p. 782). Another view is a multi-methodological approach which is simply an approach that uses two or more research methods that are either quantitative or qualitative but not both (Brewer & Hunter, 1989). They also describe a multi-methodological approach as a means of triangulation as it allows the researcher to provide the reader with a greater understanding of the phenomenon in question. That is, this approach is viewed as helping to mitigate some of the perceived, real or otherwise, weaknesses of each methodological approach used in the study.

As we can see, clearly defining a multi-methodological approach is complex. Creswell (2011) addresses this confusion by discussing the clarity mixed – methods researchers bring forth in their writing to distinguish their approach from a multi-methodological approach. That is, "(w)riters in mixed methods are … careful to distinguish 'multi-method studies' in which multiple types of

qualitative or quantitative data are collected… from 'mixed methods studies' that incorporate collecting both qualitative and quantitative data" (ibid, p. 273). Yet with all the benefits this method provides, I was not entirely comfortable that this approach was best for this research. As such, I opted to explore the most common means of collecting data from an interpretative phenomenological approach study.

3.4.1 Interpretative Phenomenological Analysis

Interpretative phenomenological analysis (IPA) is a qualitative method of exploring a given phenomenon. Specifically, it is an approach that explores a given moment or event and examines how the participants of the study live through the experience (van Manen, 2014) by focusing on the first-hand descriptions of the phenomenon amongst the participants (Eddles-Hirsch, 2015). Put differently, a phenomenological researcher looks at the root of a phenomenon from the participants' perspective and tries to understand their experiences of that phenomenon (see Christensen, Johnson & Turner, 2010; Creswell, 2013). Phenomenological researchers explore the meaning or lifeblood of the connection between participants and the world they live in.

There were a number of phenomenological methods that were examined for this research, and I needed to decide which type to use. For the purposes of this research, I narrowed my choices between a Husserlian phenomenological approach (descriptive) or an interpretative phenomenological analysis. The

descriptive phenomenology approach does have value, but it does not focus on the area of concern of my research. In addition, I was concerned with the views of bracketing. In descriptive phenomenology researchers must bracket their prior personal knowledge of the phenomenon to "grasp the essential lived experiences of those being studied" (Lopez & Willis, 2004, p 727). By bracketing, researchers utilising this methodology are able to suspend their own perceptions in order to see the phenomenon being studied lucidly (Powers & Knapp, 1995). This is an area of descriptive phenomenology that has been debated by a number of academics. The focus of this debate centres on how it is possible for a researcher to make themselves fully devoid of their personal views and history (Ashworth & Greasley, 2009; Ashworth, 1996; Finlay, 2008). Another aspect that critics have noted is the foundationalist approach to inquiry (Allen, 1995). Put differently, the essence of a person cannot be theorised from their lived experience without consideration of context or history of the event where the phenomenon occurred or the participants in the study. Furthermore, the "impact of culture, society and politics on the individual's freedom to choose" is not at the forefront of Husserlian thought (Lopez & Willis, 2004, 728).

These concerns resonated with my own ontological and epistemological views. Thus, an interpretative phenomenological analytical (IPA) approach was utilised.

What is an IPA approach? There are two primary goals: 1) to analyse in detail how a participant makes sense of their life world during a phenomenon;

and 2) to interpret in detail the experience of the participant to provide a better understanding of the experience (Tuffour, 2017). Put simply, explore the life worlds of the participants by describing their experiences as well as their interpretation of the experience.

The roots of this methodology are found in the works of Heidegger (2008), Gadamar (2013) and Schleiermacher (1998) who have influenced interpretative phenomenological analysis as written by Smith, Flowers, and Larkin (2009). Other phenomenological thinkers who also influenced IPA are Merleau-Ponty and Sartre (Tuffour, 2017). In fact, according to Tuffour (2017, p. 3), IPA is an integration of these thinker's works "to illuminate phenomenology as a singular and pluralist endeavour existing in a continuum." The focus of these combined views of phenomenology is to explore participants' experiences in making sense of an activity and then describe, interpret, and position it. By looking at each of these thinkers individually, we can see how they have influenced IPA.

Starting with Heidegger and his suggestion of Dasein as a means of discussing the experiences of human beings' unique existence in the world as inter-relationship and inter-connectedness. To define the term Dasein is complex as Heidegger (2008) devoted 75 sections to the term at the beginning of his book "Being and Time". The academic literature on Dasein is vast and contains various understandings of what it means. For the purposes of this thesis, I will not give an exploration of these understandings. From an IPA perspective, the researcher delves into the world of their participants

utilising cultural and socio-historical meaning lenses. In other words, using Heidegger terminology, examine the throw-ness of the participants. This is accomplished by researchers to "ground their stance in the lived world of things, people, relationships and language, and question knowledge outside interpretation because interpretation of people's meaning-making of their experience is fundamental to phenomenological inquiry." (Tuffour, 2017, p. 3)

Hermeneutics has also played a major role in the development of IPA whose main influencers are Heidegger, Schleiermacher, Ricoeur and Gadamer (Smith et al, 2009; Tuffour, 2017). Hermeneutics, put simply, is the theory of interpreting written text, verbal and non-verbal communication.

The idea that phenomenology and hermeneutics are linked is associated with the work of Ricoeur who championed the view that an interlinking relationship between meaning, and experience does exist. IPA has also harnessed the ideas of Heidegger, particularly the concept of appearance of being. Specifically, a researcher needs to bring their own assumptions or preconceptions as well as their prior experiences to understand the revealed experiences of the participants (Smith et al, 2009).

Another factor vital to IPA is that of the continual need of bracketing during the data analysis (ibid). That is, the researcher in their exploration of the phenomenon may uncover their unconscious preconceptions of the phenomenon while interpreting the data. This involvement in the analysis and making sense of the participants' world is an important part of IPA. The

researcher does not act as a bystander. According to Tuffour (2017, p. 4), this means that the researcher "intuitively seeks to probe the surface meanings by reading in between the lines for deeper interpretation"; and examines the relationship between the 'part' or the "encounter with the participant in a research project, and the 'whole' the drawing of knowledge and experience of the researcher."

Another fundamental aspect of IPA is its idiographic pursuit of giving detailed analysis of each phenomenon uncovered in the data on its own merits. Once this is completed the researcher moves on to a "general cross-case analysis for convergence and divergence between cases" (ibid, p. 4).

Understanding how the student participants experienced their learning environment was important for this study. Specifically, how the student participants experience leadership in multicultural teams in a high-fidelity simulation-based training environment. Utilising an IPA as a methodology allowed me to focus on each student participants' experiences and/or understandings of the phenomenon being researched (Smith, et al, 2009). That is, how they viewed their life world at that moment in the simulated medical scenario. Plus, delving into how the student participants reflected on their experiences in the simulated environment by looking closely at the lived experiences. As Alase (2017) suggests, IPA stresses the participants' perspective in their interaction with a phenomenon. Secondly, I was interested in "what happens when the everyday flow of lived experience" in the simulated medical scenario "takes on a particular significance for people.

This usually happens when something important happens…" (Smith, Flowers, and Larkin, 2009, p. 1). Put differently, I was interested in the student participants lived experiences in dealing with a female pregnant Muslim trauma patient for the first time. Additionally, IPA is used to interpret the participants' responses to the interview on the past and present events that have a bearing on the phenomenon being studied. For this particular study, it was an important factor to consider as the student participants had started the program as a group and were in the second year of study.

3.4.3 Activity Theory

What is activity theory? Hasan and Kazlauskas (2014) simplify Activity Theory as focusing on 'who is doing what, why and how?' But a theory such as Activity Theory that helps to explain the inner workings of an activity is not so easily explained. To gain an even better understanding of the current form of activity theory, I will briefly delve into the forbearers of Activity Theory and then discuss the evolution of the relatively recent iterations of the theory.

The historical origins of activity theory, otherwise known as cultural historical activity theory (Hasan & Kazlauskas, 2014), can be traced to works of a number of German philosophers. The works from Kant to Hegel, and that of Karl Marx and Friedrich Engels have influenced the thoughts and writings (Engeström, 1999) of the Vygotsky's group of Soviet post-revolutionary scholars (Yamagata-Lynch, 2010). It was this later group which included

Luria who is considered to be the original founder of Activity Theory. What Vygotsky and his group of scholars mainly contributed to the foundations of Activity Theory was the idea of an 'activity'. What Vygotsky and his group of scholars in psychology were exploring was an alternative to the idea that human activity was based on their behavioural desires to accomplish tasks, in other words, the work of Ivan Pavlov and the behaviourist movement. Vygotsky's group did not hold the view that people's behaviour and the environment they were part of were separate (Galperin, 1992; Luria, 1979). Instead, they promoted the view that, "unlike animals, human *activity* is purposeful and carried out by sets of *actions* through the use of '*tools*', which can be physical or psychological. The latter include language, the most significant *tool* for collaborative human activity" (Hasan & Kazlauskas, 2014, p. 9).

This concept of human activity is otherwise known as mediated action. What Vygotsky assumed is that the relationships people form with others and with artefacts they use are never constant, they go through a number of variations over time. Specifically, "(m)ediated action involves an interaction between the individual and mediating artefacts/tools and signs, a semiotically produced cognitive tool, that resulted from the interaction" (Yamagata-Lynch, 2010, p. 16). In using a triangulated figure (see figure 3.1 below), Vygotsky was trying to illustrate that human consciousness does not rely on dualistic stimulus-response associations.

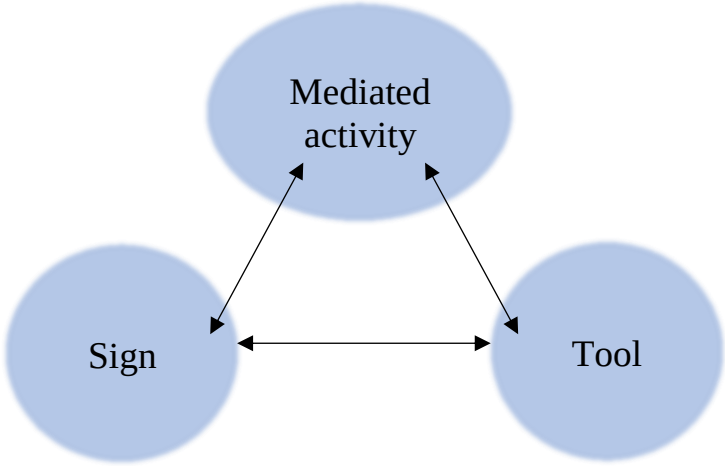

Figure 3.1: Vygotsky's mediated activity (Vygotsky, 1978, p. 55)

For "human activity is a process that involves artefacts that act as technical tools and signs that act as psychological tools available in the social environment…" (Yamagata-Lynch, 2010, p. 16) (see also Wertsch, Tulviste, & Hagstrom, 1993). As Kozulin (1996) explains Vygotsky's mediated action is a means by which people communicate with others to bring meaning of their immediate world through the use of artefacts and their goal (object). Figure 3.2 illustrates this concept which Engeström (1999) calls the first generation of the activity theory. Here the subject consists of the person or people involved in an activity. The mediating artefacts consist or consists of machines, writing, speaking gestures, architecture, music and the like. The other part of the view of activity is the object which is the goal of the activity.

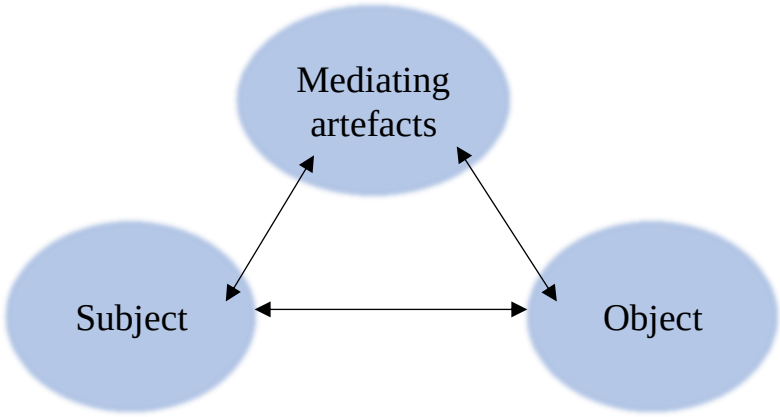

Figure 3.2: Mediation of the triad – subject, object and mediating artefact (Activity Theory 1st Generation). Adopted from Engeström (2001, p. 134)

An issue with the concept of mediated action is the duality of the internal/external action. Academic Galperin (1989) addressed this problem with the idea of 'oriented activity'. This concept states that people are able to mentally guess potential outcomes of the actions they were preparing to start. In short, this "internal mental activity orients the subjects to the external physical activity, and once the subject experiences this orienting nature of the mental activity, it has already served its purpose. Hence, mental activity itself does not exist separate from observable physical action" (Yamagata-Lynch, 2010, p. 20).

It is through this concept that Vygotsky described how people managed what they learned to acquire an individual awareness through social interaction. It is within the work on development and learning that Vygotsky and his team came up with the concept of *zone of proximal development* (ZPD). This concept is defined as the "gap between a child's actual performance and the level achievable with the help of an adult or a competent peer" (Ryle, 1999**,** p. 412). Within the classroom environment this means the instructor guides the

learner along this path towards acquisition of the learning objective by providing the necessary conditions and artefacts for the student to internalise the concept being shown. Within the realm of activity theory, Yamagata-Lynch (2010, p. 19), stresses that ZPD is a "conceptual tool for understanding the complexities involved in human activity while individuals engage in meaning making processes and interact with the environment."

Another development that is important in understanding activity theory is that of Leontiev's object-oriented activity. According to Leontiev (1974), it is this type of activity that activity theorists are interested in studying. In other words, they are interested in studying the interaction amongst the subject, motivation, object, action, socio-historical context, goals, and the activity and consequences (Galperin, 1992; Lazarev, 2004; Davydov, 1999). For Leontiev (1974, p. 10) an object-oriented activity is:

> a unit of life mediated by mental reflection whose real function is to orient the subject to the world of objects. Activity is thus not a reaction or a totality of reactions, but rather a system possessing structure, inner transformations, conversations, and development.

He goes on to explain that there is a distinction between goal-directed activities and object-oriented activities. Goal-directed activities are temporary in nature and may be part of the process of being part of an object-oriented activity. Also, goal-directed activities are often individualistic in that a person is more interested in achieving their own goals and not the collective goals. Yet, as is often the case, goal-directed activities often merge with that of community-based object-oriented activities.

3.4.3.1 Activity Theory today

Engeström (1987) expanded or developed this further with the introduction of an activity system of analysis. This form of analysis is designed to create a picture of the co-evolutionary interaction between groups of people or individuals themselves and their environment, and how these elements interact and affect one another. It is by examining the person or people involved in the activity and the environment that they are working in that separates it from cultural-historical activity theory (CHAT) (Yamagata-Lynch, 2010). To bring focus to both the environment and the person or people in an activity, Engeström's activity system of analysis examines an activity through the lens of object-oriented activity. By using this means of analysis the researcher is able to explore and experience the participants' activities vicariously. It is through this lens that researchers are able to answer their questions and delve into the meaning making process of the participants. In developing this form of activity theory, Engeström has provided two iterations in order to provide a better picture and analysis of an activity by building upon Vygotsky's mediated action triangle.

As described above, Vygotsky's mediated action triangle focuses on the *subject,* (the individual or the group of individuals), the *object*, (the goal or motive of performing the activity), and the tools, (social or other artefacts used to do the activity), see Figure 3.2. Engeström and Middleton (1996) added

that the tools or artefacts that function as tools are ones that are made, bought, thrown away and replaced in an activity. Thus, during an activity the participants may discover a new tool or that the tool may change its purpose through the course of an activity or a new activity. The second iteration of activity theory includes these elements of an activity as well as three more (see Figure 3.3 below).

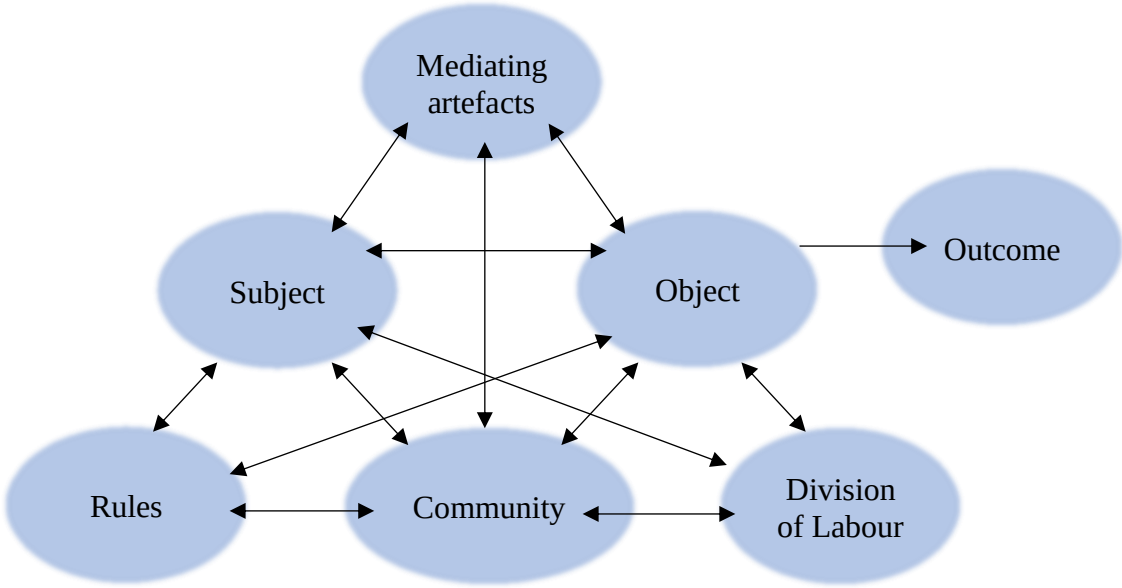

Figure 3.3: Activity Theory 2nd Generation. Adopted from Cole and Engeström (1993, p. 31)

As shown in figure 3.3 above, there are three more additions. These, (the *rules*, *community*, and *division of labour*) components bring the socio-historical parts of mediated action that Vygotsky did not present in his concept. This variation of activity theory, which Engeström calls the 2nd generation, is "attributed to A.N. Leontiev's work that emphasised the collective nature of human activity, along with Engeström's own work on activity systems model" (Yamagata-Lynch, 2010, p. 23).

The third generation of activity theory is the next iteration which is designed for researchers/investigators who often participate in the activity and may also play an interventionist role in the activity. The purpose of this interventionist role is to guide participants into experiencing a change in the activity (see Figure 3.4 below). This however is confined to the boundaries of the activity. It is within these boundaries that researchers explore the interaction participants share and note changes in the social system and the activity itself. For researchers to properly explore an activity, "investigators need a framework that will help them identify boundaries within complex systems. This boundary identification framework will guide investigators', design, development, implementation, and analysis process" (Yamagata-Lynch, 2010, p. 24). Engeström (2009, p. 310) puts forth the argument that third-generation activity theory "treats activity systems as reasonably well-bounded, although interlocking and networked, structured units. What goes on between activity systems is processes, such as the flow of rules from management to workers." However, work environments are in a constant state of flux. "Work is more distributed, more contingent, less stable. How do we understand social forms such as networks and virtual teams that partially replace standard organizational hierarchies? .... Knowledge work usually involves multitasking and working with diverse groups and individuals" (Kaptelinin and Nardi, 2006, p. 26).

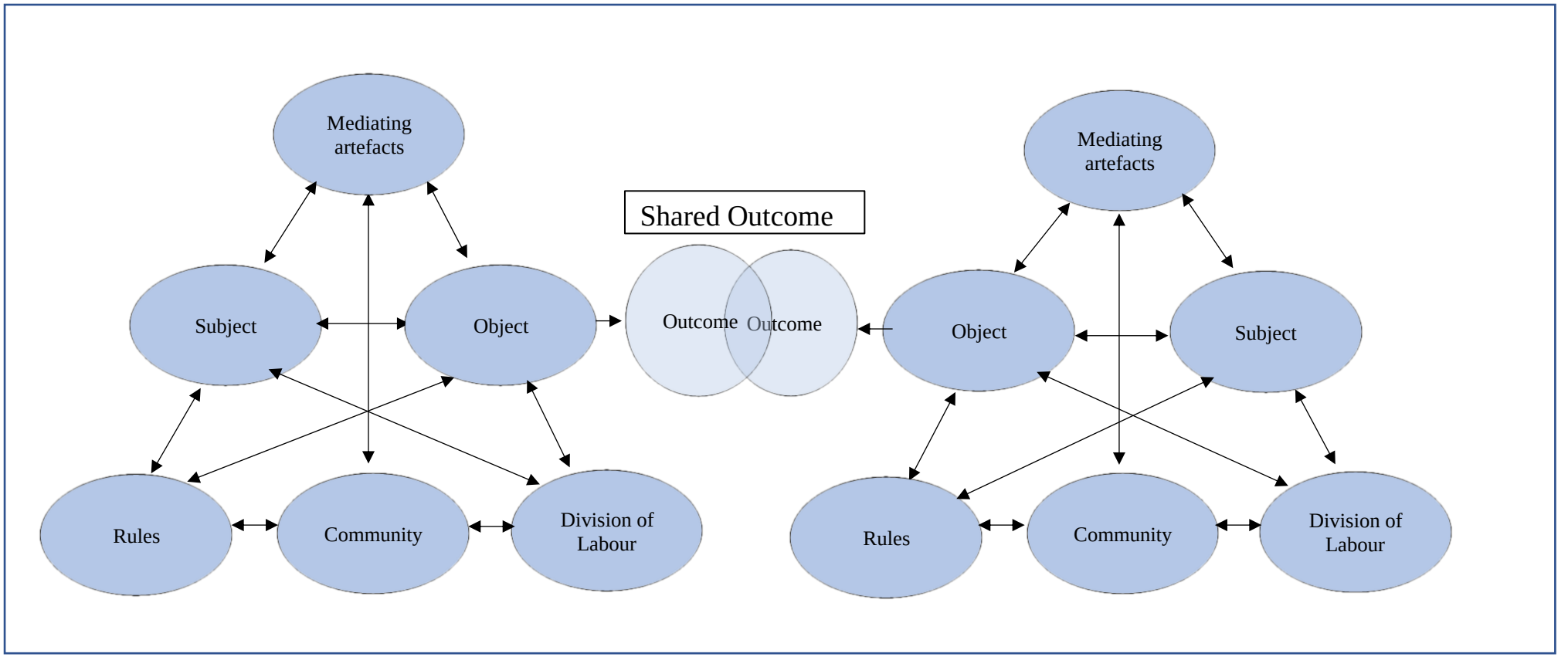

Figure 3.4: Activity Theory 3rd generation. (Engeström, 2001, p. 136)

A key aspect of these variations of activity theory is mediation between the subject and the artefacts they interact with to complete their task. There are a variety of perspectives on what mediation means in this case. James Wertsch's (1998) exploration of Vygotsky's use of the term mediation discovered two related but distinct terms: explicit (e.g. an iPhone app to organise their schedule) and implicit mediation (e.g. the use of internalised cues incorporated in speech). Engeström (1987) utilised the work of Wartofsky to classify mediation into: how-artefacts, what-artefacts, where-to-artefacts and why-artefacts. Another perspective is that of Victor Kaptelinin (2015) who explores mediation as a set of dimensions. Within a technological environment, such as a simulated medical environment utilising high-fidelity mannequins, mediation takes on a variety of interconnected mediational meanings (Kaptelinin, 2015). An important aspect of this view of activity theory, according to Kaptelinin and Nardi (2006) is the concept of functional organs. Originally, the idea of functional organs is linked to the work of Ukhtomsky (Zinchenko, 1996) and elaborated upon by Leontiev (1981). Leontiev (ibid) saw these organs as a combination of internal and external resources. Put differently, linking a persons' natural abilities with an artefact. For instance, a surgeon's use of a robot to perform complex procedures that allow the surgeon to extend their abilities with more control, flexibility, and precision (See George, Brand, LaPorta, Marescaux and Satava, 2018). To maximise the utility of a tool, a person, in the case above the surgeon, needs to have special kinds of competencies (Kaptelinin, 1996): tool related competencies and task-related competencies. Tool-related competencies are those that a person fully understand the functionality of the tool, plus the

required skills to operate it (Kaptelinin and Nardi, 2006). Task related competencies, on the other hand, are those that a person fully understands how to maximise the functionality of the tool as well as its limitations (ibid). Connected to concept of functional organs and activity theory is the complexing issue of when an artefact becomes an object and then reverts back to an artefact in the eyes of the person involved in the activity system (B. Bligh, personal correspondence, August 14, 2017). This is called artefact-object reversal (or sometimes known as tool-object reversal).

As mentioned above, activity theory has developed over a period of time. At the centre of this development is the exploration of all aspects of an activity and not just that of a single person in the activity but all influences be they environmental or motivational. What activity theory brings to this research project is the ability to look at how teams of people interact and the artefacts that influence those interactions.

3.4.4 Methodology Summary

To summarise, the multi-methodological approach utilised for this research project is interpretative phenomenological analysis, to explore the lived experience of the participants, and Engeström's 2nd generation activity theory coupled with Kaptelinin's functional organs, to see what role the high-fidelity mannequin played in the participants experience in the simulation lab. Put simply, IPA is being used to discover the lived experiences of the participants

and activity theory analysis to examine their interaction with the technology at hand and with each other.

3.5 Simulation Context

The simulation lab course, which takes place in the simulation laboratory (see figure 3.5 below), is required of all advanced paramedicine students at CNAQ who are in their second year of study and have successfully completed all first-year courses. The course, according to the CNAQ Academic Calendar (2015, p. 230, online) is to

> prepare students for practicum placements through synthesizing and integrating knowledge and skills learned in previous and concurrent courses. Students will demonstrate proficiency assessing, inferring a differential diagnosis and providing care to various patient-types in a simulated setting using high fidelity simulation. Using a teamwork approach, students will simulate the events of a paramedic or clinical response. At the conclusion of simulated scenarios, students who performed lead roles will complete proper documentation in a medical record.

In addition to this information, all the courses in the health sciences faculty are given in English and students are required to speak in English during class time.

The mannequin the students used in this research project is the SimMan 3G. The SimMan 3G is a “wireless life size patient manikin that can talk with pre-recorded sounds and speech, breath with normal and abnormal breath sounds, and produce heart sounds, palpable pulses and unilateral/bilateral chest movements” (Swamy, Bloomfield, Thomas, Singh and Searle, 2013, p.2). These attributes are managed by the instructor or simulation lab technician through a computer monitor. The SimMan can also be pre-programmed for a variety of medical scenarios as well as managed in real-time depending on the learning objectives.

3.6 Participants

The student participants of this study come from a variety of backgrounds. In the first cohort of 6 student participants, two were female. In addition, these female students held different nationalities and differing first languages. Of the six student participants, the nationalities were split equally between India and the Philippines. It should be noted that the Philippine student participants shared a common first language, but the Indian student participants did not. Two of the Indian student participants shared a common first language as they originated from the same area of India; whereas the other student participant originated from a different part of India.

In the second cohort, there were five male student participants from various parts of the world. The student participants in this group originated from

Canada, Sudan, India, Tunisia, and Palestine. All but one of these student participants spoke Arabic fluently and of these Arabic speakers three were native Arabic speakers. The remaining two student participants' first language was English or Malayalam. Thus, like the first cohort, one student participant did not share a common language amongst the other student participants of the study.

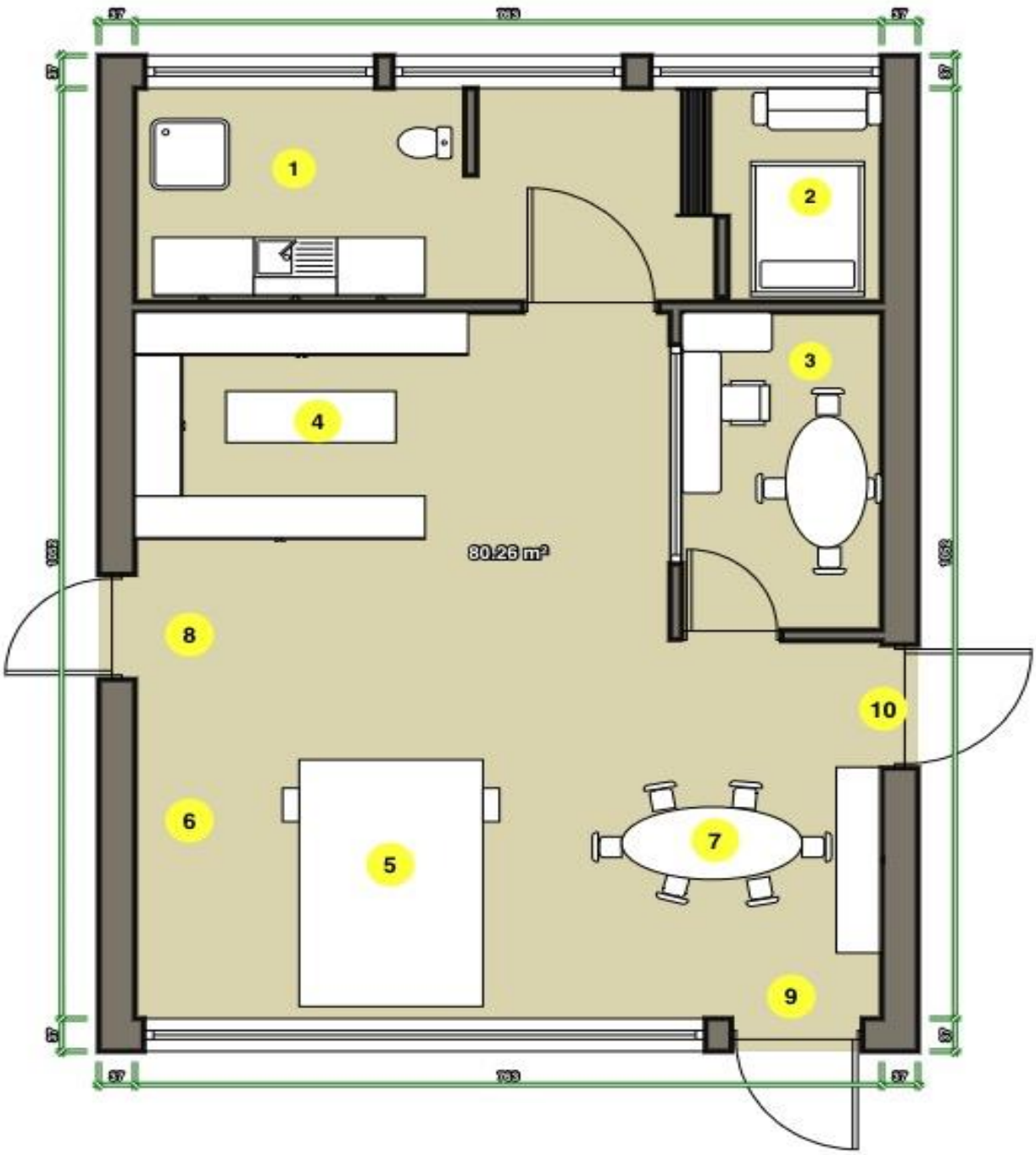

Figure 3.5: Topographical view of simulation lab

Legend

1) Simulated toilet and shower room.
2) Simulated bedroom with sofa.
3) Instructor observation & debriefing room.
4) Simulated open ‘ambulance’
5) Full size mock ambulance
6) Backboards
7) Meeting table
8) Emergency exits
9) Hallway to other classrooms

3.7 Data Collection Methods and Procedures

I collected data from a number of sources, namely, observations, field notes, interviews, and focus groups. In the following sections, I will go into detail as to why I chose these methods as well as the type.

3.7.1 Observation

My primary goal in observing the scenarios was to capture as much data as possible. To accomplish this goal, I recorded the simulation sessions which lasted approximately twenty minutes each. This varied plus or minus five minutes depending on the lead instructor's assessment of the amount of learning that the student participants could accomplish. That is, were the student participants on the cusp of breaking a threshold. During the recording of the simulation studies, I was concerned about being able to hear and see what the student participants were saying to one another vocally and through body language. To try to mitigate these issues, I had two digital video recorders and one digital audio recorder. One of the digital recorders was in a fixed position and the other was moved around the room by myself, where I thought maximum audio and visual input could be provided while not impeding the student participant's ability to treat the patient. This was also true of the digital audio recorder. Immediately after each simulation session, I downloaded the mp3 files and audio files into my laptop computer and locked the files in an encrypted password protected folder. I subsequently cropped

images from these videos for illustrative purposes only, to assist the reader in understanding the student participants' experiences during the simulated trauma event. It should be noted that "(t)o date, only a handful of researchers have paired IPA and visual data" (Demecs and Miller, 2019, p. 101). The use of photo's in an interpretative phenomenological analysis study is not traditionally the means of collecting information. The desired approach involves data collection through only interviews (Eatough and Smith, 2017). Yet, as alluded above, the use of photos in IPA is not new. Quincey, Williamson and Wildbur (2021), conducted an IPA study where the participants of the study took pictures to show their experiences with breast cancer. Ciolan and Manasia (2017) similarly had their participants take photographs of things that represented a specific aspect of their private and/or social life. Demecs and Miller (2019) argue that researcher produced photographs can enhance IPA research papers as they aid in visually setting the scene of a study, the process involved, and the telling or unique cases in a study (see also Pauwels, 2012).

For this thesis, the photos were selected to illustrate the key points in the data collection that were mentioned by the student participants. In addition, I wanted to visually present the setting of the scenario the students were involved in.

3.7.2 Field Notes

For this study, field notes at two parts of the data collection process were taken. The first instance was during the Rapid Trauma simulated event. At this point of the study, I wrote down my thoughts on a notepad while the students were immersed in the simulation exercise and directly after the exercise. After the simulation session was finished for each cohort, I entered these notes onto a secured Word document in my laptop computer. This procedure was also followed for the interviews and focus groups.

I also took notes when reviewing the audio and video recordings to note the body language being used and any reactions I missed during the actual event.

3.7.3 Interviews

The interviews were conducted in a location where the student participants felt comfortable to speak freely and at a time the student participants were available. In addition to explaining the benefits of talking about their experiences in the simulation lab, I wanted to have an extra incentive for the student participants to attend the interview. Therefore, I bought some pizza. For the first cohort of student participants, the interviews were conducted at a time and day of their choosing. As it happened, all the student participants wanted to be interviewed three days after their simulation-lab lesson, a Saturday, in my office. I had scheduled the interviews to run for one hour with

a twenty-minute break between each interview. This was done to provide me time to take notes or, as was often the case, to allow the student participant to talk longer if needed. Some of the interviews lasted longer than one hour while others were less than an hour. Prior to recording the interviews, I had every student participant watch the first three minutes of their recorded scenario on my computer as a means of refreshing their memories of their scenario. Specifically, the first three minutes included the message from dispatch describing the scenario to the student participants as well as their initial reactions to the scenario. This was done to refresh their memories on the events that occurred during their simulation lab session as it occurred two days earlier. While the recording was being watched, I noted any reactions or commentary the student participants made on a separate piece of paper for potential follow up questions.

For the second cohort of student participants, the same procedure was followed with two notable differences. First, the interviews took place one week after the medical scenario had occurred. The reasons are twofold. Firstly, the proximity of the student participants' final exams to when the medical scenario took place. Their instructors had encouraged them to have the interviews after they had completed their tests. As such, this group of student participants had official confirmation of their final marks prior to their interview unlike the first cohort of student participants. This may have influenced the interviews. The other difference was in the location of the interviews. This group of student participants did not want to walk across the campus to my office, unlike the first cohort. Therefore, the interviews were

conducted in a classroom adjacent to the simulation lab. It was a room they were very familiar with as it was one they had used for a paramedic class that semester. Thus, to make it easier for them, I reserved the classroom for the day. Like the previous cohort, I offered the student participants pizza, but they declined. All the student participants had made prior commitments to go somewhere after their interview.

3.7.4 Focus Groups

As conducting the interviews for this study immediately after the simulation session was impossible due to time constraints, I wanted to conduct focus group sessions after each cohort had completed their simulation exercise to capture their first impressions that they wanted to share with the group. This was not completely out of character from their regular simulation lab lessons. After simulation lab lessons, the instructor would conduct a debriefing session to discuss the participants' perspective of their learning experiences, positive and negative, from the session. These debriefings primarily focused on the technical aspects of treatment and to a lesser extent the communicative aspects. As such, scheduling the focus group sessions immediately after the simulation exercise was seen as a natural progression for both cohorts and one that did not hinder their other classes.

The importance of focus groups for collecting data is disputed amongst academics. For the purposes of this study, I will define a focus group as a

technique to gather data on a topic determined by the researcher. This type of data collection has three main components. "First, it clearly states that focus groups are a research method devoted to data collection. Second, it locates the interaction in a group discussion as the source of the data. Third, it acknowledges the researcher's active role in creating the group discussion for data collection purposes" (Morgan, 1996, p. 130).

3.8 Data Analysis

Analysing the data collected was approached from two perspectives, one from an interpretative phenomenological analysis perspective and the other an activity theory perspective. The reasoning for approaching the collected data in this manner is to provide two lenses to: the student participants' experiences and the student participants' interactions with each other and their environment of a simulated paramedic multi-trauma scene.

The analytical process of using the IPA method is rather flexible according to Smith et al (2009). The literature on the method of analysing data using IPA is not consistent. What is consistent is the direct focus on the researcher's analytic focus on the participants' experiences with the phenomenon. As such, a common process has emerged in the literature that moves "from the particular to the shared, and from the descriptive to the interpretative" (Smith et al, 2009, p. 79).

I also utilised activity theory. This assisted in reinforcing this qualitative and interpretative research by providing a holistic and contextual method of discovery (Hashim and Jones, 2007). Specifically, activity theory helps uncover the mediation and oscillations between the participants and the artefacts that were present during their scenario. As mentioned in sections 1.3.1 and 3.4.3, there are various views of activity theory in the literature. For the purposes of this thesis, I have elected to blend elements of Engeström's second generation activity theory with that of Kaptelinin's (see Kaptelinin & Nardi, 2006). Specifically, I will employ Engeström's 2nd generation view of activity theory while utilising Kaptelinin's usage of functional organs. Blending elements of both views of activity theory will help to uncover the relationship the student participants have with the activity and the inner workings of the activity. In the following subsections, I explain how this process unfolded with my research.

Method	**Data Gathering**
Interpretative Phenomenological Analysis	• Interviews ○ Semi-structured • Focus Groups

Activity Theory	• Interviews
	  ○ Semi-structured
	• Observations
	  ○ Video-recordings
	  ○ Real-time observations noted in notebook

Table 3.1 Table of Data Gathering Methods.

3.7.1 Observational Field Notes and Focus Groups

The use of observations and field notes is not a common practice amongst academic IPA researchers (Smith et al, 2009). However, Larkin & Griffiths (2002) have utilised observations in collecting and analysing data in their research. The same is true of Flowers, Knussen & Duncan (2001). Both of these groups of researchers recognised the problematic nature of this method of collecting data; however, they argued that in their studies this was apt. Specifically, Flowers, Knussen & Duncan (2001) stated that the participants of their study were well known to each other, and their groups were well established so using focus groups enabled them to enrich the data. As for Larkin & Griffiths (2002), observational methods provide researchers with a starting point to identify possible key points of the participants' experiences.

Activity theory, on the other hand, explores the mediation and oscillation between the participants and the artefacts involved in an activity by analysing video recordings in some instances (see Bødker, 1996). For this present body of research, my observational notes and focus group records provided me with the ability to further enrich the data from the in-depth interviews of the student participants when analysing the data. That is, I used this information to corroborate the data from the interviews as well as demonstrating a more descriptive picture of the student participants' experiences. In addition, instances of mediation and oscillation with artefacts and other student

participants in the scenario were highlighted. This was accomplished by creating activity diagrams.

3.7.2 Interviews

As mentioned above, I conducted interviews as soon as possible after their simulation lab session. The student participants themselves chose when to be interviewed.

Cohort 1 Simulation Teams Student Participants and GLOBE Region			
Group No.	**Team Member**	**Team Member**	**Team Leader**
1	EMERSON (Southeast Asian)	TAYLOR (Southeast Asian)	TANVEER (Southeast Asian)
2	CHARLIE (Southeast Asian)	IZAZ (Southeast Asian)	NUSRAT (Southeast Asian)
Cohort 2 Simulation Teams Student Participants and GLOBE Region			
Group No.	**Team Member**	**Team Member**	**Team Leader**
1	NUSRAT (Silent-Team Member) (Southeast Asian)	AZM (Middle Eastern)	KHAYRAT (Southeast Asian)
2	KABIRAH (Anglo/Middle Eastern)	IMIYAZ (Middle Eastern)	INTISAR (Middle Eastern)

Table 3.2: Simulation Scenario Group Student Participants

In the process of analysing the data, I wanted to ensure that I would fully immerse myself into the student participants' world. This was done in a variety of stages. The first stage involved me personally listening and transcribing each recorded interview, focus group and simulation lab session. My transcriptions involved following a verbatim method of transcription. The reasoning for following this method is that I wanted to capture all the nuances of the interview. This included pauses in the conversation and the length of these pauses. I also transcribed the interactions between the student participants during the simulation sessions. There were parts of the recordings that were difficult to decipher what the student participants said due to background noise, their accent or, during the simulation session, they did not want others on their team or the instructor to hear what they said. In these circumstances, I would listen to the recordings at different speeds until I was able to transcribe these segments in the conversation. The cumulative transcriptions amounted to hundreds of pages of transcripts.

After transcribing the data, I read and re-read each student participant's interview. This is an important stage in the data analysis process as it lends itself to uncovering the lived experiences of the student participants as well as their experience interacting with the high-fidelity mannequin. I then identified emergent themes in the individual interviews and subsequently how these themes converged or diverged from the other student participants based on their correlation to the research questions. This process was repeated to ensure that all aspects of the data were reviewed thoroughly. This was

followed by providing another layer of analysis highlighting the mediating factors and those instances of oscillation.

3.7.3 Pilot Study

To ensure that my approach for the main study was sound, I decided to conduct a pilot study prior to the main study to highlight any weaknesses in my methodology. My reasoning is reflected in the words of van Teijlingen and Hundley (2001) who stated that "it might give advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated" (see also Baker, 1994).

The pilot study involved six student participants who had been together as a group since the beginning of their journey in becoming paramedics. The data gathered illustrated that I needed to change a number of areas. That is, the pilot study proved useful as it highlighted issues that needed to be addressed before the main study was conducted.

One issue that needed to be addressed was the wording of the interview and focus group semi-structured questions. The wording of the questions was not easily understood by the student participants. So, I was continually rephrasing my questions during the interviews and focus group. Thus, I altered the wording of the questions to make them comprehensible to the

student participants. Another issue was more of a technical issue. The placement of the digital cameras and digital audio recorder did not capture all aspects of the scenario. Therefore, I employed the use of another digital camera and placed the digital audio recorder closer to the student participants. A third issue that was uncovered during the focus group discussion involved the presence of the course instructor. I initially thought this would help the student participants feel at ease. However, I quickly realised that the instructors tended to divert the conversation towards issues discussed during their regular debriefing sessions which were predominantly focused on technical and procedural aspects of the simulation session. These types of questions are important, but they did not fully engage with the focus of my thesis. So, I found myself in a bit of a dilemma. Being that my study relied on me being accommodating with the needs of the instructors in delivering their course, I suggested that they need not be present during the focus group sessions as I did not want to focus on the technical aspects of paramedic care. Fortunately, the instructors were accommodating of this plan.

The benefits of a pilot study are compelling as exemplified above. However, there are shortcomings. One issue is the "possibility of making inaccurate predictions or assumptions on the basis of pilot data…" (van Teijlingen and Hundley, 2001). In addressing this concern, I consciously altered the group of students' pilot study simulation scenario to that of the real study. Another issue is that the data collected may be contaminated as the questions asked in the pilot study may not substantially change during the main study. To

contend with this potential issue, I changed the wording of the interview questions as well as the order. In addition to these issues, I had to deal with the problem of the pilot study student participants being in the main study. van Teijlingen and Hundley (ibid) mention that in some circumstances this type of issue is not preventable. In my case, removing these participants would create a problem with the number of participants. It should also be noted that none of the data collected for the pilot study was used in this study. To ensure this did not occur, I reminded these students that their responses are only to relate to the current simulation session which was different to the scenario used in the pilot study where the patient was a child and not wearing Islamic clothing.

3.8 Trustworthiness/Quality Issues

In academic research, questions regarding the reliability and validity of a qualitative research paper have been questioned as measuring reliability and validity is approached differently in naturalistic work (Shenton, 2004). It is deemed by researchers of a naturalistic inclination to distance themselves from the positivist paradigm held by predominantly quantitative researchers. Guba (1981) has developed a means of distancing the positivist paradigm with a construct that seeks trustworthiness in a study. This construct mirrors the positivistic one by focusing on similar problems. Thus, the four elements of trustworthiness are:

Credibility,

Transferability,

Confirmability,

Dependability.

3.8.1 Credibility

Credibility is crucial to ensuring and establishing trustworthiness of a research project. To maintain the creditability of this research project I have followed and adopted established research methods as mentioned above. I also had developed a familiarity with the organisation where the study took place as well as with the culture. As mentioned, I had worked at the organisation for 11 years before I started collecting data for this particular research study. Another aspect of credibility was that I did not have any control over who served as informants for this study. The student participants were chosen based on whether or not they passed all their previous first year courses and consented to taking part in the study. I also triangulated my data gathering methods. That is, I used different means of collecting data in concert, as illustrated above. Thus, I was able to compensate for the limitations of each collection method (see Guba, 1981; Brewer and Hunter, 1989). Another measure I took to ensure credibility of the data was to provide each student participant the opportunity to refuse to partake in the study as well as remove themselves from the study at anytime. I also encouraged the student participants to be completely open and honest at the beginning of the

interviews and focus groups. Another avenue I took in maintaining credibility was to utilise iterative questioning. Put differently, I frequently returned to matters raised by the student participants previously to gather extra information about their experiences with the phenomenon. Conversations and peer scrutiny of this project was also ensured with and through my academic supervisor throughout this project. I have also provided a thick description of the phenomenon which is the focus of this study.

3.8.2 Transferability

Transferability is another important aspect of maintaining the trustworthiness of a study. One means of relaying transferability to the reader is for the researcher to seek similar research and reference it in their research. Regarding this study, however, no similar research was found. Another means is to bring the study to life. In other words, as a researcher investigating the experiences of paramedic students in a simulated environment, my responsibility is to provide enough contextual information about where the study takes place to provide the reader with the ability to relate to the fieldwork site (see Lincoln and Guba, 1985; Bassey, 1981). The extent of background information provided in this study follows Guba's (1981, p. 86) suggestion to provide "a full description of all the contextual factors impinging on the inquiry".

3.8.3 Dependability

Dependability of this study was maintained by overlapping methods by utilising focus groups and in-depth interviews. Furthermore, the processes followed were reported in detail. This detail will allow the reader to determine the extent to which “proper research practices have been followed.” (Shenton, 2004, p. 71).

3.8.4 Confirmability

To ensure the confirmability of the data, I wanted to guarantee that the findings were not the result of my characteristics and preferences as a researcher. Instead, I strived to ensure the data reflected the student participant’s experiences. Thus, I triangulated the data and have provided a section on my own predispositions (see Miles & Huberman, 1994). (See section 4.1)

3.9 Ethical Considerations

Approval of this research was granted by the College of the North Atlantic – Qatar (CNAQ) and by Lancaster University. In gaining ethical approval from the college, I was required to take an online research ethics course and submit my results electronically to the Institutional Review Board at CNAQ. All

student participants of this study were provided with a document that explained the purpose of the study as well as the reason for obtaining informed consent.

3.10 Summary

In this chapter, I have discussed the issues, procedures and methods in my planning, data collection, and analysis of the data gathered from the student participants in a simulated medical environment. The pilot study I conducted led to improvements in the procedures and the interview questions themselves. Chapter four provides an analysis of the results from the application of these methodologies.

Chapter 4 Findings

4.1 Introduction

In the previous chapter, I discussed the reasoning behind utilising a multi-methodological approach in collecting and analysing the data. As well, I revealed the educational theory that is used to explore the meaning of the data. To best encapsulate the findings, I have divided the findings into two sections: interpretative phenomenological analysis and activity theory. Specifically, the first section uses an interpretative phenomenological analysis (IPA) approach to study how the student participants, in multicultural teams, experienced leadership in the high-fidelity simulation-based training environment. The following section uses a blend of Engeström's second generation activity theory and Kaptelinin's functional organs (see section 3.4) to study what role the high-fidelity mannequin plays in student participants' experiences of leadership in a multicultural high-fidelity simulation-based training environment.

This chapter presents the data that was uncovered using semi-structured interviews, focus-group discussions and observations of the student participants - whose cultural roots range from the Middle East, Anglo, and South Asia regions - in the actual simulation lab scenarios. To bring greater clarity to these findings, I report the data into three sections: student participant expectations (4.2); student participant experiences of teamwork

communication (4.3); and student participant experiences and thoughts on treating a high-fidelity mannequin during the simulated medical scenario (4.4). What was found were a series of common themes in the data. These are illustrated below in the horizontal tree diagram. (See Figure 4.1)

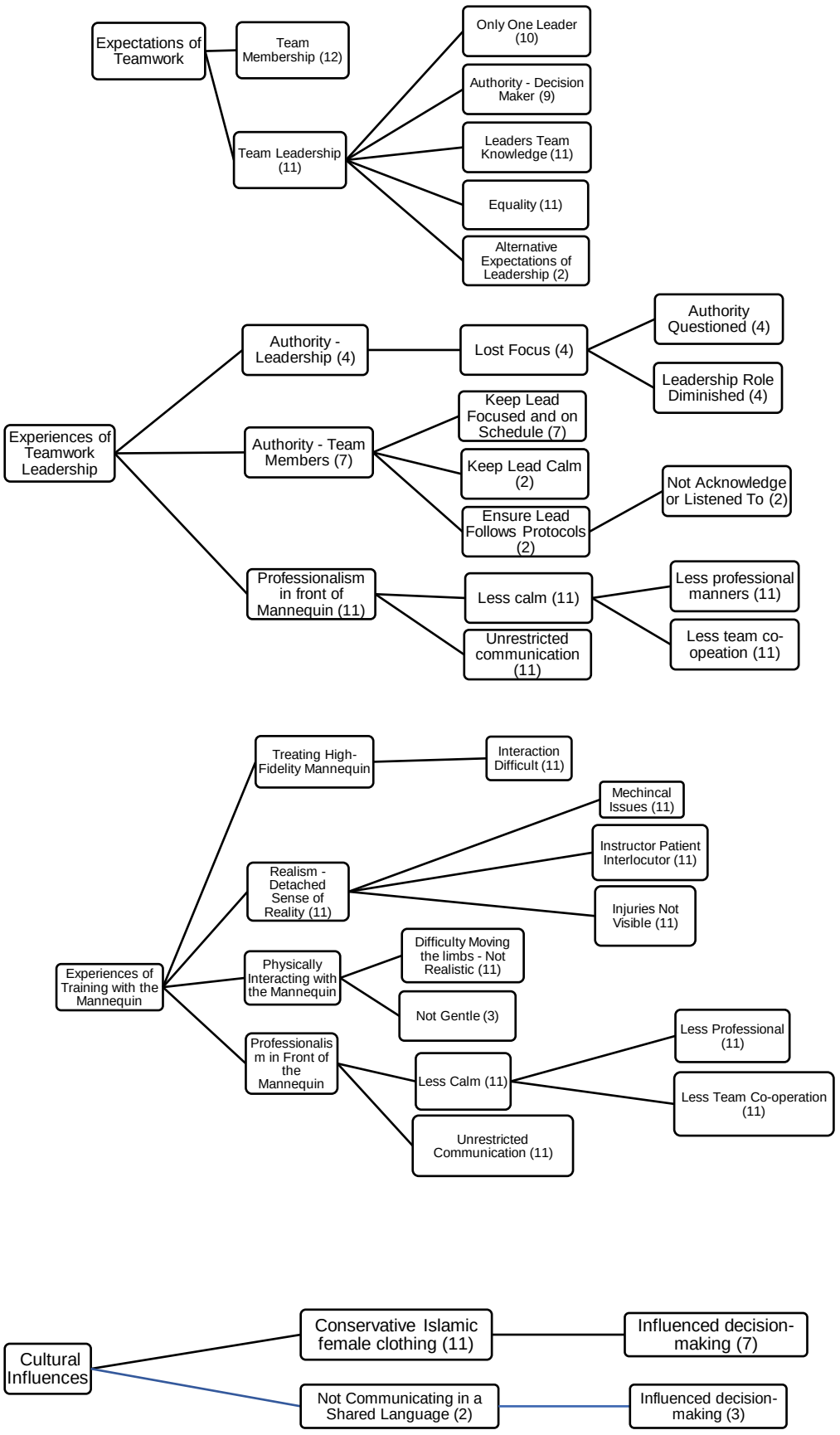

Figure 4.1: Findings main themes and sub themes with student participant numbers in parenthesis

4.2 Expectations of Teamwork

In this section, I discuss the theme of participation expectations. I reveal the expectations of the student participants as a step into understanding the extent multiculturalism plays in team dynamics.

The expectations that eleven student participants held regarding team dynamics revealed three common themes as well as some differences (See figure 4.1). These themes, are illustrated below by quotes from the interviews, centred upon teamwork, communication, leadership, and perceptions in treating the high-fidelity mannequin. To make the excerpts from the interviews easier to understand, they have been purposively transcribed into intelligent verbatim transcriptions.

4.2.1 Expectations of Team Membership

Teamwork is in part nurtured and developed through training (Patterson, Weaver, Weaver, Rosen, Todorova, Weingart, Krackhardt, Lave, Arnold, Yealy and Salas, 2012). The findings showed that all the participants acknowledged that they were expected to follow a set of protocols, as explained by their instructors and illustrated in their textbooks, in managing the scenario. These protocols stress the importance of teamwork and its link to patient outcomes. In this section, I, first, show what these particular groups of student participants have been taught regarding paramedic teamwork. This

will be followed by exploring what these student participants themselves expected.

The student participants of this study expressed the same expectations of a functional paramedic team that they learned in class. Specifically, the team leader is responsible for all the team's actions and is the ultimate decision maker on the team. The leader is also responsible for assessing the scene quickly to look for clues that will help the paramedic determine what types of injuries are possible. The next step is to talk to the patient to determine their level of consciousness. This is followed or in conjunction by checking the patient's ABCs, (Airway - determining if the airway is clear; Breathing - checking the quality of breathing by assessing the rate and tidal volume; Circulation - determining the rate, quality and rhythm of the pulse plus assessing the skin colour, temperature, moisture and capillary refill). The next step is to check for major bleeding. Once these steps are complete and the patient is stable, the leader then decides on the optimal method to transport the patient. During the assessment process the lead is also responsible for getting their teammates (team members) to act on any problem areas. Moreover, they must monitor their teammates to ensure they are performing their tasks properly. This was emphasised by all the student participants. The team members, on the other hand, are there to support the team leader by noting changes in the patient's condition and notifying the team leader as well as suggesting treatment options when appropriate. They are also expected to monitor the team leader to ensure treatment protocols are not missed and

provide feedback when they deem it necessary. This is all to be communicated calmly, and professionally.

As stated above, all the student participant's shared the same expectations of the paramedic team dynamics and protocols as taught in class. Yet, the interviews revealed that these taught paramedic team expectations did not parallel with the student participant's individual expectations of how team dynamics in a team should function. That is, the taught vision of a well-functioning paramedic team differed from their personal idea of a well-functioning team. In the following sub-sections, I describe these varied views of the teamwork from the perspective of the student participants.

4.2.2 Expectations of Team Leadership

In this sub-section, I examine the student participants expectations of team leadership. The expectations that the student participants held regarding team leadership revealed five themes: only one leader, authority, leaders team knowledge equality, and an alternative expectations of leadership.

4.2.2.1 Expectations of Team Leadership: Only One Leader

The findings revealed that nine of the eleven student participants shared the view that a team has one person who acts as the team leader. Specifically, all

but one person from the Middle East and the South Asia region shared the view that one person is the team leader. The common leadership qualities that these two student participants expected was a person who exhibited good communication skills, good listening skills, an excellent understanding of their teammate's abilities, and creates and maintains an environment of equality.

For the other nine student participants of this study, the ability of the leader of a team to communicate their instructions and thoughts to their team was expected. Yet, the means of achieving or implementing this goal slightly varied amongst the student participants. Most viewed non-verbal communication as an important element of team communication. For Taylor and Nusrat (who both come from the South Asia region), non-verbal communication for a team leader was stressed more so than the others. Nusrat highlighted that the use of non-verbal communication by the team leader helped convey support during an activity:

> It should not like it should not you should not say in the front of others, or you should not shout at him in front of others. It would demotivate it them. Better he himself realise you should give a smile. You should be like a tap on his back and say go ahead I'm with you. Or some good words to motivate himself. And maybe in a dressing room or somewhere else you can talk about it. That's what you did bad maybe in a kind way a better way (Nusrat).

In this instance, the focus of the team leader is on showing support for the team members on the team by physically showing they are in this activity together. Nusrat views this aspect of leadership vital as it motivates and unifies the team.

Like Nusrat, Taylor viewed tapping a team mate on the back as an important attribute for the leader to have. However, the message conveyed to the team or teammate held a different meaning. Taylor saw a pat on the shoulder or back as a form of motivating the team member to continue their intervention(s) on the patient and that a successful outcome is possible. It was also viewed as a means of communicating to the person that they need to improve. Taylor revealed during their interview how this can be accomplished. Taylor stated that when the team is not functioning well a good team leader would “slap their back to like wake them (the team member) up, like snap out of it” (Taylor).

4.2.2.2 Expectations of Team Leadership Authority - Decision Maker

The use of body language by the leader was not the only means of communicating with the team. It was also seen as a way to demonstrate authority. This manner of expressing authority was conveyed in the tasks allocated to the team members. For Tanveer, Kabirah, Imtiyaz, and Intisar, all of whom are from the Middle East region, this meant the leader is the one who gives out team orders and has final decision-making authority. How this was

expected to be implemented varied among these student participants. For Tanveer and Intisar, total control of the team rested with the team leader. The leader is the one who tells the people on the team what to do, and the team must listen and do what they say. For Intisar, this equated to the leader demanding that teammates listen and implement the leader's instructions. They stated during the interview that at the first stage of the scenario that their teammates "were doing what I told tell them to do."

Tanveer, on the other hand, viewed the team leader as conveying themselves so that people on the team are compelled to listen. This also meant that the leader was firm and strong but not to appear arrogant. In Tanveer's words:

> Being firm and being able to not be aggressive but being able to voice your opinions that o.k. This is to be done. You need to have assertiveness in you. You cannot be too liberal and become a leader.

Kabirah and Imtiyaz, like Tanveer and Intisar, agreed that a leader gives orders to people on the team. However, they expected the leader to be a good listener and take into account their teammate's opinions before giving out orders. In other words, to make a good decision and give out orders the leader must listen to their teammate's opinions on any decision being made.

> They have to follow the instructions which is from the leader. And they have to respect each other in the scenario. And if one have (sic) an opinion, they have to listen for this opinion. If he (his teammate) is not

one-hundred percent sure, he can't take his colleagues' opinion. (Imtiyaz)

The idea that a leader needs to be a good listener was also connected with acknowledging people on their team. Specifically, all but one of the student participants stressed that when a teammate offers an opinion or suggestion, the lead must recognise this with a verbal or non-verbal comment. This form of acknowledgement shows respect and equality to people on the team. Specifically, as Emerson states that "an excellent captain is, of course, one who listens to his partner (and) he treats them the same. So, he should respect everyone's opinion and make the right decision at the end." (Emerson)

By the team leader listening to their teammates, the team leader is showing people on the team that they value their views. This expectation was also expressed by Imtiyaz, Kabirah and Izaz that the leader is responsible for making the final decision. ".. they have respect and if one have (sic) and opinion, they have to listen for this opinion before making a decision" (Imtiyaz).

Charlie (who is from the South Asia region) shared this expectation as well, but extended this skill to resolving, through mediation, conflicts that occur in a team. The role of mediating conflicts by the leader was also recognised by Izaz. However, they felt that conflicts would be a rare occurrence because all people on the team knew that their opinions would be considered equally before a final decision was made.

Emerson, on the other hand, states that the leader knows the skills of the team members but explains that this is a trait that is common knowledge amongst all the team members. “No one’s better than the other. Everyone is equal. And you know each other really well” (Emerson). This expectation was also held by Izaz who said:

> Everyone in the group knows each person on the team is equal. They know each other well. And based on this information they should choose a person whom they think is the right person to lead the team.

4.2.2.3 Expectations of Team Leadership: Leader’s Team Knowledge

Another sub theme that emerged from the data was the expectation that the leader will know the skill sets of each person on the team and how best to communicate with them. For three student participants this meant that the leader knew everyone very well on the team, resulting in knowing how best to communicate with them to harness their knowledge. How this was envisioned by the student participants varied. For Charlie the leader is seen as the one person who knows people on the team very well and exudes respect, like a father figure. In their words, the leader is one who:

> would stand as the patriarch of the group. Who would, if he could be, the one who the partners would go to if they needed to say something? Or, if they feel like they could if they want to suggest something that would make the team better. Of course, the rest of the partners, if they all

agree, that the team leader is the lead that they would listen to him more or her more (Charlie).

In addition to this patriarchal template of team dynamics, Charlie also extended this metaphor of the patriarch to that of the human brain. Specifically, the team leader is the brains of the team, and the teammates are the body parts. Thus, the team leader coordinates the functions of each person on the team for maximum efficiency. This view of coordinating and deciding the roles of the team members was also shared by Emerson and Taylor.

4.2.2.4 Expectations on Team Leadership: Equality

The student participants also expected a leader to show fairness and respect to everyone on the team in equal measure. This was very important for student participants and one that was expressed in a variety of forms. Emerson stressed that all team members, including the leader, are no better than anyone else on the team. As such, he expects the leader of the team to treat everyone equally in regard to respecting and in listening to their teammates. “An excellent captain is, of course, he listens to his partners. He treats them the same” (Emerson). This sentiment was also echoed by Tanveer who like Emerson stated that all team members are equal and that no one on the team is better than other people on the team.

A connection between equality and showing fairness and respect was also made by Tanveer. Specifically, “you should be respectful and even though you are the leader, leaders are really humble. So, being humble and diplomatic” (Tanveer). Other views of team and teamwork were expressed, but the ones stated above were shared by nine of the eleven student participants.

4.2.2.5: Expectations of Team Leadership: Alternative Expectations on Leadership

Another view expressed by Azmi and Khayrat was that they did not expect a team to have a leader. Instead, they stressed collaborative and cooperative working environments. This similarity in views differed when they expressed their views on how this working environment materialised. For Azmi the foundation of a collaborative and cooperative environment rested on the view that everyone on the team had the same educational and training background that is pertinent to the profession. Azmi also stressed that each team member retained the same amount of educational knowledge and skills. Thus, under any circumstance, all team members can perform any task equally well that occurs during an emergency. Azmi did provide a caveat, however. They realise that the term equally well is not stringently defined. That is, team members are not completely equal in completing tasks. They expect some team members to be better at certain tasks than others. Their main emphasis is that everyone on the team can perform all functions at any time with the

same end result. Therefore, having team members with equal knowledge retention and equal training means that a team leader is not needed. In Azmi's words, everyone on the team has the "same level of training" and same abilities. "So, being in a team where we are all equal. So, we don't really need to say 'he's the leader' and 'I'm the leader'."

As mentioned above, the concept of a leaderless team was highlighted during the interview with Khayrat as well. They stressed that the team members are there to help each other out to make the best outcome through consensus not just through one person. Thus, it blends the best ideas from the people on the team to make a better team and/or better outcome. In their words, "if I have an idea and if you have another idea when it comes together it gives a better outcome." Put differently, group decision-making is better than individual decision-making.

Having explored the student participants' expectations of teamwork and how if differs from the vision of teamwork they are taught, in the next section, I examine what the student participants experienced during their simulation session.

4.3 Experiences in Team Communication

The findings reveal that the student participants' expectations on how a team should function were different from their experiences during the simulated

medical scenario. In this section, I show how the student participants' expectations noted above contrasted with how the team functioned during the scenario.

The findings revealed that all the team members (i.e., team members who are not the leader), who expected to support the lead by performing the tasks assigned by the team leader, felt that a main part of their job during the scenario was to keep the lead focused on their job. They deemed it necessary to keep the team leader on task, to prevent deviations. For example, Taylor and Emerson found that their team lead frequently forgot to perform specific aspects of the assessment procedures during the call. Taylor linked this forgetfulness to the team leader thinking too much during the scenario. By analysing the situation too much, Taylor believes that a person in a lead position is "going to stutter and going to be doing bad interventions". This trait is one that team leaders need to manage according to Emerson. When I asked them to explain this further, Emerson stated that "team leaders can forget things. That's why there are partners so that they can support their leader, if in case they forget something."

This trait of forgetfulness occurred in Emerson's simulation scenario where the team lead would, at times, stop midway through the patient assessment of the patient and start performing an intervention on the patient. In these cases, they needed to remind the lead of their duties. When asked to describe their experience during the scenario where they needed to get the team leader to focus on their duty Emerson stated during the interview that the team leader

effectively “delegate(d) task(s) in … in the first part of the scenario.” However, in the second part of the scenario the team leader is known to sometimes panic. So, they “forgot to do things. For example, if they see a problem, they’ll do it by herself. And they’ll forget that they have a partner.” This resulted in everyone “doing the same thing. One partner will be left out with nothing to do.”

Keeping the team leader on task was experienced by Charlie and Izaz as well. Specifically, they found that the team lead was not keeping focused on their duties much like the experiences expressed by Taylor and Emerson. Charlie and Izaz felt that the team lead initially did not know what to do as they thought the lead got confused. They reasoned that the manner the patient was presented to them was unexpected and new. They felt that this contributed to the team lead’s confusion. During the interview they both also revealed the team lead taking too much time to make a decision (See figure 4.2 below). Thus, they felt compelled to guide the team leader into making timely decisions during the scenario. For example, Izaz revealed during the interview witnessing Charlie guiding or, at times, telling the team leader what to do. Izaz recalled during the scenario that “Charlie had pointed out what to do when they saw the laceration on the right thigh.”

Figure 4.2: Photo of team leader trying to think of what the next step is.

This reflection of Izaz's was reiterated by Charlie during their interview. Not only did they feel the need to tell the lead what to do. They also deemed it necessary to assign themselves tasks a couple of times during the scenario, because the team leader was not delegating tasks. I observed this situation a few times during the scenario where Charlie would ask their teammate if they needed help or suggest an alternative way of performing an intervention. Charlie reasoned that they felt it important to not disturb the team lead too many times as it would "disrupt their um train of thought."

Charlie expressed that they believed the team lead was confused to the point where they could not assign them a role. Eventually, the team members started helping the team lead without being asked or ordered. Charlie felt that their actions would help the lead regain focus. Izaz observed very similar behaviour from the team lead and surmised that they were confused as well. Unlike Charlie however, their ability to help redirect the team lead's focus on

the patient was limited to verbal interaction as they were holding c-spine. An example of the team leader's confusion was highlighted when they did not recognise the gender of the patient even though the team had been told this information in the dispatch message.

Figure 4.3: Photo of team leader realising patient is a woman. Immediately takes hands off patient's chest and looks embarrassed.

Both Charlie and Izaz indicated they knew the gender of the patient. This was demonstrated in how they were discussing about the patient in the scenario. Yet, the lead did not register this information in their head. To help the lead know that the gender of the patient was female, both Charlie and Izaz kept referring to the patient as 'she' with increasing levels of intonation when the lead asked for information. In addition, the instructors in the classroom reinforced the message that the patient was female by accentuating the words 'she' when responding to the team leader's queries on the patient's vitals. Despite repeated verbal references to the patient's gender by the team members and the instructors, the male team leader thought the patient was

male. When this information did register, he was in the process of assessing the patient's pectoral area. It was directly after this moment that the team leader froze. They did not know what to do for approximately a minute (See figure 4.3 above). Nusrat recalled the incident in their interview. He stated that he "should not have hand onto some woman's chest. It's bad. It was bad in the sense that it would look awkward in front of the team as well as bystanders. What would the they think about us?" When asked why he did not realise it was a woman despite the patient being referred to use female pronouns to talk about the patient and the clothing the patient was wearing, he could not really explain why. He stated that he confused the shayla with what he "thought was bleeding. An internal bleeding." The shayla on the patient was rose pink in colour.

Keeping the team leader on task was also recounted by Azmi in their scenario. They stated during the interviews that they were concerned with keeping the lead on track and on time. In particular, they wanted the team lead to not deliberate long on treatment options and treat the patient as quickly as possible which they felt was challenging. Azmi described it as a difference in temperaments as Khayrat "is a bit of a calm person" and as one who "is on fire" and "want(s) to do the job" quickly. As such, Azmi states that he "sometimes … interfere with the ah" Khayrat. He clarified his view of involvement in interfering with Khayrat as not taking over completely but in interfering in some of the decision making with regards to medicine.

Azmi's desire to ensure that the process of treating the patient is done quickly is very important as this point is stressed by instructors frequently in class. When they felt the team lead was deliberating too long, they intervened for what they stated was a short time (See figure 4.4 below). My observations of this scenario confirm Azmi's account in speeding up patient care and at times Azmi taking over the role of team lead. Yet, I observed the role of team lead and team member switching. That is, Khayrat often listened to Azmi and followed their instructions instead of Khayrat giving instructions to Azmi.

Figure 4.4: Photo of Azmi talking about the best way to transport the patient to the ambulance quickly.

Helping the lead maintain focus and on track was also experienced by Kabirah and Imtiyaz. Yet the outcome was different from Izaz, Charlie, Taylor, Emerson and Azmi who felt their suggestions and opinions were considered and, in many cases, applied to improve patient care.

Both Imtiyaz and Kabirah felt the team lead assigned tasks and they followed their orders. However, unlike the student participants mentioned above, they felt that the lead was not following the proper paramedic protocols and their suggestions and opinions were being ignored which was counter to their expectations of teamwork. For instance, Imtiyaz revealed in their interview that the team lead was not following the taught procedural paramedic steps. This created problems for Imtiyaz and Kabirah. They did not know what the lead was thinking or planning as the lead did not communicate their intent. This had a direct bearing on their ability to forecast the next step in patient care. Kabirah reflected on observing how Imtiyaz and the team lead interacted. He stated that “Imtiyaz (was) not trying to be the leader. But he was trying to correct the leader for every single thing he’s doing.” Kabirah did not completely disagree with Imtiyaz’s approach because the team leader was “messing it up” (Kabirah). He even tried to “tell him, but he wasn’t listening” (See example figure 4.5 below). So, Kabirah decided to not provide any more recommendations. He felt it was pointless.

Figure 4.5: Photo of Imtiyaz commenting on Intisar taking apart the scoop stretcher after placing patient on the backboard.

Imtiyaz concurred by stating during their interview that they felt the team lead was not acknowledging them and Kabirah during the scenario. In Imtiyaz's words, the team leader was "focusing on something and he wasn't listening to anything." The two team members frequently called him by name, but the team leader did not acknowledge their presence.

This lack of acknowledgement eventually created a larger issue. During the second stage of the scenario, Kabirah stated that the team lead became extremely confused and appeared to not know what to do. I also observed that the team lead appeared to be confused and deep in thought. Kabirah stated that they felt an obligation to take over leadership responsibilities in order to protect and improve the patient's health status, which was progressively deteriorating. Kabirah and Imtiyaz both indicated that when the team leader did order an intervention, they felt that these decisions were detrimental to the patients' health. Thus, they felt it was their responsibility to

offer what they deemed better treatment options to the team lead. This created a very vocal atmosphere which resulted in the paramedic instructor having difficulty communicating with the team with additional information. I observed that the instructor needed to repeat the words ‘Guys’ a few times before they stopped talking to each other and listened to the instructor (See figure 4.6 below).

Figure 4.6: Photo of student participants finally listening to the instructor giving information.

Another aspect of facilitating teamwork that the team members of all the teams discussed in their interviews was the necessity of helping the lead keep calm and focused. For Taylor and Emerson this involved vocally reminding the lead to relax. They both voiced concerns that the team lead was trying to focus on too many aspects of the patient care at the same time. This in turn would reduce or eliminate the team leader missing aspects of the assessment. Put differently team leaders “don’t have to think that much. Because if you start thinking too many things, then you’re going to stutter and you’re going to be doing bad interventions.” With this in mind Taylor would tell the team

leader to relax and “go back to your regular ABCs and then just start going from there”

Figure 4.7: Photo of Emerson reminding the team leader of intervention priorities.

Taylor also felt that their teammate would be able to keep the team lead focused and relaxed. Yet they did not delve into how this would be accomplished. For Emerson, keeping the team lead relaxed meant giving reminders of intervention priorities or intervention oversights (See figure 4.7 above). During the interview, Emerson stated that this would comfort the team lead knowing another pair of eyes were there to help them during the scenario. They also felt that if the lead was more relaxed, they would make better intervention choices. I observed and Emerson noted during the interview that the team leader would miss parts of the ABCs. In one instance Emerson describes a part of the scenario during “the physical assessment she … she skipped (things). She goes (sic) directly to the abdomen … she did not

check the (patient's) pulse." So, Emerson had to tell her to go back and check the patient's pulse.

In some cases, Emerson revealed they conducted some interventions themselves without seeking permission from the team lead. They only informed the team lead while they were performing the intervention and the team lead was assessing the patient. Both Emerson and Taylor felt that their actions were necessary to ensure the patient was stabilised, loaded onto the ambulance and transported quickly to the hospital.

4.3.1 Experiences with authority

The team leads of these scenarios revealed during their interviews, a number of common feelings and thoughts about being in charge. One commonality was keeping focused throughout the scenario. Tanveer felt her ability to assign tasks to her teammates was done well in the first part of the scenario. However, she does acknowledge that she frequently forgot steps in the assessment procedure and relied on her teammates to keep her focused:

> In my assessments, I was getting a little bit impatient. I was trying to be fast and get the patient in the ambulance within 10 minutes. That was in the back of my mind. O.K. I just have 10 minutes. O.K. just do it fast. So, in doing that I skipped and forget a lot of steps. Emerson would

kind of pick me and poke me at times. He'd say 'do this' or 'you're forgetting some steps.'
(Tanveer)

Even though, Tanveer welcomed teammates comments, they also felt uncomfortable. Specifically, Tanveer felt that their ability to perform their role was continually being questioned to the point where they continually felt they were about to do something wrong. They also felt that their teammates were too quick in providing suggestions which in turn made them feel that their teammates were not providing them with enough time to remember the steps they forgot and go back to rectify them. This left Tanveer feeling inadequate. With regards to her teammates Tanveer states that she felt "better with them (Emerson). It's like, O.K. thank you. I just felt that he's (Taylor) thought, maybe, I wasn't good enough."

Despite having feelings of inadequacy when their teammates told them what to do, Tanveer did not feel that her leadership role was threatened by Taylor and Emerson. Later in the interview, however, Tanveer contradicted themselves by revealing that they felt that their role as team lead disappeared during the second stage of the scenario. This feeling blossomed when their teammates started speaking in their native language, one which was unfamiliar to Tanveer. Tanveer revealed that they experienced a state of communicative blindness (not being able to understand what is being said, which creates a feeling of helplessness in the process). She stated in the interview that the problem is that "you wouldn't know that what they are talking

about. Whether it's important or not for the scene." Tanveer further expresses her frustration in that she came:

> to the point where I don't (sic) care. If they really want to tell me, they'll tell me. If they don't o.k. fine. I'm doing my work. But the only thing I cannot do is sit there just being upset on 'why they not talking or telling me anything.' So, I just tend to get over it. And I'll do it myself. At times, I kind of realise what they are discussing about, sometimes.

Tanveer felt this lack of open communication had dangerous implications:

> I might not know something, and they might not also be sure to. But instead of the three of us talking, they just start talking in their own language. I'll be thinking, what? Then, I wait for their decision to be done. They decide and then they tell me. You better do that. I'm thinking o.k. o.k.

These experiences gave Tanveer the perception that they were not leading the team. That they were no longer part of the decision-making process at times. As a result, Tanveer felt undermined in their ability to lead the team.

Nusrat's feelings and thoughts were somewhat similar to Tanveer, but with a few caveats. Nusrat did not have the language issue. Instead, for Nusrat their experience with leadership issues correlated with their initial confusion at the beginning of the scenario. Specifically, confused over why the patient had been pre-packaged (the patient was secured to a scoop stretcher with spider straps). He states that his internal debate revolved between it being "better

(to) take it (the patient) and go (to the) hospital or do something else." Compounding this processing of information was the realisation that the patient was pregnant and Muslim. According to Nusrat, this internal debate went on for five to six seconds and "then everything went blank." They stopped processing the information at hand. As a result, it took Nusrat sometime to collect their thoughts.

The other experience Nusrat discussed during the interview was similar to the one held by Tanveer. Nusrat experienced the feeling that their teammates were telling them what to do during the assessment stage of the scenario. Nusrat acknowledged that their teammate's function was to provide help and that this assistance was appreciated. At the same time, however, Nusrat felt that their position as team lead was being questioned. Nusrat expressed the desire to ask their team mates to stop. However, they felt compelled not to express their true feelings as their teammate's comments in the past were always correct. As a means of demonstrating this experience, Nusrat recalls the event where the patient's shayla hijab needed to be removed. Nusrat was unsure if they should take it off and delayed in deciding. This delay resulted in Charlie making the decision for the team. In Nusrat's recollection, the decision to remove the shayla hijab was correct.

> Charlie told me you should remove it (the shayla), because you need to look at her head to see if there's something wrong. What Charlie said was correct. There was nothing that I could pointed out and say what you're saying to me is wrong. (Nusrat)

This feeling of losing control of the team was more pronounced during the second part of the scenario. Nusrat realised control of the team was being removed by their teammates, but felt there was nothing they could do. Nusrat was more concerned about the patient's health than his own personal feelings. The patient was the priority. For Nusrat, it was the manner in which control was being taken. Nusrat felt that their teammates were not providing suggestions but telling him what to do. Thus, he felt all his decisions were being questioned.

The feeling of having leadership of the team questioned or usurped was also experienced by Intisar and Khayrat from the second cohort. For Intisar, they experienced a team that functioned smoothly during the first stage of the scenario. Their teammates were performing their assigned tasks with no problems. In their words, "At first, when we first approached the patient, the communication was perfect." However, during the second part of the scenario, when the patient was loaded into the ambulance, the team dynamics changed. Intisar reflects that this is the point when the patient went into cardiac arrest, and they lost all perspective of what to do. Upon reflection, Intisar states that he "didn't know who's supposed to do this and who's supposed to do that. You know he can do the ventilations and I can do the chest compressions. I couldn't think you know of what to do at that moment." Intisar elaborated further about the second part of the scenario by saying that:

> its (the patient's) condition changed from stable to cardiac arrest. It happened suddenly and … too many things happened at one time.

> Imtiyaz wanted the oxygen tank and I wasn't listening to him. I was thinking about something else - give me the IV. You know, what dose should I give him of epinephrine.

As mentioned above, Intisar not only lost perspective of the scenario but also their ability to recognise their responsibilities as team leader during the second part of the scenario. For instance, Intisars' teammate, Imtiyaz, who was responsible for airway management needed the oxygen tank. They asked Intisar to retrieve the tank as the team member felt that maintaining patient airflow was more critical to what they observed Intisar performing - preparing the medication. Initially, Intisar did not respond despite three requests from Imtiyaz. When Intisar did become fully cognisant of the scenario, they felt that their authority had been relinquished. They thought their teammates had taken control of the scenario and were giving out the orders. This is a situation which Intisar felt should never occur no matter what the circumstances. During the interview, I asked what the team members should do if the team lead is not responding. They replied that the team members should do everything they can to get the team lead back on track, but not make decisions unless the patient's life is at extreme risk.

This event was followed by another instance of communication issues. As Intisar recalls, the patient was in cardiac arrest and in need of defibrillation. In the process of shocking the patient Intisar recalls their failure to properly inform the team members that they were going to shock the patient. This oversight resulted in him shocking the patient and his teammates at the same

time. He stated during the interview that he thought he had used the proper protocol to shock the patient. Yet, concedes that he believes that they verbally announced that he was going to shock the patient once and not the required three times plus the visual check required in the paramedic protocols before defibrillating a patient. After this instance, team cohesion completely collapsed, and a verbal argument ensued between him and one of his teammates.

Another team leader Khayrat had a different experience regarding team communication. Khayrat experienced demotion. That is, they felt that a number of the decisions that they should have made as team leader were taken away during the scenario. For instance, in the beginning stages of the scenario Khayrat stated that their teammate "Azmi told me that I don't have to unstrap him. We'll just take him, the patient, like that." During the second part of the scenario, their teammate, Azmi, was "performing tasks and interventions, that they did not know about, without consulting or telling me". Khayrat felt their teammate should have sought permission, or at least informed them. Khayrat felt that throughout the scenario that their authority was being removed. This resulted in a feeling of anger coupled with resignation that their authority had been taken away during the scenario. Khayrat tried to recall a specific instance during the scenario that exemplified this issue. But, he could not "remember exactly what it was but Azmi said it must have been something to Nusrat to what I should have done." He acknowledged that his teammate Azmi is a good paramedic student and will tell me directly if I forgets a procedure. However, "At times I feel like someone

else is taking my place. Because I'm the leader I'm the boss. This should not happen."

4.3.2 Experiences in treating high-fidelity patient – Mannequin Activity Theory perspective

Another recurring theme revealed in the findings relates to the student participants' experiences with the high-fidelity mannequin used during the simulation scenarios. These feelings and thoughts relate to the realism the mannequin conveyed to the student participants. In particular, the communicative interaction between the "patient" and the student participants, and between the teammates in front of the "patient' during the simulation lab sessions.

4.3.2.1 Interaction with the High-Fidelity Mannequin - The Patient

The student participants of this study expressed that all forms of communication with the mannequin verbal or non-verbal were difficult. They stated that the realism of the scenario was lost because of the lack of interaction with the patient - the mannequin. For them the mannequin brought a detached sense of reality. In addition, during the interviews they all stated that their verbal communication was directed towards the lead instructor and not the patient itself – not like a real call. Another aspect of the mannequin

they all commented on was the appearance of the mannequin. It deflected any feeling of realism in the scenario. This feeling was summarised well by Nusrat who said, during the interview, that “The thing is, usually Mr. Hayden (the instructor) responds when we talk to the mannequin. But if it is a real person, then the communication would be much better because you are looking at the face and talking.” When queried about an unconscious person being in a similar state, Nusrat pointed out that they “always see one thing.” The face and posture is always the same with the mannequin.

Part of the reason the students are verbally interacting with the mannequin via the instructor is due to mechanical issues with the mannequin. During the first cohorts simulation scenario scenarios, I asked the instructors why they could not speak to the students through the mannequins audio system. I was told that the audio system in the mannequin was not reliable - sometimes it worked and other times it did not. Thus, to maintain a consistent learning environment, they deemed it best to not use the mannequin’s audio system. This did however present other problems.

One problem I observed during the scenarios was that students would ask a question to the patient and then wait for the instructor, who was acting as the interlocutor for the patient, to provide the answers. At times, the instructor would respond quickly. At other times, the instructor would not respond in which case the student would wait for a response, all the while looking at the instructor and not the patient. For some of the students this caused anxiety. They worried when the instructor did not answer their questions immediately.

They wondered if the instructor was ‘telling’ them that they could answer their own question or was it because the instructor did not hear their question. Both of these situations did occur. This situation, coupled with their goal of completing the patient assessment, stabilising the patient, and loading the patient into the ambulance within ten minutes created further anxiety. Tanveer summoned up these issues in the interview when she was trying to determine the breathing rate of the patient:

> you don’t know how the breathing is. Is it laboured? Or not? With a real patient you see the person breathing. O.K. you can count the breathing rate. With the mannequin, you don’t know. So, you have to ask it. I was kind of asking it. So in the scenario I was wondering why isn’t anyone answering me? There is no answer coming from Mr. Hayden I was waiting for him to answer. So, I was just wondering why is Mr. Hayden keeping quiet? Maybe he does not have the information. Or maybe Mr. Hayden not supposed to say yes. I don’t know I was just thinking about that.

Tanveer was also wondering why the instructor did not answer their question. During the scenario, Tanveer felt the instructors were giving mixed signals as they would answer some questions and at other times they would tell them to find the answer themself. Having the instructor as the patient interlocutor brought forth a different feeling for Nusrat. For them it reinforces the thoughts they have about the scenario being fake.

> You know all the physical appearance (of the mannequin)? So, when you touch (or) you palpate, you just need to ask Mr. Hayden. (It) was unremarkable. But when you can see different people (patients), when you do training on a real patient (actor), we usually feel regret or man I did that well. (Nusrat)

Put differently, the realism of the scenario is compromised because they were not talking to the patient but having to look towards the instructor and ask the question. The sense of lack of realism in communicating with the patient was also observed by myself. I observed in all the scenarios the team lead initially talking towards the patient and then thereafter tilting their head towards the instructor to ask a question that they would normally ask the patient directly.

Another point raised by the student participants, aside from the patient's vitals, is the student participants need to ask the instructor if there were any visible injuries at specific spots on the patient's body. Specifically, the student participants are told what injuries are visible when they reach the part of the anatomy were the injury is located. Thus, upon arriving on scene, the students would not see any blood or bruising on the patient. They relied on the instructor to tell them. This created problems for the students. Specifically, Tanveer states that the instructor influences their care of the mannequin "a lot because … you have to ask each and everything. Was he breathing? Oh is he? .. How's his expression now? Is (it) changing? Like is is he is he in less pain now? We we wouldn't know the the subtle changes (without the instructor telling us)." This was also expressed by Nusrat who

also pointed out that their ability to obtain information from the patient was strange because they needed to talk to the instructor who is in the observation room looking at the scenario through a large glass window.

4.3.3 Experience in making the scenario real – student perspective

These issues with communicating with the patient brought forth another challenge. Creating a realistic scenario required the student participants to mentally envision an image of the accident, which they found challenging. Charlie, stated that they try to create an image of the scene in their head, but found it difficult. Specifically, using our imagination "doesn't really tell me (the patient's condition). I get the idea (from the instructor) that his skin sign are pale, cold and diaphoretic. But it's not real. I know it in my head. I'm just imagining that this is probably what he looks like." (Charlie)

Azmi also felt that creating a realistic picture in their head was difficult as well. For Azmi, taking the simulation lab session seriously was especially challenging as they found the tactile attributes and movement of the mannequin completely unrealistic. They state that even though:

> the mannequin is a great tool to exercise and practice on. It also reduces the effectiveness of our job. I do deal with it (the mannequin) like it was a real patient. But it doesn't really give the motions or the ways or acts the way that a real patient would. So, if I have a real

person, who's in pain or something, I would react to that. With a mannequin it feels phoney. (Azumi)

This difficulty which Charlie and Azmi describe, made it challenging for them to take the simulation sessions seriously. These sentiments were also expressed by all the other student participants. They also had an influence on how they treated the mannequin.

4.3.4 Experiences in physically interaction with the Mannequin

How the student participants physically treated the 'patient' was another area commonly shared. During the scenarios I noticed many of student participants moving or treating the patients' limbs in a manner that indicated a lack of care. Specifically, dropping the patient's limbs from approximately sixty centimetres in height, and/or positioning the patient forcibly with no visible concern for the patient's well-being. This observation was confirmed by the student participants when they expressed their feelings about the use of the mannequin during the interviews. For them, the mannequin was no more than a piece of equipment that they had to imagine was a real patient. Intisar and Imtiyaz capsulated this sentiment about the mannequin during their interview. Intisar, for instance, explained that they do not care at all about the mannequin by explaining how they apply the c-collar on the patient. They just "lift his head by the c-collar quickly, because you don't care. It's because you know it's a mannequin." Intisar revealed that it is not only physical treatment

of the mannequin, but “even … when we talk together. We know it’s a mannequin. It won’t be affected by what we say. I can say it’s a cardiac arrest in front of him and o.k.” Intisar realises this is not the real way of treating a patient. In fact, they state that “you have to be aware of what you say you have to talk to him gently. Lift him gently. And .. so it’s kind of different.”

During the scenario, I noticed Intisar’s indifference to the simulated patient when handling the patient’s fractured leg. He lifted the leg up to place a splint on the leg, roughly, and then dropped it from an approximate height of sixty centimetres. Imtiyaz states that how he treats the mannequin is not important. He has no feelings whatsoever when he accidently drops the mannequin or is rough in handling the patient. “I will be gentle but not much for a with a real patient. However, if I want to carry him, the mannequin, I don’t care. Even if his head went this way or this way in a non-trauma situation on the mannequin, I don’t care.”

This physicality with the mannequin was also shared by Tanveer, Azmi and Kabirah. On the other hand, Charlie did not feel they could do any harm to the patient. Instead, Charlie felt it was mentally difficult to treat the scenario and the patient seriously.

4.3.5 Experiences with Team Communication in front of the Mannequin

The feelings of the mannequin being only a tool and that taking the problems of the patient seriously were also reflected in how the student participants communicated with one another. Communication amongst the team members was influenced by the presence of the mannequin according to all the student participants of this study. Many of the student participants felt that the communication protocols that the students are to utilise in treating patients were almost non-existent. Specifically, the students are to not discuss interventions in front of the patient and only the team leader is to talk with the patient to determine their level of consciousness. During simulation sessions, I only saw the latter communication protocol being followed – address the patient to see their level of consciousness. Thereafter, communication with the patient did not exist. This experience in communicating with the patient was revealed by the student participants. They all felt strange talking to the mannequin. Nusrat, for example, expressed having problems with the facial features of the mannequin appearing mad made him feel uncomfortable.

The interaction with the mannequin brought forth a number of experiences and feelings for the student participants of this study. The influence the mannequin had on their treatment of the patient, though, was not strictly confined to the mannequin. During the interview, the student participants revealed several shared experiences.

The first theme that was uncovered was that communication between the team members was unrestricted. They all felt no need to take care in the type of language they used in front of the patient. In other words, talking openly about the patient's condition or questioning a teammate's intervention in front of the patient was common place during the scenarios. One example was provided by Charlie. They had the feeling that communication filters are not necessary in front of the mannequin because it's not real. Charlie had no compulsion to alter their language. They readily expressed their concerns and/or doubts with teammates in front of the mannequin. During the interview they stated that "we can just say anything. If we had any doubts, 'what's the electricity dosage', for example, I would ask that to my partner because it's a mannequin." On the other hand, if it were a real patient, Charlie would have used a professional tone in communicating with their teammate and the patient. Put differently, Charlie felt no obligation or concern about filtering their language when the patient is a mannequin. Charlie strongly felt that team communication was directly impacted by this free flow of thoughts and feelings during the scenario. All the other student participants expressed similar views. For instance, Imtiyaz provided an example of asking colleagues during the scenario the type of medication they are supposed to use or the dosage of the medication. Intisar and Kabirah expressed a feeling of being less careful with their language. Intisar went further to state they do not care what they say, because it's just a piece of equipment.

4.3.6 Experiences with professionalism

This lack of professional communication was expressed into their overall physiological feelings of the situation. The students felt less calm and more apt to become volatile around the mannequin. One example was provided by Azmi who stated that they would be “much calmer with a real person, because we don’t want him (the patient) to panic.” Whereas in front of the mannequin “we sometimes forget that we need to be calm. We start shouting or arguing. (ibid). Put differently, they forget how they are supposed to behave in front of the mannequin.

This feeling of not knowing how to behave was also expressed by Nusrat who added that the feeling of being a professional paramedic was lost while treating a mannequin patient. Consequently, they felt their ability to behave professionally diminished.

> You need to act professional, but you know it’s a non-living being. It’s just a computerised robot. It’s all you brain how you interpret it. If he’s a real patient, he’s lying down, breathing and non-conscious. You would look into the patient and say, ‘hey can I help?’ Or say ‘call an ambulance’ if the person has no first aid training. On the other hand, “if it’s a mannequin lying down, nobody would look. They would look and they would just bother. It's all (how) our brain” process the information. (Nusrat)

This feeling of professional ethic diminishing during the simulation scenario was also shared by Tanveer. However, their focus was on communication and team cooperation. They felt that they "would be very cooperative" in a real scenario as opposed to the classroom (Tanveer). "Because they know it's real. You're going to mess up if you don't talk properly." (ibid)

Taylor held similar concerns but focused on the tone of the language used by their teammates during the scenario. Taylor stated that the tone of the language was more negative. They also felt that the atmosphere in the scenario was less calm and thus more stressful in their view. For Emerson the issue of proper team communication did not initially strike them as a concern. However, upon reflection during the interview they revealed that communication amongst teammates was more open. They talked openly about dosages of medicine and treatment options in front of the patient which would not happen in a real situation.

These revelations expressed by the student participants during their interviews were also observed during the various scenarios I observed. There was a lack of care amongst the student participants in monitoring their language. They all questioned each other about treatment procedures. For example, with one particular team in the first cohort the team lead was trying to figure out which medication would be best to stabilise the patient's heart rhythm after the patient had been resuscitated. The team lead openly consulted their teammates, and they gave a concerted view of the medication

they thought would be best in front of the patient. With another team, professionalism was more elusive.

I observed with another team, two members of the team became involved in a verbal fight over treatment protocols. One of the student participants was getting confused with the team lead's assessment procedure as they were not following the procedure list as presented in class. The team leader recalls that this became more pronounced when the patient went into cardiac arrest in the second part of the scenario. From the team leader's point of view "everyone (was) think(ing) (that) the other you should have done this and you should have done this. You should have done this. ... but I think that's, … I told them for me (it's) o.k." (Intisar) To intensify the scenario, the patient went into cardiac arrest. These two events plus the team lead accidentally shocking their teammates while defibrating the patient, which if real would have killed them, effectively creating the environment where a heated verbal confrontation occurred. The exchange became very intense to the point where the team was leaderless and the student paramedics where not paying attention to the patient. Intisar recalled the situation of the last part where they could not think anymore, the team leader "went blank" (Intisar). However, from Imtiyaz's (a teammate on the team) perspective, they viewed the situation as each team member "was (a) leader in that scenario." They felt that their task in patient care was more important than the others.

The roles of the student participants in each group and their interactions with each other and the mannequin, contributed to how they felt in sharing

information with teammates. Another contributing factor revealed with these student participants, relates to the clothing the female patient was wearing.

4.4 Cultural influences on treating the patient – mannequin's physical appearance

The female patient in all the scenarios was dressed with a shayla around their head and either a black abaya or a long-sleeved dress typically worn by Muslim women in the State of Qatar. This fact brought forth several revelations from the student participants of the study regarding their feelings and thoughts on how to treat the patient particularly.

All the student participants of the study felt that being a female Muslim patient had no bearing on how they provided treatment. Their main concern was their desire to stabilise the patient and ensure she gets to the hospital quickly and safely. Yet, the findings revealed that the mannequin's gender and clothing, which indicated religious affiliation, did influence the decision-making process and teamwork when determining the best means of treating the patient in a public place. Specifically, their thoughts and feelings on how best to expose the female patient were centred on concerns for the patient's religion, the student participants' religious beliefs, and the student participants' concern with the implementation of the State of Qatar's law.

The data revealed that many of the students felt that female Muslim patients are more concerned about being exposed in public than other female patients. There were many ways this was expressed by the student participants. Kabirah, for instance, felt compelled to tell the bystanders to move away from the accident scene. Having lived in Qatar for 12 years and seen the immediate aftermath of many vehicle accidents, I found it common place for large crowds of men to congregate closely around a vehicle accident recording the event on their mobile phones. Kabirah stated that their concern in having the bystanders moved away was to protect the woman's privacy. They later revealed that protecting a Muslim woman's privacy was particularly important more so than a western woman. Kabirah disclosed that "at the beginning, I said 'we're going to tell any bystanders to go away, because she doesn't want anyone to see her exposed.'" However, if it wasn't a Muslim woman, Kabirah would be "less conscious" or concerned about exposing the female patient.

Tanveer, Imtiyaz, Intisar and Nusrat also expressed the opinion that exposing a female Muslim patient was more of an issue because Muslim women are more concerned about being exposed in public than western women. Specifically, Tanveer stated during the interview that they would be more careful than their Christian teammates. Specifically:

> Taylor and Emerson don't care if it's a Christian or a Muslim patient. But I care. If it's a Muslim, I will care a little bit different. She would be really careful of her modesty. But if it was a Christian, she's pretty liberal. You can take off the shirt maybe you can take off her scarf or

> whatever she's worn around (her head). If I told the same thing to a Muslim, she would be a little bit hesitant to do that. She would do that and sometimes they would say 'don't do that.'

Protecting the patient's modesty by not exposing her in public was also expressed by Nusrat, Izaz, Khayrat, Tanveer, Imtiyaz and Intisar. Yet, there were slight variations in the thoughts and feelings revealed by the student participants. Their immediate thoughts related to the religious ramifications of exposing the patient where men would be able to see the woman's hair and/or skin. They also had thoughts of how Qatari Law would be implemented. Each of these student participants stated that these thoughts during the scenario were significant and caused them to delay patient care even though they knew it was imperative to immediately start patient care. For example, Nusrat was very worried about removing the shayla from the patient's head because they knew it was culturally inappropriate. In explaining the inappropriateness Nusrat stated that there is a belief that angels would only protect women if their head was covered with a scarf, shayla etc. He explained the importance by telling me about the time the Prophet's wife met an angel. He said that when:

> the prophet said to his his (sic) wife that we're going to meet the angel. At the point where she went in (to meet the angel), she couldn't see him. So, the reason he said was like you cover(ed) your head, but one hair was coming out of your scarf, which made the angel not to come beside you. (Nusrat)

Their concern for the ramification of removing the Shayla created an internal debate amongst the Muslim student participants. They knew they needed to remove the Shayla. But Nusrat thought “is that any problem if I remove” it as it might cause religious issues. He further explained that only direct family members are allowed to see a Muslim woman’s hair.

In Izaz’s case, the issue of removing the shayla was problematic not only for the religious aspects Nusrat mentioned, but also the legal ones as well. As such, the thought of these issues when deciding if they should treat the patient at all was present. Izaz’s provides an example of an event which occurred in Kuwait to illustrate their point. They explained that the parallels between Kuwaiti and Qatari Sunni society are very strong as they both share the same Islamic interpretation of Islam – Wahhabism. During the interview, Izaz described a wedding celebration in the female tent in Kuwait. To help visualise this type of event, Arabian Gulf weddings are lavish affairs. Women typically do not wear traditional Arabic clothing but elaborate western style evening dresses. Thus, their hair, arms, and sometimes their shoulders are exposed. While the celebrations were taking place, someone set the tent on fire. Once the fire was noticed, someone called emergency services and the fire-fighters and paramedics arrived to extinguish the fire and treat the wounded. They were not allowed to put out the fire. The fathers, husbands, and brothers of the women inside the tent prevented the fire-fighters from doing their job, because the women inside the tent were not dressed appropriately. That is, the women in the tent were not wearing their abaya and shayla, so the male relations of the women inside prevented emergency

crews from putting out the fire over fears the emergency crews would see their female relations hair, shoulders and/or arms exposed. All the women died. So this event and other similar events which have occurred in the Arabian Gulf were present in the thoughts of both Izaz and Nusrat. Izaz explained in these circumstances, they "would have at least told/ ask the .. um .. any um .. brother or father or husband … that we have to do this." They would even tell the bystander that they have remove the Shayla and explain the reasons why if questioned. Then they would "get a blanket or whatever to .. cover (her). But, if we just did it, (remove the Shayla) right away like that, … that lady she could sue us. Even if we were right. … we could get into trouble." Izaz explained that this means the possibility of going to jail.

Not all the student participants worried about the religious implications of removing the shayla and/or exposing the patient. Their main concern was for the patient's well-being and chances of a full recovery from the accident during the scenario. For Azmi, Taylor, Emerson, and Charlie, they all felt it was medically necessary to remove the shayla. Azmi's opinion is reflective of the others' view of the situation. They explained their reasoning. As the patient was only a mannequin and not a real patient. So it did not really matter if the Shayla was removed or not.

However, amongst these revelations from these student participants there was a common caveat. All the male student participants expressed their feelings about their perceived view of the differences between the simulated scenario and a real scenario which involved a female Muslim patient. For

Azmi he would not remove the patient's shayla because they "thought about … expos(ing) a real life (sic) .. it's going to be a problem for us" after the call was finished. What they mean by problems is that the police would become involved, and he might end up in jail and/or be suspended from their job.

This opinion was also expressed by Izaz. However, he stated that he would still treat the patient with the expectation that he would be spending a lot of time talking with the police. For other male student participants in this study, their feelings revealed a concern for their own well-being over that of the patient's. In other words, they would refuse treating the female patient or at the very least delay treating the female patient until they realised that doing so was the last option for the patient to survive.

Emerson had a different set of reasons for not treating the patient in a real scenario. He plainly stated that he has no concerns or qualms in treating female Muslim patients in Qatar. However, he personally believes that many Muslims in Qatar have problems with non-Muslims treating them. Specifically, he feels that there are two points of contention. First, he strongly believes that Qatari citizens do not want Christian paramedics treating them in the event of an emergency. They state that:

> for us we don't mind treating (Muslim patients). We don't have cultural problems, like that. But (as) for the patient, we think that they don't want to be touched by us because we're not Muslims. And we're not from the same country as them. So, I think it's better if we call another, a female patient, for example a female

> patient wearing an abaya, I think it's better if another female Muslim paramedic treats the patient.

Secondly, being male and the possibility of treating a female Muslim patient puts him in danger of getting caught in the legal system in Qatar. He acknowledges that the law protects him from being sued. However, he does not feel that this will be immediately upheld, and he will get caught in the legal steeple chase of the courts. Emerson discusses this issue during the interview by stating that:

> for me I think that … for example we touch those kinds of patients they'll report us to the police. Because that's what I heard before when I was young. They're so conservative that, if you touch them or you just look at them, ah they'll see it in a wrong way.

4.4.1 Cultural Influences and Activity Theory

As shown above in section 4.4, the cultural indicators on the mannequin did present challenges to the student participants of this study. For these student participants who have never treated a live patient in a real medical emergency environment, the high-fidelity mannequin became more than an artefact in certain circumstances. That is, the student participants saw the high-fidelity mannequin as an artefact for parts of the scenario. However, elements in other parts of the scenario created a situation where the lines between seeing

the high-fidelity mannequin as an artefact or an object became blurred. In other words, when the scenario changed from stage one (stabilising and placing the patient into the ambulance) to stage two (the patient goes into cardiac arrest) the student participants perceptions of the high-fidelity mannequin fluctuated from an artefact to an object. What were the mitigating factors that caused this part of the activity to transform? Part of the answer lies in another artefact in the scenario, the clothing worn by the high-fidelity mannequin. As mentioned, the high-fidelity mannequin wore an abaya and shayla hijab that visually relayed to the paramedic students that the patient was female and Muslim. Underneath the clothing an extended stomach was attached to indicate that the patient was pregnant. It is important to note that the students of this study are told by the instructors to try to hold the view that during their simulation sessions, the patient (be it a high-fidelity mannequin or a simulated patient) is to be viewed as a real patient. As such, they "must be mindful that religious beliefs have an effect on the patients' views, attitudes and behaviour and that religion is an aspect of a person's 'being' that they should consider and respect" (Blaber, 2008, p. 171) as well as following the learnt paramedic protocols. Whilst in the activity, they all experienced periods when they saw the mannequin, the artefact, as a patient (an object) and other times as an artefact. This change in perception was facilitated by the symbolic value of the female Islamic clothing worn by the high-fidelity mannequin. As such, the student participants' thoughts on respecting the religious beliefs of the patients as well as the societal views of their community came to the fore. Thus, these factors created disturbances to the collective activity system. Specifically, the high-fidelity mannequin moved back and

forth between being an artefact and then becoming the object of the activity and vice versa until the activity stopped. This oscillation will be discussed in detail in Chapter 5.2.2.1.

4.5 Conclusion

In this chapter, I presented an IPA of data gathered from 11 individual second year paramedic students', from a variety of cultural backgrounds on their expectations and experiences of training in a high-fidelity simulation-based medical learning environment. Through focus-group discussions, observations and semi-structured interviews, I was able to capture this group of learners' interactions with their teammates as well as those with the high-fidelity mannequin. I was also able to explore how these interactions influenced the students' activity in learning how to save a multi-trauma female patient in the guise of a high-fidelity mannequin, the SimMan 3G. In the following chapter, Chapter Five, a discussion of the analysis, the transferability of the results which either challenges or supports the literature, and how the findings might be used to improve paramedic education where multicultural paramedic learning environments are involved.

Chapter 5 Discussion and Conclusion

As a researcher, understanding how learners interact with their environment is an area of study I find fascinating, particularly those learning environments where the cultural backgrounds of the student participants plays a role in how they view their experiences. In simulation-based learning environments this can give the education community, researchers and teachers, further ideas on how to tailor their learning environment to meet students' needs in order for them to be successful. Within paramedic education understanding how multicultural groups of paramedic students interact with their learning environment in a simulation-based medical activity provides researchers and teachers with a wealth of information on how to improve learning environments and how to address student concerns. As such, I set out to investigate:

1. How do paramedic students experience leadership in multicultural teams in a high-fidelity simulation-based training environment?

2. What role does the SimMan 3G (the high-fidelity mannequin) play in a simulation-based paramedic training environment?

To this end, the findings in the previous chapter revealed the expectations and experiences of multicultural teams of second year advanced paramedic students' being immersed in a medically simulated paramedic environment at a Canadian college in the State of Qatar. Specifically, the student participants

of this study shared their thoughts and experiences in treating a high-fidelity mannequin patient with other paramedic students in their cohort. These teams were in the simulation laboratory attending to a mock scenario of a high-speed traffic accident where a pregnant conservatively dressed Muslim woman (a high-fidelity mannequin dressed as a pregnant Muslim woman) had sustained multiple trauma injuries. The patient was laying on the ground already strapped to a backboard having been attended to by another first responder prior to each team's arrival. In this chapter, the findings from the activity theory and interpretative phenomenological analyses are discussed. Specifically, there are two sections discussing how the findings answer the research questions. The first section examines the findings related to question 1 from an interpretative phenomenological analysis lens. The second section examines the findings related to question 2 from an activity theory lens. This provides a unique picture of how these students experienced the simulated medical emergency event involved in treating this particular patient. A discussion of these viewpoints as a whole is provided next. This is followed by looking at how interpretative phenomenological analysis and activity theory helped my thinking through the collection and analysis of data. A discussion of the originality of this research and how it improves our understanding of the phenomenon of how multicultural teams experience a medical-based simulated learning environment is presented in the following section. Next, a look at the limitations of this thesis regarding transferability and quality, plus my recommendations for practice and policy follows. Finally, my reflections on areas of research that need further investigation are provided.

5.1. Summary of Findings

Before proceeding with the discussion of the phenomenon captured in this thesis, a recap of the findings is needed. In chapter 4, multicultural teams from two cohorts of student participants, a total of eleven student participants, shared their experiences, feelings and thoughts on actively participating in the simulated scenario of treating a high-fidelity mannequin dressed as a pregnant Muslim woman with multiple trauma injuries in the State of Qatar. One common theme that emerged from the expectations of the student participants was that how a team should function efficiently was different from that which was taught in class. In other words, all of the student participants agreed that a paramedic team should function with the lead team member making the final decisions and that the opinions of the other members of the team should be heard and respected. Yet, their own personal views of how a team should function did not necessarily replicate this expectation of a paramedic team. In fact, two (one from the South Asia region and the other from the Middle East region) of the eleven student participants saw the team as one unit that had no team leader where equality was paramount. Another student participant, from the Middle East region, saw the leader as being in total control of the team and that the lead was there to direct the actions of others as well as make the decisions for the team independently. The other nine of the eleven student participants saw the team leader as motivating and supporting the

team. In addition, these nine student participants also felt that decisions should be group based.

During the scenario the findings showed that these views of leadership and teamwork were points of contention as to how people on the team interacted with one another. That is, the student participants personal views of teamwork filtered into the teamwork dynamic during the simulation scenario at times as they differed from those taught during the course. This led to indecision on the part of the leader in some cases and in other cases led to leadership changing hands.

The findings also showed the student participants thoughts on the high-fidelity mannequin. The student participants noted their personal difficulty in mentally immersing themselves in the realistic scenario as they saw the mannequin as being nothing more than a tool. However, in moments of high stress during the scenario, this viewpoint of the mannequin disappeared. Another finding relates to the clothing worn by the high-fidelity mannequin. The mannequin was dressed in pants, a blouse, a midi dress and a shayla over their head in cohort one scenario. In the scenarios with cohort two, the mannequin wore an abaya as well as wearing a shayla hijab over their head. This is the typical clothing worn by Muslim women in the State of Qatar. Furthermore, the high-fidelity mannequin was equipped to show it was pregnant. All student participants were told the pregnant woman was involved in a vehicular accident at the beginning of the scenario. This created issues for all of the male student participants in the study. In fact, this study shows that the male

student participants hesitated due to their personal, legal and religious concerns about treating the patient. What these findings tell us about these student participants' experiences is discussed in the following sections below.

5.2 Interpretative Phenomenological Analysis viewpoint and an Activity Theory viewpoint

The findings mentioned above give an insight into the student participants' experiences in training in a high-fidelity simulation-based paramedic learning environment within their multi-cultural teams. In this section, I first give a summary of the findings from an interpretative phenomenological analysis viewpoint, and then from an activity theory perspective. This is followed by a larger discussion where I discuss what insights these perspectives provide.

5.2.1 Summary of Findings from an IPA lens

The findings of this thesis, from an interpretative phenomenological analysis perspective suggest that the paramedic students' lived experiences had a range of connections with the patient that were influenced by their cultural background and the culture in which they are learning paramedicine. The student participants lived experiences with the mannequin were complex. They felt that the mannequin was an important learning tool that helped their development to become paramedic professionals. Yet, there was a feeling of

surrealness. This study also noted that the student participants' expectations of good teamwork varied despite being taught the same principles of good paramedic teamwork. Also unveiled in the study were the student participants belief that the mannequin was not real and that mistakes that occurred in the lab would not occur in the field because treating a real patient makes one more careful.

In this sub-section, I give an overview of the student participants' lived experiences with the high-fidelity simulated learning environment from an interpretative phenomenological analysis perspective by first discussing their lived experiences in treating the mannequin and their interactions with their teammates.

5.2.1.1 Experiences with Interactions with teammates influence the activity

The paramedic rules and protocols that were taught regarding managing teamwork in a medical paramedic emergency at the college and those expectations of the student participants can be explained by how the lead paramedic's personal community of practice guided their view of leadership and how these actions were brought forth by their view of the patient. The division of labour amongst team members is another area that can be explored from an activity theory perspective. As noted in chapter four, the team leader's indecision led to changes in team dynamics and ultimately the

speed in treating the patient. These aspects of indecision are related to the religious and legal issues mentioned in section 5.2.1.1.1. Comparing the student participants' views of how a team should function to that which actually happened during the scenario, then it is possible to gain a better understanding of how these thoughts influenced the activity. A number of factors play a role in these views. It is important to remember that the teams in this study are multicultural. As such, members of each team come with different surface cultural backgrounds (place of origin, ethnicity, and race) and deep-rooted dissimilarities (e.g. attitudes and values) (Schneider and Barsoux, 2003). As noted in chapter 2, there is a plethora of academic articles that culture greatly influences a persons' behaviour, communication, and thinking. These surface level and deep-rooted differences have a bearing on an activity which in turn impacts the decision-making process. As Kabasakal, Dastmalchian, Karacay and Bayraktar (2012, p. 520) state "(d)ifferent cultures give birth to diverse management practices as well as to different perceptions regarding the contribution and inhibitors of outstanding leadership." Thus, by looking at the groups as described by G.L.O.B.E. that correlate to the societal clusters the student participants are from (the Middle East cluster, Southern Asia cluster & Anglo cluster) we can see how the decision-making process is influenced. Leadership is a key component of the decision-making process. Yet what is important in a good leader? A G.L.O.B.E. study on CEO leadership provides an insight into how leadership is viewed. Dorfman, Javidan, Hanges, Dastmalchian, and House (2012, p. 510) stated that "national cultural values do not directly predict CEO leadership behaviour… national culture values are antecedent factors which influence leadership

expectations." Therefore, looking at the expected views of the student participants and how they saw the team leader is an area of this thesis that provides insight into the lived experiences of the student participants. What are these expectations? In the Middle Eastern cluster people expect leaders who are independent and individualistic as well as being self-protective in their leadership (House, Dorfman, Javidan, Hanges, & Sully de Luque, 2014). Kabasakal, Dastmalchian, Karacay and Bayraktar (2012) noted that cultural practice values and attributes of effective leadership in Islamic countries showed a strong merging. Examples of this convergence are found in high power distance and high in-group collectivism. Dorfman et al., (2012) note the work of Kabasakal and Bodur (2002) that found networking of interdependent relationships and strong in-group ties are practiced in Islamic countries and valued. "As a result of high power (sic) distance practices, there is a desire for maintaining high social distances in the paternalistic relationship between leaders and followers" (Dorfman, et al., 2012, p. 509). Linked to this study is one by House, Dorfman, Javidan, Hanges, & Sully de Luque (2014, p. 6), who uncovered that "cultural values … are associated with desirable leadership qualities." In another study on cultural expectations and leadership, as part of the GLOBE study, found that "societal cultural values and practices predict societal phenomena and leadership expectations (i.e., culturally endorsed implicit leadership theories)" (ibid, p. 5). What this study found is countries in the Southern Asia cluster highly valued charismatic/value-based leadership; humane-oriented leadership; autonomous leadership; and self-protective leadership. Countries in the Anglo cluster also valued highly charismatic/value-based leadership; humane-oriented leadership; and

autonomous leadership (though slightly less). A contrasting difference was self-protective leadership which Anglo societies do not value as strongly as Southern Asia and Middle East countries. In the cluster of countries, Middle East, little value is placed on charismatic/value-based leadership; team-oriented leadership; and participative leadership. For this cluster value was placed on self-protective leadership. Thus, the expectations of these societies give us an idea of what the student participants sought in a team leader (see House, Dorfman, Javidan, Hanges, & Sully de Luque, 2014). There are also linkages between these clusters and the student participants. For example, student participants from India and the Philippines expected their leader to exhibit humane oriented leadership as well as being charismatic.

5.2.1.2 Experiences in treating the 'patient'

As shown in chapter 4, all the student participants described the mannequin during the interviews as nothing more than a learning tool designed to assist them in becoming skilled paramedics. These student participants were told to view the mannequin as a real patient. However, not all of them felt this was possible. Eight of the eleven student participants attempted to bring some realism into the scenario but experienced difficulty in creating a mental picture of the mannequin being a live patient and not a tool. This struggle in conjuring an image of a live patient vis-a-vis the mannequin was compounded by a couple of factors.

One experience this group of learners concurred with during the interviews was the feeling of distance from the patient which lead to a feeling of lack of realism. They highlighted two ways this occurred in the simulation session when interacting with high-fidelity mannequin. The first example was the 'patient's' inability to respond to their queries or the pain assessment (verbal responses to questions or reaction to pain) promptly at all times. They noted that the instructor, who was the interlocutor for the patient, would not always respond to their question(s) or the pain assessment. As a result, the students needed to repeat their question(s) to the patient loudly or ask the instructor directly by stating the instructors name and then asking the question(s). The second way realism was diminished in the eyes of the student participants was in the manner the patient, (the instructor) responded to their queries or the pain assessment.

Instead of the 'patient' responding to the questions and/or reacting to stimuli, the lead instructor would respond as a medical professional using medical terminology. For example, in describing the location the patient was experiencing pain in the groin area, the interlocutor would state the location of the pain was in lower extremities near the vaginal area. As a result of this interaction, the paramedic students would alter their language when talking to the 'patient' with medical terminology and not language an average patient would understand or use. This lack of 'real' interaction in the eyes of the student participants played a part in the creation of a barrier to the student participant's ability to create a realistic scenario in their head.

In the desire to maintain and/or create a realistic image of the scenario, six of the eleven student participants felt it was further hampered by their colleague(s) on their team during the scenario. For instance, the student participants who viewed the mannequin as a tool treated it as such. In one situation, a student participant dropped the patient's fractured leg from a height of 60cm onto the backboard whilst their teammate was asking them to be careful. Thus, during the scenario, teams would be in disagreement as to how to best view the patient with the majority attempting to create realistic pictures of the patient in their head.

One commonality in the findings amongst all the student participants is in how they referenced the patient during conversation. All but one referred to the patient as 'she' during the scenario and all referred to the patient as 'she' during the interviews**.** The student participants also expressed concern for the patient's religious requirements before and while providing medical care.

The level of special consideration for the patient's religious needs depended on the religious affiliation the student participant held. The findings noted that all but one of the Muslim student participants noted the religious requirements as a priority over the patient's health. This was reflected in the removal of the patient's shayla hijab during the scenario where the student participants felt it wrong to remove it. These students thought of Muslim patient's religious considerations should take priority before their medical conditions. One student participant stated it was their duty as fellow Muslims to uphold the Islamic considerations of the patient. Furthermore, it is also mentioned that

the modesty of a Muslim women is more important than that of a woman who does not believe in Islam. For the student participants who were not Muslim, their focus was first on the patient's medical well-being whilst maintaining the dignity of the patient.

Another aspect of respecting the patient was also revealed in the language they used in front of the patient. They all noted that they thought they did not need to filter their language while discussing treatment options in front of the patient. They all felt that they should have done so during the scenario, but also stated it wasn't necessary because the mannequin cannot hear them anyway.

The level of realism the student participants tried to create varied, as can be seen in the findings. Yet, the findings also show that they felt that their interactions with the patient would be different if the patient was real. Put differently, they would be more careful and respectful of the patient's physical and mental condition if the patient was a real person and not a High-fidelity mannequin. They also stated that they would not make similar mistakes to those in the simulation session to that of a real event. My own observations during my time integrating myself into the program reinforced this viewpoint of these student participants. I also do not recall the instructors addressing this issue during the debriefing sessions with the students. The issue, however, is that errors made in training become reinforced if not addressed by the instructor. These are called operational training errors in the aviation industry (see section 5.2.1.1.1; Breitkreuz, et al., 2016; Duff, 2008; and Stowell, n.d.).

5.2.1.3 IPA and experiences in multicultural teamwork in a paramedic setting

Teamwork amongst these groups of learners revealed that the lived experiences they had were common dependant on their position on the team. For instance, the lead paramedic in each team felt that they were in control of their team and that their teammates supported them in treating the patient. However, they all experienced instances where they felt that their leadership was being compromised. For one lead this was shown in how their teammates spoke in their first language (L1), which the lead did not speak nor understand, while discussing how best to revive the patient. The lead felt that they should at least be part of the conversation and make the final decision. Instead, that was being taken away from them. Another lead had a different experience in how they felt their leadership was undermined. For this student participant, their teammate decided to take the shayla hijab off the patient to expose the patient's neck. The lead was concerned with the religious aspects of the patient's well-being and did not initially agree with this decision. However, they stated that after feeling usurped in leading the team, they felt the team member had made the correct decision.

For the team members who made these decisions despite not consulting the lead paramedic, they all felt the lead was being too slow and that a decision

needed to be made quickly. So, they felt it was imperative that they act in the best interests of the patient.

5.2.2 Summary of Findings from an Activity Theory viewpoint

This sub-section gives an overview of the student participants' experiences with the collective activity system in a high-fidelity paramedical simulated learning environment by exploring mediation from an activity theory point of view. Put differently, this section focuses on the question "What affect, if any, did the artefacts and rules in the learning environment influence the student participants' actions in this study? I first discuss the role that the high-fidelity mannequin plays in mediating the activity.

5.2.2.1 Interactions with the high-fidelity mannequin

The high-fidelity mannequin, in the case of this study a SimMan3G, is designed as a tool for healthcare professionals and students to practice their craft in a safe and ethical manner (see Al Elq, 2010; Gaba, 2004; Issenberg & Scalese, 2008). If you look at the high-fidelity mannequin while it is laying on a stretcher, it does indeed look like a learning tool. But as the findings uncovered, viewing the high-fidelity mannequin as an artefact is not straight forward. As mentioned in Chapter 4.4.1, the articles of clothing the high-fidelity mannequin wore influenced the perceptions the student participants

had of the mannequin at times. Specifically, the student participants' perceptions of the high-fidelity mannequin oscillated between an artefact (the mannequin) and an object (the patient).

Another way of looking at this changing view of the student participants' view of the patient during the second part of the scenario is to use a Star Trek analogy. In the movie Star Trek Generations there is a scene where the engineer for the Starship Enterprise was attempting to transport (energise) crew members off the ship Lakul to the ship, the Enterprise. However, the Lukul was caught in a temporal flux in a space time continuum. This created a situation where the life signs of the Lukul crew were observable to the engineer on the Enterprise one minute and not observable the next minute. This idea of a temporal flux in the space time continuum can be used as an analogy to describe the experiences of the student participants in this study when describing their interactions with the high-fidelity mannequin during the second stage. The student participants' view of this mannequin fluctuated in and out of reality. The student participants interaction with the mannequin went through a temporal flux in their perceptions of the mannequin. At one moment, the mannequin was a tool and in another it was a "real" person they were trying to save. So, what were the mitigating factors that created this sense of 'temporal flux'?

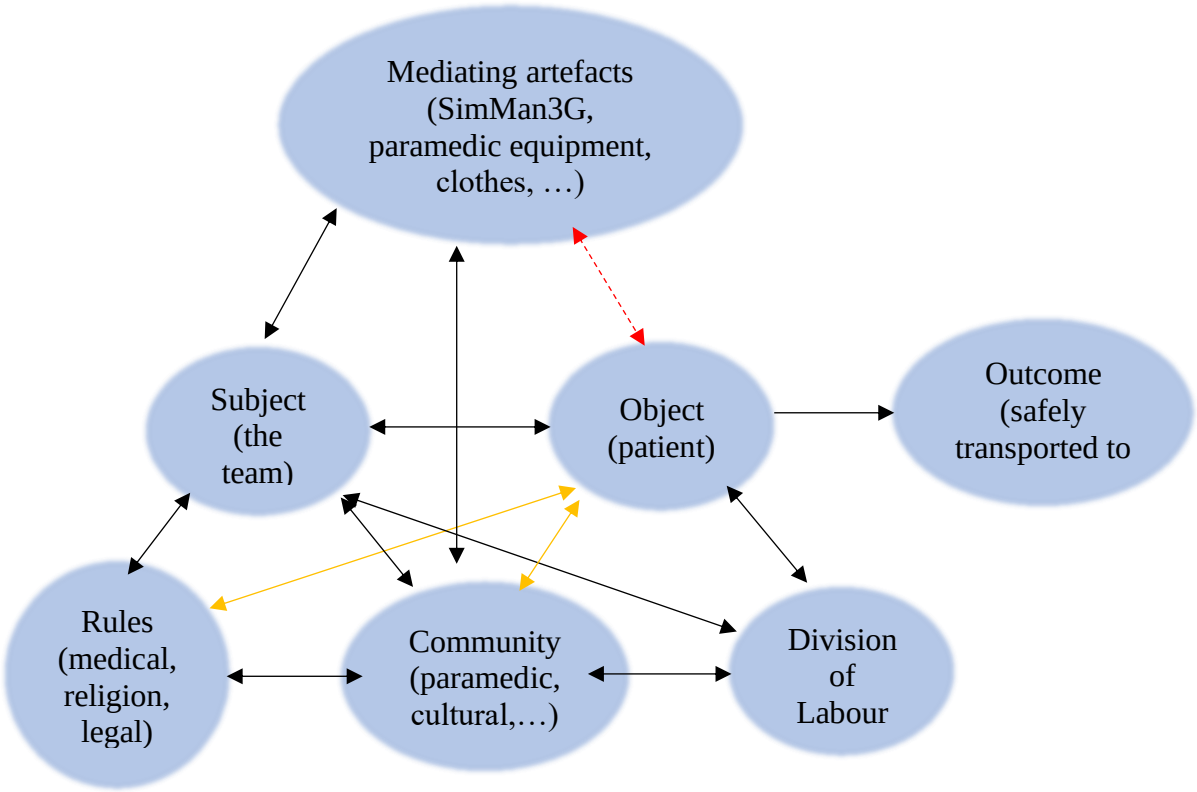

Figure 5.1 Tool mediation between the mediating artefact (mannequin) and the object (patient).

Figure 5.1 above illustrates how the student participants saw the mannequin as a patient and in the next moment as a tool. The mediation of the high-fidelity mannequin takes within this collective activity are complex. As mentioned, all the student participants viewed the mannequin as a tool (an artefact) that mediated between the subject (the team) and the object (the patient). At one moment, the team views the artefact (the high-fidelity mannequin) as an artefact and the next it was the object (the patient). This is illustrated in figure 5.1 by the red coloured arrows that are between the mediating artefacts and the object, the patient. What were the mitigating factors created this transformation? As mentioned in Chapter 4.4.1, the Islamic female clothing answers part of this question, which was mentioned in

section 5.1., as it brought forth the religious aspects of providing care. Put differently, the student participants needed to consider respecting the religious beliefs of the patients as well as the societal views of their community came to the fore (as shown by the orange arrows in figure 5.1 above). Specifically, these considerations created oscillations in the activity system. This oscillation can partially be explained by object-artefact reversal (see Engeström, 1987; and Virkkunen, Mäkinen & Lintula, 2009). However, this explains only part of the phenomenon. Object-artefact reversal states that the lines between the object and the artefact become cloudy. In this research, the student participants' perceptions of the high-fidelity mannequin oscillated from viewing the mannequin as an artefact during routine procedures to an object when unexpected or stressful events transpired in providing care to the 'patient'. Put differently, these fluctuations in mediation occurred as a result of sudden or new events, times of high stress, consideration of new rules (societal and/or legal issues) during the activity. When events stabilised or the high-fidelity mannequin experienced malfunctions, the student participants' perception of the high-fidelity mannequin reverted to viewing it as an artefact.

5.2.2.1.1 Artefacts, Rules and Community and object-artefact reversal

The object-artefact reversal of the high-fidelity mannequin was influenced by the views the student participants had of the symbolic value of the clothing worn, the rules that are associated with the symbolism and the communities that are part of their professional and private life. To see how this occurred,

an examination of the contributing factors mentioned above is needed. As stated, one contributing factor mentioned by the student participants was the clothing of the patient. Another contributing factor was the large plastic attachment that covered the abdominal area of the mannequin to signify pregnancy. The challenge in treating a Muslim woman is described in a dental setting by Sirois, Darby and Tolle (2013). They state that "(i)slamic modesty inhibit" a healthcare providers' "ability to properly examine the patient" (ibid, p. 107) (see also Hartley, 2012). Sirois et al (2013, p. 107) further discuss the issue of exposing the patient's neck which "makes a comprehensive head and neck examination challenging to impossible" for healthcare practitioners. There was also the issue of exposing and controlling the bleeding that was occurring around the patient's groin area. In this circumstance, the student participants needed to contend with the religious ramifications of providing care along with the medical ethics. This issue is briefly discussed in an article by Zaidi, Verstegen, Naqvi, Morahan and Dornan (2016), who explore the issues of gender, religion and socio-political problems in a medical setting through an online course. There are striking similarities to the thoughts of the participants from Saudi Arabia and Egypt of their study and the student participants involved in this research. Specifically, male medical healthcare professionals are restricted in treating female patients to the point where exposing female genitalia in a medical emergency is forbidden in the hospital. Zaidi, et al (2016) do not discuss the ramifications of not abiding by these rules in their study as they were examining student perceptions of cultural hegemony and cross-cultural medical education in an online learning environment. Yet, the issue of providing full medical care to a

female Muslim patient by a male healthcare practitioner in the Gulf is challenging as the student participants of this study noted.

Another influence that the clothing (the artefact) had on the Muslim student participants was the level of respect given to the patient. That is, nine of the student participants, who were Muslim, revealed that greater care was required in treating this patient because the patient was a female Muslim patient. As such, they were fully aware of the significance of a male paramedic treating a female Muslim patient. They stressed that because the patient was Muslim, they were required to be extra vigilant in protecting the patient's modesty. This issue relates to a topic addressed in the Islamic Code for Medical and Health Ethics of the IOMS (2004) for physicians. It states that a physician should "avoid any violations of Islamic law, such as being alone with a member of the opposite sex or looking at the private parts ('awra) of a patient except in as much as the process of examination, diagnosis and treatment requires; *in the presence of a third party; and after obtaining permission from the patient"* or a male family member (emphasis my own) (Atighetchi, 2007, p. 39). There are exceptions, however. When a person of the opposite sex requires emergency medical care to save their life, then a person of the opposite sex can treat the person. But stress is placed on the healthcare provider being Muslim (ibid). There have been instances when male emergency providers have been prevented from providing treatment as was mentioned by a student participant in chapter 4.4. In this example, male firefighters were prevented from putting out a tent fire by the husbands, fathers and/or brothers of the female wedding party inside the tent.

There was also the added dimension of their understanding of Qatari law which follows Islamic Law (Kabasakal and Bodur, 2002) and the implications in treating the patient. Thus, the mediating factors that accounted for their perceptions of the patient were the rules of the patients' faith, their own personal faith, their perceptions of the laws in the State of Qatar, their communities, and the tools at hand. Put differently, the subject was influenced by the legal and religious rules, their paramedic community and the community of the patient (who they perceived as a Qatari woman), and the clothing which encompassed these factors in how they viewed the mannequin/patient. The mediation of these parts of the activity system greatly impacted the learners' perceptions of the mannequin. It also had a bearing on the proficiency with which they performed their tasks. This illustrated in figure 5.2 below. The orange line between the Islamic rules regarding relations between male and female people, the mediating artefacts found in the Islamic female clothing worn by the High-fidelity mannequin, and Community and how this affected their view of the patient, the object. These combined factors resulted in a delay in patient care, the outcome.

These acts of mediation and the associated implications created various levels of hesitation amongst the majority of male student participants in this research as illustrated in the findings (See Chapter 4).

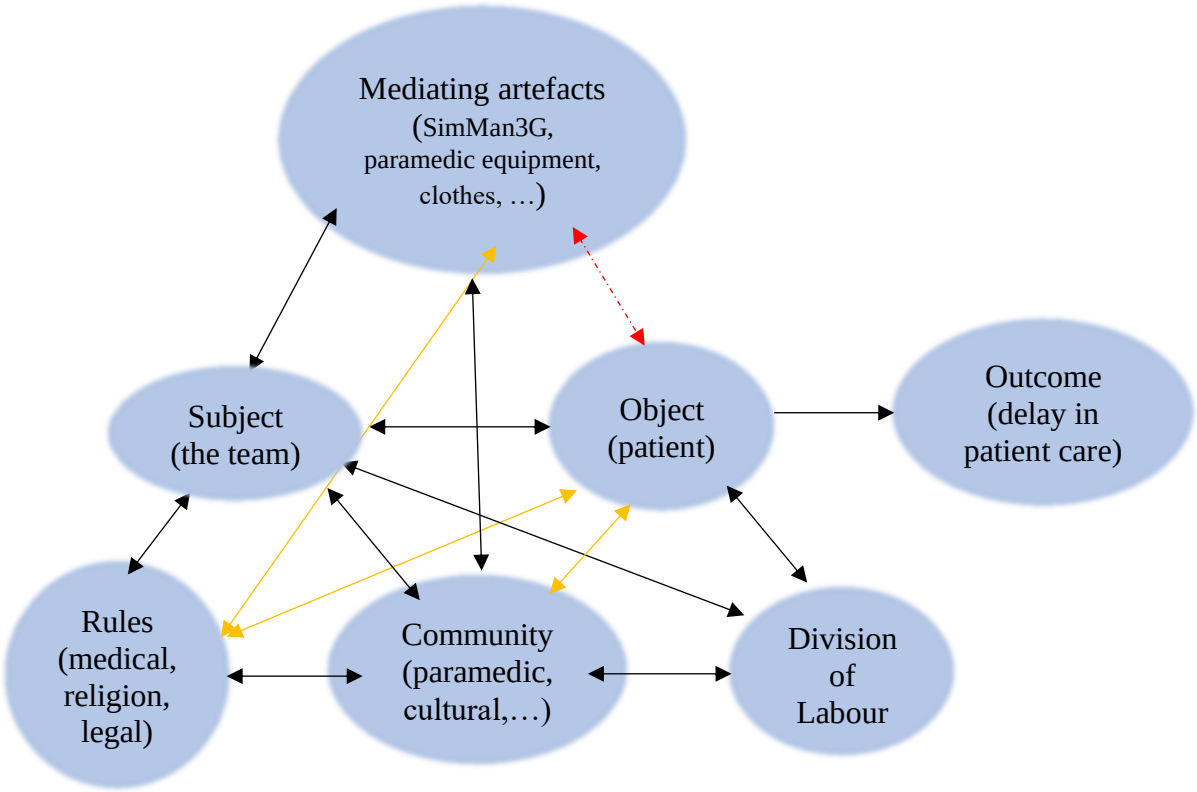

Figure 5.2 Rules mediation between the mediating artefact, community and the object.

For most of the student participants the object-artefact reversal was gradual. Yet, for one student participant the transition was abrupt. As mentioned in chapter 4, one of the eleven student participants did not immediately realise that the patient was a pregnant Muslim woman. The one male student participant who did not immediately realise the patient was female let alone Muslim, finally realised the gender and subsequently the faith of the patient after being repeatedly told the gender of the patient by their teammates and the instructor. Once full realisation of the gender of the mannequin occurred, they quickly recoiled as he had his hands on the patients' chest. These visible artefacts created concerns for all but one of the eleven student participants who happened to be female who was from the South Asia region and not Muslim. They felt that all female patients should be treated equally.

Another aspect of the students experience with the high-fidelity mannequin was in how they treated the mannequin and in how they reacted to the errors they made during the scenario. The student participants held the view that they would behave and treat the patient differently if the patient were real. This is problematic. For one student in particular, their perception of the mannequin influenced how they physically treated the high-fidelity mannequin. As mentioned in Chapter 4, they dropped the patients', broken left leg from approximately sixty centimetres onto the backboard. They were not concerned about their actions because the patient was only a mannequin. It was an artefact and not an object. They also felt, along with the other student participants, that they would not make the mistake on a real patient. Breitkreuz, Dougal and Wright (2016) discuss this issue of student perception of the importance of medical errors based on past experiences. They stated that "(t)iming of experiences can also affect attitudes. Early experiences with new situations tend to bias individuals to interpret future experiences in a similar light, the Halo effect" (ibid, p. 324). Breitkreuz et al (ibid) further explain that:

> If trainees experience error situations early in their clinical experiences, they would be more likely to believe that errors are common and seek out confirmatory information. However, if early experiences are uneventful, trainees may dismiss later experiences with errors as being abnormal or 'explain away' these occurrences.

Thus, from the participants' viewpoint, the importance of making a medical error during training is linked to their prior experience in making that particular

error in the first place and the reaction, or lack thereof, that the instructor had towards the error. Put differently, if the instructors stressed the harm the medical error would cause and put in place corrective steps for the student to follow, then there would be less chance the student would make the mistake in future. If the error(s) are not spotted or commented on by the instructor or the student themselves after the simulation session, there is a strong possibility that the error might continue in real practice. Another way to explain this type of error is through the lens of the aviation industry. Stowell (n.d.) describes human aviation errors as either tactical (bad decision-making) or operational (poor training) errors. Of interest for this study are operational errors as they "can be traced back to instructional errors or omissions committed during flight training" (ibid, para. 5).

In a medical context, operational errors can have an impact on patient care. Krishnan, Keloth and Ubelulla (2017) discuss the pros and cons of simulation-based medical education. The benefits of medical training have been discussed in chapter 2. The negative aspect of simulation may relate to the students' perceptions of their experiences with the patient. As Krishnan et al (ibid, p. 85) state, the participants of a simulation-based medical training event may exhibit "cavalier behaviour which occurs because it is clear no human life is at stake." This study also found this to be true of the student participants in treating the mannequin which they considered as an artefact. For instance, in dropping the leg from a height of sixty centimetres. However, the student participants did not completely view the mannequin as an artefact throughout the scenario, as shown, for example, in their language and actions during the

simulation exercise. One aspect that helped reinforce this behaviour of not completely taking the simulation exercise as realistic was the language used by the instructors when they acted as the interlocutor – they used unrealistic medical jargon, to describe the patient's ailments. A patient would not use medical terminology to describe their ailments, unless they were a medical professional.

Activity theory does illustrate areas where disturbances in the collective activity system occur and subsequently led to the student participants hesitating due to religious and legal concerns in treating the patient. These are problems that the learners of this study will address in their professional careers. It also illustrates that this group of student participants need more practice in dealing with issues of religion and the law. This is an aspect of their education that requires further development. The implications of this discussion will be addressed in section 5.3.1

To give another perspective of the phenomenon under discussion in this thesis, an exploration of the lived experiences of the student participants, feelings and thoughts follows in the next section.

5.3 Discussion

At the beginning of this investigation, I sought to answer two questions:

1. How do paramedic students experience leadership in multicultural teams in a high-fidelity simulation-based training environment?

2. What role does the SimMan 3G (the high-fidelity mannequin) play in a simulation-based paramedic training environment?

The major themes in this thesis are explored by discussing the student participants' lived experiences and how their experiences transpired in the scenario. As literature regarding exploration on the experience of multicultural paramedic learners in a simulated medical learning environment was not found during the course of this research, connections to other academic works on simulated learning environments is utilised. The following subsections provide some light on the questions.

5.3.1 Leadership and Multicultural Teamwork in the Simulation Lab

The first question this study embarked upon answering was how the student participants, in a high-fidelity simulation lab, experienced leadership in a multicultural paramedic team. The team dynamics in this thesis show that the views of the teamwork differed from their teammates and that of those taught

in the course which led to a conflictual team environment at times. To help understand these events, a look at the cultural background of the student participants may provide some answers.

According to the GLOBE research project data (online), societies in the Middle East cluster are not performance oriented. Instead, they are very much in the dimensions of In-Group Collectivism and Power Distance. Thus, family and tribal affiliations are very important as is the unequal distribution of power which is seen as ensuring order and stability. The societies in the Southern Asia cluster, on the other hand, are more performance-oriented than Middle East societies. However, they hold In-Group Collectivism and Power Distance in the same view. Yet, they have a higher Humane Orientation. The Anglo cluster societies value Performance Orientation. Unlike the other clusters mentioned in this study, In-Group collectivism is lower than the other clusters, it is also male dominated. Power distance and status is lower than the Middle East and Southern Asia clusters. Another aspect of the GLOBE project is the view of leadership these societies hold.

House, et al, (2004) GLOBE study on sixty-two societies around the world found that outstanding leadership in the Middle East cluster as being highly Self-Protective and less charismatic/value-based (i.e., performance-oriented style) and participative. However, it should be noted that the ranking of these aspects of leadership compared to the other clusters of the GLOBE study were the lowest. The Anglo and Southern Asia clusters, however, see exceptional leadership as charismatic/value-based and team-oriented. There

are differences though between these two clusters. Anglo societies value participative leadership whereas Southern Asia societies value humane orientation.

So, what does this tell us about the student participants of this investigation. There are many factors that contribute to the views of the student participants. What this information provides is some background on how their societies organise and view leadership and suggests some of the reasons for the differences in views of leadership and team dynamics from those taught in the classroom. The findings suggest that the student participants experienced conflict in cultural views of organisational dynamics. This problem has been studied in other areas of high-stakes environments most notably the aviation industry. Studies have found that a contributing factor to communication errors in the decision-making process are based on cultural differences (Alam, 2015). However, this study by Alam looked at only the Power Distance, as defined by Hofstede, in the cultural make-up. Though power distance is a contributing factor, so are the differing views on the importance of humane orientation which was prevalent in the southern Asian student participants. They were concerned about not upsetting the group dynamics.

The studies in teamwork in the aviation industry have been examined by healthcare professionals. Hamman (2004) studied how the lessons learned in the aviation industry can be transferred to the medical community to help reduce the number of communication errors that occur in the hospital. Specifically, how crew resource management (CRM) would benefit the

hospital environment. Yet, cultural aspects of teamwork are not discussed by Hamman (2004). Cultural aspects of communication in the healthcare field vastly revolve around the patient and healthcare provider and not multicultural teams in healthcare (see Clark, et al., 2011; and Hartley, 2012). The emphasis on teamwork communication issues focuses on interdisciplinary hospital settings (see Gaba et al, 2001; and Fulginiti, 1999). Teamwork training in paramedicine is lacking (Alinier, 2007) let alone multicultural teamwork (Hope, et al., 2005). What this research provides is a glimpse at possible issues in paramedic training. But more needs to be done which will be mentioned in section 5.6 to 5.8.

5.3.2 Interactions with the High-Fidelity mannequin

The second question this study sought to understand is the role the SimMan 3G (the high-fidelity mannequin) played in the simulation-based learning environment the student participants practiced their skills. The many mediation roles the high-fidelity mannequin takes within the collective activity are complex. For all the student participants, they viewed the mannequin as an artefact that mediates between the object and the subject. However, the findings show that this is not entirely the case. If the student participants saw the mannequin as only an artefact, then outside influences, e.g. the abaya and shayla hijab, would not play a part in their view of the artefact during the scenario. Yet, the findings show that these influences changed their view. The symbolic value of the Islamic dress worn by the mannequin created, in

their view, a need to think about religious and legal implications in treating the female pregnant patient and their perceptions of how this applies in the State of Qatar. Thus, the clothes acted as a catalyst to viewing the mannequin as a real patient. For most of the male Muslim student participants this was expressed in their actions during the scenario and vocalised by one student participant as this meant that a different set of protocols in protecting the woman's modesty applied that were more stringent than with other non-Muslim female patients. Atighetchi (2007), discusses the interaction between male healthcare workers and female Muslim patients and stresses the importance of maintaining female patient's modesty. This realisation that a new set of rules needed to be addressed, created a disturbance in the activity system. A consequence of which led to a delay in medical attention. As mentioned in chapter 2, the religious considerations that some male paramedics have encountered for female Muslim patients with life-threatening injuries have led to the patient's death.

From both perspectives of analysis, the mannequin did influence the collective activity as either an inanimate object (a tool) or as a perceived object through object-artefact reversal. The thoughts and experiences of the student participants conflicted in how best to view the patient. For those nine of the eleven student participants, that attempted to view the mannequin as real, felt this would enhance their learning experience as per their instructor's instructions. For the others, the mannequin was a tool to practice their skills on. This group also felt that the mistakes that they made in training would not happen if the patient were real. In an article mentioned in section 5.2.1.1.1 by

Krishnan et al (2017), the issue of student behaviour towards the high-fidelity mannequin being cavalier is one of the problems with simulation-based medical learning environments. This attitude was also revealed in a thesis by Klein (2018) by some of the participants in the study. The study found that becoming immersed in the medical scenario was problematic as the physical composition of the mannequin had not changed from previous scenarios and they had practiced the scenario in the past. With this investigation however, the medical condition of the patient was new as was the physical composition of the patient. Yet, as mentioned in chapter 4, there were times when the student participants did have problems in seeing the mannequin as a real patient.

Another aspect of seeing the mannequin as more than a tool was found in the language the student participants used to describe the patient. During the scenario and the interview, the student participants used the personal pronoun ‘she’ to describe the patient as a female person. However, during the interview the use of the personal pronoun ‘she’ changed to ‘it’ to describe a thing. This change occurred when the student participants were describing a technical glitch with the mannequin or in describing why the scenario ended in failure – the patient died. This shows that even in describing the activity they are still tied to the object-artefact reversal, yet the context is associated with stages of the scenario - one where the mannequin was functioning as a ‘real’ patient and was referred to as ‘she’; and the other when the mannequin was not functioning as a ‘real’ patient during the scenario and was referred to as ‘it’.

In one instance, when describing the mannequin with the personal pronoun 'she' they expressed concerns in treating a Muslim female patient. This caused hesitation amongst the male student participants, particularly the Muslim student participants. In fact, they stated that if this was a real situation, they would prefer a female paramedic to treat the patient and wait, if possible, for this to occur. To put context into this hesitation, Atighetchi (2007) discusses the link between the Quran and the medical treatment of female patients, and the conditions required to provide care ethically from an Islamic perspective. For the non-Muslim and Muslim student participants, the issue was linked to their own personal welfare after providing treatment. They felt during the scenario if they did treat the patient, they would not be supported by their professional community. This feeling of support can be linked to the hierarchical nature of Qatari society where '*wasta'* plays a prominent role. As Feghali (1997, p. 368) notes, '*wasta*' is a central part of life in the Arab region that it "may be considered an essential survival strategy in everyday life." It is an expression to denote a person has influence or access to people of influence in society. Paramedicine is not considered a respectable profession in this region. While conducting this study I asked many of the healthcare instructors why there were no Gulf Arab students from Qatar, Saudi Arabia, or Kuwait. The consistent answer I received was that the paramedic profession is not considered respectable like, in their eyes, a manager or doctor. Higher status individuals in their society have greater connections with people of influence in their society. Thus, the level of influence these student participants feel they have access to is minimal as *wasta* is seen to "benefit

current power holders in society, leaving those at a lower social strata in less fortunate positions" (Feghali, 1997, p. 368).

Another aspect of the scenario that I observed, and the student participants commented on was the type of language used in front of the patient. The language usage was not professional as noted in the findings. The student participants felt that since the patient was not real, the need to filter their language as they would if it was a real person was not needed. This liberal use of language may have been compounded by the instructors use of medical terms when they were required to act as the interlocutor for the patient due to technical issues with the mannequin. Furthermore, tactile issues with the mannequin may have played a part. For instance, when the student participants tried to attach the leads from the LifePak to the patient's chest, they kept falling off. This fluctuation of object-artefact reversal was an issue. Within simulation scenarios the desire to create realistic learning environments is paramount. Yet, as this thesis shows barriers remain in this setting.

The following section will compare and contrast similar research in other healthcare professions to that of the paramedic high-fidelity learning environment revealed in this study and how this contributes to knowledge.

5.4 Contributions to knowledge

This research contributes to the existing body of research literature discussed in Chapter 2, by providing further empirical evidence of the importance of teamwork, team management, communication, crisis management (Di Loreto, et al, 2013; Roberts and Lajtha, 2002; Schaafstal, Johnston and Oser, 2001). Particularly, how the interrelated behaviours of people within a team influence teamwork and team leadership (Lerner et al, 2009; Salas & Cannon-Bowers, 2001; Schmutz, Meier, & Manser, 2019). This is especially important in the medical field as teamwork is key to patient care (Bleakley, Hobbs, Boyden and Walsh, 2004; Patterson, 2012; Seto, 2018; Bennett, Mehmed, and Williams, 2021). The empirical evidence found in this research further supports studies exploring the role of leadership as viewed in multicultural teams (Chhokar, Brodbeck and House, 2008; Kabasakal et al, 2012; Moore, 2018). The analysis concurs with research that suggests teamwork training in a high-fidelity medical learning environment does need to be addressed particularly in paramedic education (Alinier, 2011; Herzberg, et al., 2019; Bennet, Mehmed and Williams, 2020). Improved team communication will assist in reducing medical errors which in turn improves patient safety (Risser, et al., 1999; Herzberg, et al, 2019).

This research illustrates the value of applying the method of interpretative phenomenological analysis as an approach to understand the student participants' personal perspectives and understanding of their lived experiences of leadership in a high-stakes, high-fidelity, multicultural

paramedic learning environment. It also assisted in bringing greater understanding to the student participants' lived experience during unexpected and important events during the simulated medical scenario. In addition, the use of photographs to show the setting of the scene with the high-fidelity mannequin demonstrates the merit of using photography. In addition, this research illustrates the value of applying the method of a blend of Engeström's second generation activity theory with Kaptelinin's functional organs to obtain a better understanding of student participants' perceptions of the role that a high-fidelity mannequin has on team communication and learner behaviour.

This research illustrates the need to dedicate more class time to the intricacies of multicultural teamwork communication and leadership as a means of improving patient outcomes. As such, further research is proposed below to take this work forward in this area and other similar contexts.

The issues raised in this investigation do have some parallels with other academic studies in simulation-based healthcare education. However, as noted in chapter 2, those bodies of work related to paramedic simulation-based learning environments are rare let alone research into multicultural teams. As such, in this section I discuss the transferability of the findings this research into learners' interactions with high-fidelity mannequins and learners' experiences of teamwork to that of other healthcare high-fidelity learning environments.

Student interactions with high-fidelity mannequins, like the SimMan 3G used in this study, have been well documented in the nursing and physician literature. The findings of this study found that the student participants saw the High-fidelity mannequin as a learning tool and a patient. The literature of other studies offers some similarities as well as some differences. In one study, Hunter (2016) utilised an ethnographic approach to study the experiences of twenty-five nursing students in using a high-fidelity mannequin in a variety of scenarios that nursing students would encounter in their professional lives. The students worked in teams in treating the patient and nineteen of the twenty-two scenarios had cardiac arrests or resuscitation events integrated into the scenario, similar to the set-up in the study of this thesis. In Hunter's (2016, p. 45) study, he found that the "students engaged in the scenarios and interacted with the computer processed mannequins as one would expect if the student was interacting with an actual patient." Yet he also noted with equal measure, student behaviours in interacting with the high-fidelity mannequin were not consistent with those a nurse would have with a patient. One of the inconsistent behaviours noted by the author was that some of the students were not able to immerse themselves into the scenario to the point where they laughed during the scenario. The extent of disregard for maintaining professional standards in the simulation scenario were not as pronounced. For example, I noted in chapter 4 that students would discuss topics in front of the patient that would not be discussed otherwise. However, Hunter's study did not explore the religious nor legal aspects of providing care to the patient as it was not the focus of their study. Nor was there a cultural aspect to their ethnographic study.

In another study on nursing students' interaction with a mannequin, in this case a SimMan 3G, Klein's (2018) qualitative doctoral study presented some similarities with the paramedic learners of this current research. In Klein's (ibid) investigation, thirty-two learners were interviewed about their experiences in a high-fidelity medical learning environment. Her study showed that the nursing students found the learning environment beneficial to their quest to become nurses, but they did express their feelings that the scenarios felt fake. However, at the same time they also stated that they experienced the pressure of treating the patient in a timely manner. These thoughts were also expressed by the paramedic students of this study. However, there were some differences. In Klein's study, cultural issues were not mentioned within the team nor with the patient. This was a concerning factor of this investigation amongst the learners. In addition, the issues with the mannequin not functioning properly which led to the instructor acting as the patient by speaking from the other room. In Klein's (ibid) investigation the simulator coordinator was the patient interlocutor who talked through the microphone. No mention of the instructor using medical technical language was mentioned nor lapses in communication between the interlocutor and the student.

Another aspect of this study also explored the cultural issues presented by the high-fidelity mannequin itself. The student participants were confronted, for the first time, by a mannequin dressed as a pregnant Muslim woman. Studies on healthcare interactions with patients of a different cultural orientation than

the participant is not new. In a study by Hartley (2012), the exploration of paramedics' experiences in treating patients of different ethnic and religious backgrounds than their own was explored. Though this study did not examine multicultural issues in a high-fidelity learning environment as this current study presents, it does stress the importance of placing more emphasis on cultural competence in the paramedic curriculum. Another aspect of Hartley's thesis that contrasts with this current thesis is the location of the study, which was Australia. As such, the demographics of the majority of the population are that of those from the Anglo cluster whereas the majority of the population where this study occurred are from the Middle East cluster. This in itself brings different sets of acceptable norms to the learners.

5.5 Reflections on the Theoretical Framework

In using interpretative phenomenological analysis, and Engeström's second generation activity theory blended with Kaptelinin's functional organs I was able to gain insight into the student participants' lived experiences and perception of their simulation-based paramedic learning environment. This framework provided a map in gaining an in-depth snapshot of the student participants individual experiences from two separate lenses: IPA and activity theory. This was challenging as I needed to wear two hats, the IPA hat and the activity theory hat, in exploring the data. However, the insight garnered from these two approaches was enlightening.

IPA brought a greater understanding of how the student participants personally experienced leadership in multicultural teams in a high-fidelity simulation-based learning environment that was especially significant to their learning as it brought new elements to their training. Specifically, it provided the framework to delve into the lived experiences of leadership from a leader's perspective and from a teammate's perspective in treating a pregnant female Muslim trauma patient for the first time. For student participants who were team leaders, IPA enabled me to explore how they processed this situation and how they felt about their interactions with their teammates during the scenario. In addition, IPA enabled me to examine how team leaders process unexpected events as well as how their teammates processed the same event. This coupled with implicit leadership theory added the extra dimension of the cultural dimension to their experience. It provided me the platform to explore how culture affects leadership in high-stakes high-fidelity paramedic learning environments. However, the implicit leadership theory utilised in this study, I felt, did not give a strong sense of the cultural influences in how leadership was experienced by the student participants. I was left wondering if the personal attributes of the student participants played a greater role in their lived experiences of leadership or were they more culturally based.

The Engeström's second generation activity theory lens, combined with Kaptelinin's functional organs, helped me see the role the high-fidelity mannequin played in the simulation-based learning environment from the learners' perspective. Specifically, this theoretical approach helped me in highlighting the mediation the student participants experienced between the

rules and the artefacts, and the community and the artefact. It also highlighted the oscillations the student participants experienced in the activity. Kaptelinin's functional organs also significantly assisted me in processing the student participants experiences with the fluidity of the activity system. That is, the interaction the student participants had with the mannequin and the clothing the mannequin wore which highlighted societal rules and roles.

The theoretical framework employed for this study also left me with unanswered questions which are addressed in section 5.9 below.

5.6 Limitations

There are a number of limitations with this study. One limitation to this study is the number of participants involved. As mentioned, circumstances beyond my control affected the number of participants that could be involved in the study. Even though the research methodology I utilised in conducting this study accounted for this limitation, I believe the number of participants would ideally be twenty or more. Yet, at the time of data collection this was not possible. The participants of the study were determined by their ability to meet the pre-requests of the simulation lab class.

Another limitation relates to the environment of the study. As this study was conducted with co-operation of the course instructors, there was an element in which the learning environment changed between the two cohorts of student

participants. Not only was there a change in the instructors who taught the course which subsequently led to there being different approaches used to cover the material. For instance, with the first cohort of students the use of technological learning tools was less prevalent in the first simulation lab course than in the second offering of the course. By this I mean that with the first cohort of students the instructors did not bring any additional learning devices to supplement their course or enhance the realism of the course. Whereas the second group of students had an instructor that was trying to bring more realism to the course by trying out differing learning apps. This variation in the learning environment did not make a notable impact on the students' as not one student commented on their existence during the interview.

A further limitation of this study concerns the SimMan 3G high-fidelity mannequin used in the scenario. As mentioned, the mannequin was not functioning properly. Specifically, the speaker on the mannequin did not work all the time. At times the instructors were able to use some of the pre-recorded patient sounds available in the SimMan 3G software and at other times the recordings would not work. The same was true of the microphone that the instructors used to act as the patient during scenarios. As a result, the instructors did not utilise this function of the mannequin with regularity during the scenarios. If the speaker and microphone had been functioning the results regarding the interactions with the mannequin may have produced different results.

In addition to these limitations, there was an issue with the group dynamic that needs to be noted. By this I mean that the first cohort composed of six students two of which were female, and the second cohort was all male students. This variation in group dynamics may have affected the results in how the team members interacted with one another in front of the patient and in who interacted with the patient the most, the male paramedic or the female paramedic. To answer this question would require further research exploring this very question. Also, in terms of maintaining consistency, this was not possible as class size and gender composition was determined by the students meeting the pre-requisites for the course and by those that enrolled in the course. Enrolment for this particular program is relatively low for a variety of factors which are beyond the scope of this thesis to discuss.

There is also the issue of English language limitations. Ten of the eleven student participants of the study conducted their interviews in their second language. These student participants were offered the opportunity to provide their answers in their first language but declined. As an English as a second language instructor for 20 years, I assessed their level of using their second language as high, likely around a band 5 to 4 on the IELTS scale. However, their ability to fully express themselves would have greatly been enhanced if they were interviewed in their first language. This may have revealed a clearer picture of their experience in the simulation lab.

The student participants' ability to fully express themselves was also affected by the location of the study. In other words, one comment or gesture that is

misunderstood could mean time in jail or a plane ticket out of the country. As a former resident of the State of Qatar for 12 years, at the back of my mind I was always careful of what I said vocally and electronically. I was also watchful of how I looked at people for fear of upsetting a person of influence. With this awareness, all precautions were taken to ensure that comments by the participants were protected as stated in the ethical approval documents from the place of the study and Lancaster University in the U.K. Having said this, there were comments made by some of the student participants that surprised me given their candour as illustrated in chapter 4. For example, one of the student participants told me that Muslim women are purer than other women and require greater considerations towards their modesty. I was not surprised by the prejudice being shown by the student participant because I have experienced various forms of prejudice in Qatar during my stay in the country. What surprised me is that they felt comfortable in being open in showing their prejudice as if I shared the same prejudices. On top this, I had the impression that the health authorities in the State of Qatar were promoting the view that religious prejudices do not impact medical care.

5.7 Recommendations for policy, and teaching practice

The findings of this research have raised a number of concerns on how these paramedic students are taught in the simulation lab course at a Canadian college in the State of Qatar. These concerns centre on cultural and teamwork issues as well as technology issues. To bring these

recommendations to light, I will provide suggested changes for the instructors, then learning technologists and finally policy for the educational institution itself and the country as a whole.

This thesis highlights the need for more time to be spent on addressing group dynamics in an emergency situation by the instructors. This is no simple task. One way to address this issue is to incorporate a crisis resource management (CRM) platform into the curriculum much like the aviation industry (see Fisher, Phillips, and Mather, 2000; and Helmreich, Marritt, & Wilhelm, 1999) and the emergency medicine room (see Carne, Kennedy and Gray, 2012). Incorporating CRM into the curriculum must include not only classroom time in exploring CRM, but also be included in every simulation training session. Specifically, during the classroom sessions students can learn about CRM, discuss and write about how this method of management will improve patient welfare. In the simulation laboratory, the instructor can guide a portion of each debriefing session to include discussion on how CRM was or was not utilised properly by each paramedic team during the simulation session.

In addition to classroom discussions on CRM, the instructors need to discuss how students' cultural influences and expectations impact their understanding of teamwork as noted in section 5.3.2. This is a vital issue for patient care. Research by Carne, Kennedy and Gray (2012) state that cultural differences amongst team members impact team communication which can result in errors in patient care. In another study by the Transportation Safety Board of Canada (1995) into oceangoing vessel accidents, it was found that one factor

was different views of responsibility amongst the team. A study into team communication in multicultural aviation teams by Meshkati (2002) found that cultural differences in understanding team dynamics amongst crew members plays a role in aviation accidents. What this tells us is that cultural differences can have a negative impact on team communication in a variety of disciplines. As such, it is important for paramedic instructors to have class discussions on different viewpoints of teamwork. This subject also needs to be included into the curriculum. If these are not addressed and discussed openly as part of the CRM course, paramedic students may inadvertently cause harm to patients.

In addition to instructors discussing the impact of culture on team communication, instructors need to openly discuss ethical concerns revolving around providing medical treatment to Muslims of the opposite sex. There appears to be a lack of attention in the curriculum during simulation sessions to legal and ethical issues in treating patients who actively practice the teachings of Islam and are of the opposite gender. Put differently, the participants of this study voiced concerns regarding the legal status of providing care to an Islamic patient of a gender opposite to their own which could infer that the paramedic program is not addressing this issue to a level that the students are more confident in dealing with these types of situations. The students' internal struggle with how best to approach this type of scenario could have an impact on the treatment of a patient if this was a real case. As mentioned in chapter 4, the paramedic students were very surprised to see the patient dressed in Islamic clothing. They had not experienced this type of

scenario. The students were well versed in how to treat the patient but struggled in dealing with the ethical and legal issues they foresaw in providing emergency care to a female Muslim patient. Thus, instructors need to address these issues in the classroom and provide concrete examples of paramedics in Qatar not suffering legal complications due to treating a person of the opposite sex. Furthermore, instructors need to provide their students with more scenarios that confront these ethical and legal issues. For example, simulate a pedestrian who was hit by a car where the pedestrian is a Qatari female conservative Muslim whose husband is at the scene.

Ethical and legal issues and how to respect the ethical and legal concerns need to be examined further. This could be easier said than done, however. The line between what the law states and what is done in practice is not clear. In my experience of living in Qatar, it was common knowledge amongst expatriates that if you were involved in a car accident with a local, the cause of the accident was placed on the expatriate. This was despite the fact that the law states otherwise. With this in mind, more time in the program curriculum needs to be used to discuss the grey areas in medical law in the state of Qatar. The students of this study need some form of guidance as to how to deal with issues of this nature. Furthermore, medical scenarios that confront legal and ethical issues prevalent in Qatar need to be incorporated into the curriculum.

In addition to the ethical and legal aspects of treating a patient, instructors need training on the influence that culture has on teamwork and patient care,

and on how they teach students from different cultural backgrounds. In the same vein, a course or workshop on meeting the expectations of the learner's needs must be undertaken. These students previous learning environments were very different than those of the instructors and do have an impact on how they learn. This will have an impact on how the students absorb the material during the course (see Lemke-Westcott and Johnson, 2013). Thus, instructors need to be cognisant of how their teaching is perceived by students and subsequently adapt their western teaching models to meet the students' needs in a way that will maximise student success in the program.

One way this can be achieved is through implementation of government policy. Specifically, the State of Qatar needs to mandate cultural training into all educational facilities that provide all forms of medical education. The program should allow participants to talk openly on their views of culture. It should also explore how different cultures view medical treatment, teamwork, religion, and gender and how these views impact patients in all aspects of the medical system.

In learning to address cultural challenges in the simulation lab, instructors need to create more female gender specific scenarios that are outside the realm of pregnancy. The generic make-up of SimMan 3G is male, thus it is very easy for busy instructors to simply keep the accident victim male. A conscious effort needs to be made to change this process. This can be accomplished by purchasing a female mannequin, like SimMom, or by changing the clothing of SimMan to appear female. Changing the gender of

the patient frequently will help learners to become more concerned with the injuries of the patient instead of the injuries and the cultural issues involved in treating a patient of the opposite gender. To achieve this the clothing and/or the type of injuries the patient is experiencing can be altered. This is an aspect of the simulation set-up the learning technologist can become involved in.

5.8 Recommendations for learning technologists

To assist the instructors in creating a vibrant and realistic learning environment to address the issues in section 5.6, learning technologists can help. As mentioned in chapter 4, one issue that impacted the realism of the learning environment relates to the technical problems with the High-fidelity mannequin. Specifically, the audio system not working resulting in the instructor acting as the interlocutor while speaking from the other room. To remedy this issue a simple backup system needs to be ready. For example, place a small speaker, that is wirelessly connected to the interlocutor's microphone next to the High-fidelity mannequins' head. Alternatively, place a smartphone next to the High-fidelity mannequins' head and have the instructor/learning technologist, who are acting as the interlocutor, communicate with the paramedic students via the smartphone.

In addition to a backup to audio technical difficulties with the high-fidelity mannequin, learning technologists need to have a variety of loose-fitting

female and male clothing available that not only signify the gender of the patient but also the religious beliefs of the patient. Loose-fitting clothing is important as it will make changing the clothes on the High-fidelity mannequin easier. Furthermore, accessories that signify religious affiliation will help in making the scenario more real. For example, having the mannequin holding prayer beads in their hands.

Clothing and accessories worn by the patient will help facilitate the ethical and legal issues mentioned by the students in chapter 4. Another element that can foster these concerns is the location of the injuries themselves coupled with the location where the accident occurred. For example, paramedics treating a female patient in a bathroom as opposed to a shopping mall bring forth different considerations on maintaining a patient's dignity particularly if the infliction is in the groin area.

5.9 Further Research and thoughts

Exploring multi-cultural issues in paramedic teams is novel. As mentioned, there are studies in other multi-cultural teamwork in high-stress professions, namely in the aviation industry. As this thesis is unique, further research into similar simulation-based paramedic learning environments should be explored in other Arabian Gulf countries.

While writing this thesis, I began to ponder areas that I would like to examine in the future. I thought that a long-term study using Grounded Theory (Bryant & Charmaz, 2007) would be useful in seeing how the practical recommendations of this thesis worked in the simulated learning environment. I am also curious to know if the participants' views of the mannequin would change once they have completed their practicum. That is, the participants have had no experience in treating real patients. Their only experience in treating a patient is through the mannequin or actors. I wonder if this influenced how they viewed the mannequin? Will their emotional attachment to the patient be less, more or the same as during the simulation class? I am also curious to know if the treatment of the patient would be different with a non-Muslim woman in western dress as opposed to a woman wearing an abaya. Would the same concerns surface in both cases?

Future studies in the area of multiculturalism, teamwork and emergency patient care should look at the impact, if any, on how the difference in cultural norms between the instructors and students affects learning about team building. Does the western view of teaching team building in a medical environment create barriers to learner retention of Middle Eastern cluster countries' learners? In a similar vein, do instructors from Anglo cluster countries experience challenges in assisting students break thresholds encountered in the high-fidelity simulation-based medical learning environment?

Another avenue of research is to examine the impact of integrating a CRM system into the paramedic training program from the start of all teamwork-oriented training, from a Grounded Theory standpoint. O'Dea, O'Connor and Keogh (2014, p. 699) state that evidence on crew resource management training in health care "can meaningfully improve participant knowledge, attitudes, teamwork processes, clinical care processes and even clinical care outcomes" (see also Carne, Kennedy & Gray, 2012). To determine if this holds true in a multicultural paramedic team a Grounded Theory approach may provide further insight. As grounded theory is "used to uncover such things as social relationships and behaviours of groups, known as social processes" (Noble & Mitchell, 2016, p. 34), it can be used to determine if any changes in the behaviours and relationships between members on the paramedic team occurred based on the data collected.

To what extent, if any, does simulation-based paramedic education have in passing ethical and legal 'barriers' learners experience into real practice? Are thresholds reached and passed? Using Land's notion of threshold concepts (Land, Meyer, and Smith, 2008).

And finally, would learner perceptions of realism change if the simulation-based learning environment combined an actor and High-fidelity mannequin in the medical scenario. In other words, would paramedic students' views and experiences of learning change if the simulation-based paramedic learning environment combined an actor and High-fidelity mannequin as opposed to only an actor or only the High-fidelity mannequin playing the patient.

This study has shown that further research in how the use of high-fidelity mannequins in simulation-based paramedic learning environments is needed and that multi-cultural factors need to be addressed in the curriculum. I also hope that this research will encourage other researchers to expand our knowledge on this new area of research.

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