

TRANSFORMATIVE LEARNING EXPERIENCES OF NURSE EDUCATORS IMPLEMENTING HIGH-FIDELITY SIMULATION: AN INTERPRETATIVE PHENOMENOLOGY ANALYSIS

by

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DECLARATIONS

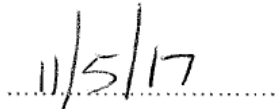
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SUMMARY

Globally, the use of high-fidelity patient simulation (HFPS) in healthcare professions education has escalated over the past two decades. HFPS is an innovative, effective learning strategy for bridging the gap in students' understanding between theory and practice. Nurse educators accept that HFPS will play an important role in education in the near future. The future success of HFPS is dependent on nurse educator competence in this andragogy. However, HFPS is a challenging andragogy, also for nurse educators in South Africa. The study's purpose was to explore, analyse and interpret nurse educators' transformative learning experiences while they implemented HFPS at a school of nursing at a university in South Africa.

An interpretative phenomenology analysis methodology helped to explore, analyse and interpret the learning experiences of nurse educators who successfully implemented HFPS. Seven voluntary participants took part in individual and dyadic, face-to-face, semistructured interviews and an unstructured face-to-face discussion, they kept reflective journals, and provided a summary of their learning experiences. The researcher recorded reflective notes after each interview. Data analysis adhered to phenomenological, hermeneutic and idiographic principles and was done from both inductive and deductive paradigms. The study complied with institutional ethical approval and other requirements.

Five main themes transpired, namely, 1) frames of reference of participants before exposure to HFPS, 2) discovering a new world, 3) critical reflection on experiences, 4) critical self-reflection, and 5) transformation in action. Nurse educators experienced a deep transformative process similar to that described by the transformative learning theory of Jack Mezirow. The theoretical contribution of this study relates to nurse educators' experiences of transformative learning while they implemented HFPS. Each participant described a unique engagement with self-determined learning.

Keywords: Transformative learning, High-fidelity patient simulation, Educator development, Educator learning experiences, Interpretative phenomenology analysis

OPSOMMING

Oor die wêreld heen het die gebruik van hoëgetrouheid pasiëntsimulasie (HGPS) die afgelope twee dekades in onderwys vir die gesondheidsorgprofessies toegeneem. HGPS is 'n innoverende en doeltreffende leerstrategie vir die oorbrugging van die gaping in studente se begrip tussen teorie en praktyk. Verpleegopvoeders aanvaar dat HGPS in die nabye toekoms 'n belangrike rol in onderwys sal speel. Die toekomstige sukses van HGPS hang af van die vaardigheid van verpleegopvoeders ten opsigte van dié andragogie. HGPS is egter, ook vir opvoeders in verpleging, 'n adragogie wat uitdagings stel. Die doel van hierdie studie was om die transformerende leerervarings wat verpleegopvoeders gedurende die implementering van HGPS by 'n skool vir verpleging by 'n universiteit in Suid-Afrika ervaar het, te ondersoek, te ontleed en te interpreteer.

'n Verklarende, fenomenologiese ontledingsmetodologie het gehelp om die leerervarings van verpleegopvoeders wat HGPS suksesvol implementeer, te ondersoek, ontleed en interpreteer. Sewe vrywillige deelnemers het aan individuele en tweevoudige, aangesig-tot-aangesig semigestruktureerde onderhoude, en 'n ongestruktureerde aangesig-tot-aangesig gesprek, deelgeneem, hulle het reflektiewe dagboeke voltooi, en 'n opsomming gegee van hulle leerervarings. Die navorser het ook na elke onderhoud reflektiewe aantekeninge gemaak. Die data is ontleed aan die hand van fenomenologiese, hermeneutiese en idiografiese beginsels, en vanuit sowel induktiewe as deduktiewe paradigmas. Die studie het aan institusionele etiese goedkeurings- en ander vereistes voldoen. .

Vyf hooftemas het uit die data te voorskyn getree, naamlik, 1) verwysingsraamwerke van deelnemers voor hulle aan HGPS blootgestel is, 2) ontdekking van 'n nuwe wêreld, 3) kritiese refleksie oor ervarings, 4) kritiese selfrefleksie, en 5) transformasie in aksie. Verpleegopdoeders het 'n diep transformerende proses ondergaan, soortgelyk aan dié wat Jack Mezirow in sy teorie vir transformerende leer verduidelik. Die teoretiese bydrae van hierdie studie handel oor verpleegopvoeders se ervaring van transformerende leer terwyl hulle HGPS geïmplementeer het. Elke deelnemer het 'n unieke betrokkenheid met selfbepaalde leer beskryf.

Sleutelterm: Transformerende leer, Hoëgetrouheidpasiëntsimulasie, Opvoederontwikkeling, Opvoeders se leerervarings, Verklarende fenomenologiese ontleding

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ABBREVIATIONS AND ACRONYMS

ABBREVIATIONS	FULL TEXT
AV	Audio-visual (technology)
FoHS	Faculty of Health Sciences
HFPS	High-fidelity patient simulation
INACSL	International Nursing Association for Clinical Simulation and Learning
IPA	Interpretative phenomenology analysis
ISBARR	Identification, situation, background, assessment, recommendations and recording
NJSF	NLN Jeffries simulation framework
NLN	National League of Nurses (USA)
SANC	South African Nursing Council
TLT	Transformative learning theory

CLARIFICATION OF RESEARCH CONCEPTS

CONCEPTS	PREDOMINANT CONCEPTS USED IN THE STUDY
Nurse educator	Theoretical clarification of concept A nurse educator at the research site is a registered professional nurse, preferably with a Master's degree in Nursing and/or a post-registration as a clinical nurse specialist with a qualification as a nurse educator. The NJSF refers to a teacher, but the term nurse educator is used in this study, as the role of an educator is extensive in its scope and impact (Jones, Reese & Sheldon, 2014: 354). Nurse educators are part-time or full-time employees at a university, university of technology, nursing college or health system in South Africa (SANC, 2014:1). In the South African context, nurse educators present either theoretical or a practical modules, or both. Most educators involved in HFPS function as programme coordinators, preceptors, or clinical facilitators, and support students' community engagement projects. Operationalisation of concept Nurse educator's roles include; teacher, clinical facilitator, preceptor and mentor at the research site. The nurse educator in this study is an educator who is willing to implement or assist with implementing HFPS in an undergraduate or post-registration programme. The nurse educator is responsible for assisting with the design and preparation of the environment and students, who handles some of the technology, facilitates HFPS, and guides the debriefing and reflection of students during the simulation. Some educators are also involved in the development of other educators who are interested in implementing HFPS.
High-fidelity patient simulation (HFPS)	Theoretical clarification of concept In general, literature refers to HFPS as an advanced, sophisticated simulation technology designed to replicate medical conditions. High-fidelity patient simulation (also called human patient simulation) refers to the use of advanced, computerised simulators used within an authentic environment to replicate reality (Bland, Topping & Tobbell, 2014:114-115). Gaba (2004:i2), who is considered the father of simulation, adds the description: "Simulation is a technique – not a technology – to replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner." HFPS is an educational strategy linking theory and practice in a meaningful way.

CONCEPTS	PREDOMINANT CONCEPTS USED IN THE STUDY
	Operationalisation of concept HFPS in this study refers to the learning experiences educators create to enhance student learning, through active and experiential learning that deepen student learning with an HFPS in a realistic environment. HFPS is not technology, but an andragogy of learning through interactive and realistic experiences strengthened by reflection on actions. HFPS is a strategy that improves technical and non-technical skills, critical thinking and problem- solving skills, and the comfort, self-confidence and satisfaction of students. HFPS, in this study, refers to a
Implementing HFPS	Theoretical clarification of concept Implementing HPFS refers to the physical development and design of simulation experiences for students. In general, the aim of the simulation is to enhance student learning (Garrett, MacPhee & Jackson 2010:310). The NLN Jeffries simulation framework forms the foundation for the implementation of HFPS and is embedded across the curriculum to improve student learning, address the theory-practice gap and improve student confidence. Operationalisation of concept Implementing simulation, in this study, refers to educators implementing simulation as a new learning strategy. The time frame of implementation varies from months to years of experience. While implementing HFPS, educators learn, hone their skills and become more comfortable over time. The skills differ from traditional education skills because of HFPS's learner-centred approach, sophisticated technology and unstructured approach to student learning.

CONCEPTS	PREDOMINANT CONCEPTS USED IN THE STUDY
Simulation	Theoretical clarification of concept Simulation is an educational process that looks, feels, or behaves like a real event, with the aim of serving as a learning opportunity or gaining a deeper understanding of systems or human actions to promote, improve, or validate a participant's performance (INACSL Standards Committee,¹ 2016c:S44; Jeffries, 2005:97). Operationalisation of concept Simulation is a coordinated effort by educators to provide learning opportunities for students within an authentic learning environment. The use of technology, an authentic environment and equipment stimulates deeper thinking regarding previously held perceptions during a simulated experience in both nursing students and nurse educators. The authentic, safe environment and supportive guidance provided by educators help students to consider alternative options and replicate real-life problems, which is augmented by guided reflection on experiences.

CONCEPTS	PREDOMINANT CONCEPTS USED IN THE STUDY
Learning experiences during simulation	Theoretical clarification of concept The INACSL Standards Committee defines learning during simulation as, “A broad array of structured activities that represent actual or potential situations in education, practice, and research. These activities allow participants to develop or enhance knowledge, skills, and/or attitudes and provide an opportunity to analyse and respond to realistic situations in a simulated environment” (INACSL Standards Committee, 2016c:S45). Operationalisation of concept In this study, the meaning of learning is broader, and also includes the development of: • Learning (knowledge); • Skills performance; • Learner satisfaction; • Critical thinking; and • Self-confidence (Jeffries, 2005:97). The definition of learning is based the NLN Jeffries simulation framework, however, the definition was expanded for this study, as learning is the topic of the study.

CONCEPTS	PREDOMINANT CONCEPTS USED IN THE STUDY
Transformative learning	Theoretical clarification of concept Transformative learning is a rational process of learning within an awareness of the metacognitive application of critical thinking that transforms an acquired frame of reference - mind-set or worldview of orienting assumptions and expectations involving values, beliefs, and concepts – by assessing its epistemic assumptions. The transformative learning process within awareness involves: • recognition that an alternative way of understanding may provide new insights into a problem; • context awareness of the sources, nature, and consequences of an established belief; • critical reflection of the established belief's supporting epistemic assumptions; • validating a new belief by an empirical test of the truth of its claims, when feasible, or by a broad-based, continuing, discursive assessment of its justification to arrive at a tentative best judgment; • coping with anxiety over the consequences of taking action; and • taking reflective action on the validated belief" (Dirkx, Mezirow,& Cranton, 2006:124). Operationalisation of concept Transformative learning is the result of experiences causing an adult to reconsider held perceptions through a process of critical reflection on experiences. Previously held ineffective frames of reference are revised through experimenting with alternative points of view, leading to irreversible changes in perspectives and, therefore, changes in actions. Both the theoretical and operationalised concepts apply to this study.

CLARIFICATION OF TERMINOLOGY USED IN THIS STUDY

TERM	MEANING OF THE TERMS
Authentic simulation	Traditional classroom education is abstract and devoid of context. The aim of HFPS is to provide authentic learning experiences for students. Authenticity contributes to accurate student learning. An authentic simulation involves activity, context, and culture. The use of real equipment for patient care, background sounds, smells, and realistic verbal and physiological responses from the simulator creates an experience of physical authenticity. Psychological authenticity is supported by experiences of social interaction and collaboration between students with specific roles within a team.
Checklist	A tick-sheet used for systematic preparation of a simulator, environment, equipment, and moulage, and to ensure that equipment is working, so that the activity starts and proceeds punctually, and to prevent delays or interruptions.
Clinical practice for learning	Students are placed in clinical practice to expose them to direct patient care under the direct supervision of a professional nurse. Clinical practice placement provides experiential learning opportunities to develop students' professional skills. Only South African Nursing Council accredited facilities are used for student placement (SANC, 2013:3). Students are exposed to public and private care facilities, community-based clinics, and various community settings.
Fidelity	Fidelity is not the same as authenticity, but refers to the level of realism associated with a particular simulation experience. A number of factors establish fidelity, which is often dependent on the creativity of the educators involved. The factors that contribute to fidelity include physical factors, such as the environment, equipment and related tools, smells and sounds; psychological factors, such as emotions, beliefs, and self-awareness of participants; and social factors, such as participant and instructor motivation and goals, the culture of the group and degree of openness and trust, as well as participants' modes of thinking (Lopreiato, Downing, Gammon, Lioce, Sittner, Slot, & Spain, 2016:34).

TERM	MEANING OF THE TERMS
Lecturer	Lecturer is the job description of an educator with a Ph.D. or Master's degree. Lecturers usually have postgraduate qualifications and are considered clinical nurse specialists in the field of the module they are teaching. In addition, lecturers must have postgraduate qualifications in nursing education. Lecturers present lectures, are involved in the practical module, community engagement and research, and have regular academic responsibilities.
Mentor	A mentor at the school of nursing is a leader or a role model who helps other educators advance knowledge, academically and personally.
Modules	Modules are the subsections of a programme. Modules can be presented over either six months (14 academic weeks) or 12 months (28 academic weeks).
Preceptor	A preceptor is a person who regularly visits students in the clinical setting to assist students to develop clinical judgment and to support students confronted by practical problems. Preceptors maybe full-time academic or part-time professional nurses. Most of the educators involved in simulation are involved in the preceptor project of the undergraduate programmes. A synonym used is clinical facilitator.
Scenario	A scenario is the storyline of the simulation. The scenario is the detailed, planned simulation experience created for students that is congruent with outcomes. The scenario provides information about the module, outcomes, condition of the patient, changes and possible outcomes, cues that should be provided and possible points for debriefing.
Simulation laboratory	Simulation laboratory, in this study, is the environment created for HFPS at a university campus. The simulation environment is an environment of personal, physical and psychological safety. Educators aim to reduce student emotions of general fear of humiliation and refrain from punitive action. Educators emphasise supporting students during their learning, being positive and having high expectations of students. Synonyms include simulation environment and simulation learning environment.

TERM	MEANING OF THE TERMS
Simulationist	A simulationist, in this study, is one full-time academic and one part-time clinical assistant at a school of nursing at a university. The simulationist supports and advances simulation, develops scenarios, trains educators to use simulation effectively, programs scenarios, maintains and ensures the effective use of simulation equipment, manages simulation projects, advances simulation at other institutions, conducts research, develops processes and procedures, and advances simulation methodology and theory.
Standardised patients	Standardised patients are volunteers, students or paid individuals who have been trained to portray patients in a case scenario in a realistic and consistent manner and who are able to provide students with accurate and constructive feedback based on their personal experiences of the students' communication, respect and care during the simulation.
Task schedule	Task schedule is the planning document setting out the activities of educators during a simulation. The purpose of the task schedule is to ensure organised simulations, to structure educators' experiences, to assign venues for debriefing and to ensure equal opportunities for educator development.
International Nursing Association for Clinical Simulation and Learning	The International Nursing Association for Clinical Simulation and Learning (INACSL) is the global leader in transforming practice to improve patient safety through excellence in healthcare simulation. INACSL is a community of practice for simulation, and members can network with simulation leaders, educators, researchers, and industry partners. INACSL also provides the INACSL Standards of Best Practice: Simulation, ^(SM) an evidence-based framework guiding simulation design, implementation, debriefing, evaluation, and research (INACSL Standards Committee, 2016c:S39).

PREFACE TO THE STUDY

Simulation has a long history in the healthcare professions, especially in medicine and nursing education. Simulation is an educational tool used to prepare healthcare professionals better for tasks and patient management before they take care of actual patients. An example of simulation in medicine is practicing surgical procedures on cadavers before performing surgery on patients.

BACKGROUND OF SIMULATION IN NURSING

Nursing education has a long history of using simulation. In the past, nurse educators mainly used low-fidelity simulators – also referred to as partial task trainers – for focused motor skills development and assessment (Littlewood, Shilling, Stemland, Elisabeth, & Kirk, 2016:e1002; Poikela & Poikela, 2012:30). The older kind of simulators were crude and unrealistic (low fidelity). These devices were static, made of synthetic materials replicating, for instance, the layers of the skin, so that students could develop the necessary fine motor skills for suturing an open wound. Medium-fidelity simulators offer learners limited and isolated feedback. An example of a medium-fidelity trainer is a simulator of just the torso with anatomically correct heart and lung sounds, but without any pulses or chest movements (Ulrich & Mancini, 2014:9). The last kind of simulator is a high-fidelity simulator.

HIGH-FIDELITY PATIENT SIMULATION

High-fidelity patient simulation (HFPS) in this study refers to the employment of a computer-controlled, full-body manikin. The principles of HFPS are similar to those applied when training pilots in a flight simulator. In the same way, HFPS creates problems for students to solve, in the same way as they would be faced by problems in real life. Students experience HFPS as real and they can observe the results of their actions.

HFPS makes use of a full-body computerised manikin (as used in this study) that mimics the physiological responses of a patient according to a specific condition or experience. Educators change the manikin's features to suit the students' actions during a scenario, or may use pre-programmed software designed for specific student outcomes. The HFPS manikins that were used in this study have pupils that react to light, palpable pulses, audible blood pressure, and demonstrate chest movements during breathing. The lungs can replicate a variety of lung conditions and react appropriately to various settings on a ventilator. These anatomically correct simulators have both normal and various abnormal heart, lung, and bowel sounds. The simulators

can talk to a student, and educators often use the speech function to provide verbal cues to students. Manikins can be either male or female. Such features contribute to the realism of the scenarios. Add to these movements blinking eyes and breathing sounds, and students start considering these manikins to be human. Students sometimes stroke a manikin's forehead or hold its hand.

A second kind of HFPS involves using virtual simulators that also provide real-life experiences within a virtual environment (similar to a virtual game). Virtual devices provide a realistic, three-dimensional image of the anatomy of the body and haptic feedback during actions to simulate how it feels to perform a procedure. These virtual devices can simulate both successful actions and complications, depending on the student's actions. Some examples include practicing laparoscopic surgery or inserting an intravenous catheter for an infant (Dzioba, Cant, Cooper, Bogossian, & Phillips, 2014:38). The future of simulation may involve greater use of virtual devices, which will enable students to practice skills independently of an educator or facilitator (Dzioba et al., 2014:38). Virtual environments are suited to developing skills in communication, problem-solving and critical thinking (Foronda, Gattamorta, Snowden, & Bauman, 2014:e54). This kind of simulation is not part of this study.

HIGH-FIDELITY PATIENT SIMULATION AS AN AUTHENTIC LEARNING STRATEGY

The word simulation in this study refers to HFPS used as a learning strategy. The strategy provides realistic, interactive learning opportunities in real time, depicting reality (also called fidelity) and real-life experiences to improve or promote learning for students, who range from novices to experts (Jeffries, 2005:97). HFPS provides an opportunity to master the multiple skills required to care for a real patient.

Furthermore, the simulation environment enhances the authenticity of a simulation experience. The realistic experience of simulation engages students in the real physical, psychological and social experiences of caring for patients (Bland, Topping, & Tobbell, 2014:1114-1115). Authenticity enhances student learning, so that they are prepared to provide holistic care in real time (Bland et al., 2014:1115; Buckley & Gordon, 2011:716; Gaba, 2004:i2). Equipment, such as monitors, ventilators, infusion pumps and humidifiers, enhance the realism further, as ECG waveforms, blood pressure, cardiac output, and pulse oximeter readings change according to the scenario. More advanced features include drug recognition. An electronic scanner within the simulator recognises the drugs students administer during simulation, changing the simulator's reactions according to the effects and dosage of the drug.

Authentic cues guide the students to identify the condition of the patient in the scenario. In this case, actors can play the roles of family member, physician or any other professional. Usually, a group of students assess, care and treat the patient using a combination of interpersonal and technical skills (Jeffries, 2005:97). During the process, the students develop a range of skills, such as communication, leadership and clinical judgment. Audio-visual devices record the students' actions during the scenario. Immediately after the simulation, an educator leads students in debriefing and reflection. During this time, the educator can play the recoding for the students, so that they can watch their own actions.

HIGH-FIDELITY PATIENT SIMULATION RESULTS IN QUALITY LEARNING EXPERIENCES FOR STUDENTS

Research focuses mostly on the learning of students during and after HFPS, and the findings of these studies are positive. HFPS promotes student learning in numerous ways. Simulation augments student learning by bridging the gap between theoretical concepts and the practical implications of knowledge (Cremonini, Ferri, Artioli, Sarli, Piccioni, & Rubbi, 2015:154).

At first, students experience high levels of stress during HFPS (Foronda, Liu, & Bauman, 2013:e409) but, over time, they develop confidence in their role as professional nurses (Franklin, Burns, & Lee, 2014:1298). Later, after a number of simulation experiences, students start to enjoy HFPS (Dearmon, Graves, Hayden, Mulekar, Lawrence, Jones, Smith, Farmer, 2012:36; Ganley & Linnard-Palmer, 2012:e49). Students express their satisfaction with and even enjoyment of simulation as a learning strategy (Foronda et al., 2013:e2).

Students can also learn from making mistakes. From a traditional education perspective mistakes in the clinical setting or in assessment generally create a negative experience for students. Students cannot correct themselves after an assessment. Regular negative experiences make for negative learning experiences for students (Berragan, 2011:661).

Conversely, HFPS aims to provide students with positive learning experiences, regardless of the outcome of the scenario. Both positive and negative outcomes lead to learning that is in stark contrast to students' negative experiences of traditional assessment strategies (Moule, Hope, Garside, & Prescott, 2011a:711). Educators, in applying the principles of HFPS, offer support, encouragement and feedback. The benefit of HFPS is that a student is not penalised for making a mistake. Even when students make mistakes, learning still occurs and the patient is not harmed. Students can hone their skills in a safe environment during simulation.

The body of evidence of the benefits of HFPS for student learning is growing rapidly and participating educators have accepted simulation as an effective learning strategy (Shin, Park, & Kim, 2015:181; Foronda et al., 2013:e411; Yuan, Williams, Fang, & Ye, 2012:297; Buckley & Gordon, 2011:178; McCaughey & Traynor, 2010:827). HFPS is versatile, as it can be customised according to student learning needs and competence can be achieved via repeated simulations and/or deliberate practise (Clapper & Kardong-Edgren, 2012:e112). HFPS experiences connect theory-practice gaps by attaching abstract concepts to personal, concrete events (Regan & Onello, 2013:112; Berragan, 2011:660; Moule et al., 2011a:713-714). Students develop additional competencies, such as effective communication, team collaboration, and ethical and moral values for their future professional identity (Abe, Kawahara, Yamashina, & Tsuboi, 2013:39; Nehring, Hughes, & Greenwell, 2013:1; Shinnick & Woo, 2013:1062).

The most consequential research findings about HFPS and student learning are listed below.

- HFPS benefits student learning, confidence, clinical skills, competence and clinical judgment, and professionalism within a context, and involves an affective component of learning (O'Donnell, Decker, Howard, Levett-Jones, & Miller, 2014:374; Berragan, 2011:660, 662-663; Cant & Cooper, 2010:3).
- Students gain self-confidence in a safe learning environment, learn to provide quality patient care and develop the capability to advocate for patients (Berragan, 2011:660; Garrett et al., 2010:310).
- Students practise and develop interpersonal and inter-professional teamwork skills (Foronda 2013:e413).
- Skills and knowledge acquisition translate to students' clinical practice (Richardson & Claman, 2011:127).
- Simulation provides a safe, "real-world" environment, and actively engages students with technology and non-technical experiences simultaneously (Josephsen, 2015:259; Nehring et al., 2013:1; Shinnick & Woo, 2013:1062).
- Skills developed during HFPS reduce student errors in both simulation and the clinical setting. This benefits the healthcare system and patients, as improved skills reduce adverse events (Topping et al., 2016:1109; Reese, Jeffries, & Engum, 2010:36).
- Simulation reinforces the use of best practices, awakens students' awareness of how complicated patient care is, and enriches students' learning (Barjis, 2011:3; Parker & Myrick, 2010:326).

- HFPS is a strategy that guarantees student exposure to essential experiences that cannot be guaranteed in the clinical setting (Hope, Garside, & Prescott, 2011:715).

Sufficient evidence confirms the value of HFPS in student learning, but some criticise the legitimacy of these findings. Researchers are encouraged to perform rigorous longitudinal research to confirm the effectiveness of HFPS (Hayden, Smiley, Richard, Alexander, Kardong-Edgren, & Jeffries, 2014:S5; Foronda et al., 2013:e414).

The students benefit from HFPS experiences, but the degree of learning is dependent on prerequisites, such as a learning environment free of humiliation or ridicule, and a skilled simulation facilitator educator (Larsen & Schultz, 2014:627). Consequently, the nurse educator using simulation is an important determinant of the quality of simulation presented to students and is, thus, the driving force of this study.

THE CENTRAL ROLE OF EDUCATOR DEVELOPMENT

Various authors confirm the benefits of HFPS in student learning. However, facilitating a successful simulation experience is *not* easy, neither is it intuitive (INACSL Standards Committee, 2016a:S15). Therefore, developing educators in simulation is critical for enhancing simulation experiences as a learning strategy (Waxman, 2010:235). McGaghie, Issenberg, Petrusa, and Scalese (2010:59) highlight the need for standardised preparation of simulation educators. However, before formulating standardised preparation for educators, research should determine the skills and the essential knowledge required of educators using HFPS.

Folder 1 on the DVD included in the front of this thesis indicates a short background, contexts and environment referred to in this study, which clarifies some concepts used in the study. Watching the video before reading this thesis will clarify important concepts for readers not familiar with HFPS.

[E]ffective simulation based... education is not easy or intuitive; clinical experience alone is not a proxy for simulation instructor effectiveness, and simulation instructors and learners need not be from the same healthcare profession (McGaghie et al., 2010:59).

CHAPTER 1: OVERVIEW AND PURPOSE OF THE STUDY

The only source of knowledge is experience. (Einstein)

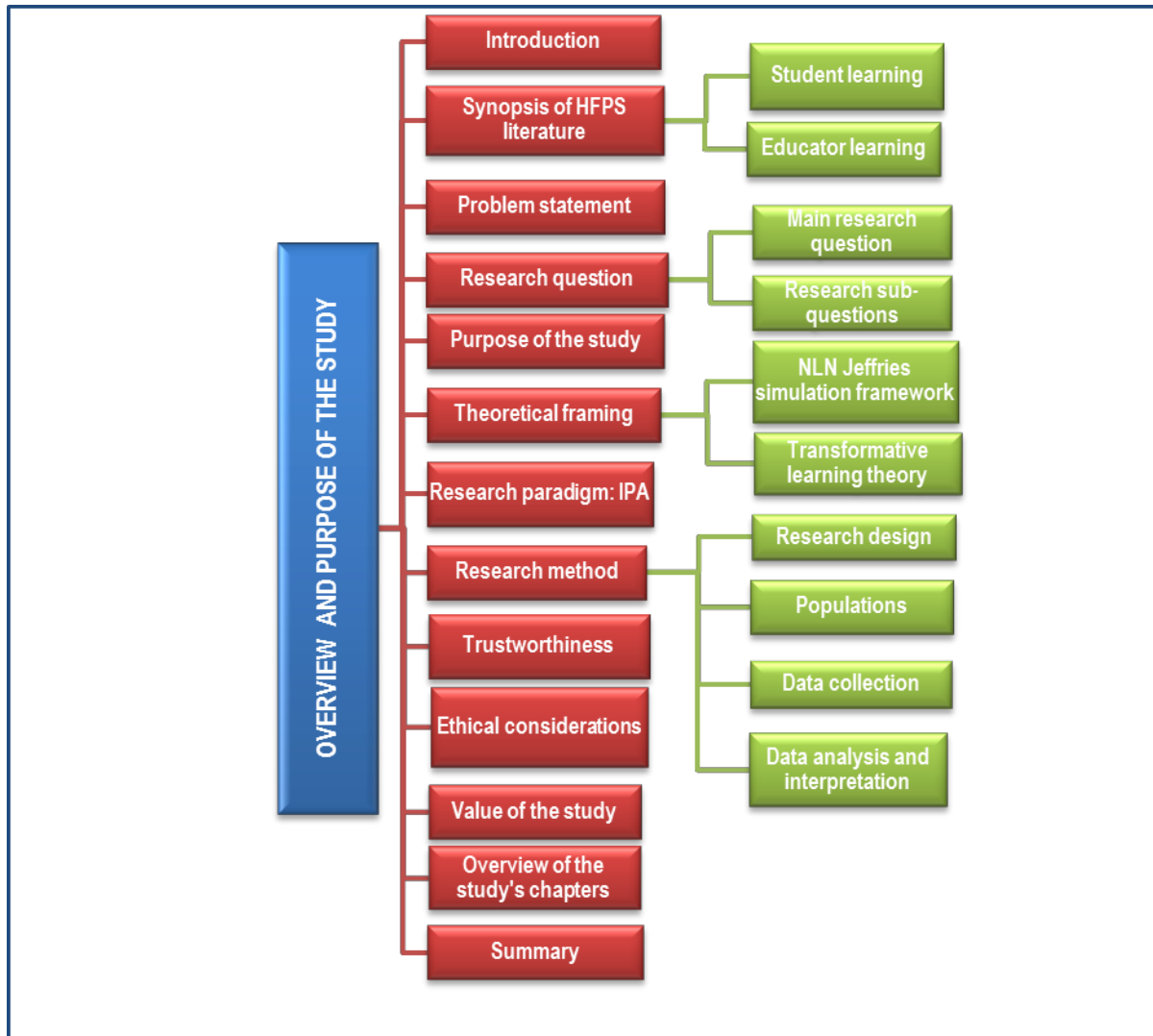


Figure 1.1: Overview of Chapter 1

1.1 INTRODUCTION

Technological advances since the turn of the century have led to the development and utilisation of high-fidelity patient simulation (HFPS) for the education of healthcare professionals. HFPS refers to the use of computerised, full-body manikins within an authentic environment. A safe, non-judgmental, supportive approach helps students develop skills, such as critical thinking, clinical judgment, team collaboration and communication (Swenty &

Eggleston, 2011:e182; Lapkin, Levett-Jones, Bellchambers & Fernandez, 2010:220; Lasater, 2006:502). HFPS does not refer only to innovative technology, but rather an extraordinary level of learning that is generated during a complex social event (Gaba, 2004:i2).

The design of the scenario and experience should be linked to module outcomes and learning needs of students. Educators facilitate the scenario through prompts, cues and guidance, when needed. Educators then guide students in debriefing and reflection through facilitated discussion. Students can become familiar with their own learning processes, experiment with different ways of learning, develop ethical skills, and learn to value the diversity of people and team collaboration due to active learning and a pedagogy based on collaboration (Parker & Myrick, 2009:324; Hawkins, Todd & Manz 2008:526). The principles of adult learning direct the use of HFPS.

In this study, I explored, analysed and interpreted nurse educators' transformative learning experiences while implementing HFPS at a school of nursing at a university in South Africa.

1.2 SYNOPSIS OF HIGH-FIDELITY PATIENT SIMULATION LITERATURE

Over the past 20 years, the use of HFPS in nursing education in first-world countries increased steadily (Hayden et al., 2014:S4). Dynamics, including globalisation, migration, wars, disease patterns, changes in disease profiles, a growing world population and financial instability, can influence a healthcare system (Shin et al., 2015:176). The traditional education system leaves gaps in the preparation of professional nurses, and may prepare students insufficiently for challenges they will face in their future career (Yuan et al., 2012:294). More innovative nurse-education strategies should be created, refined and adapted to prepare future professionals for the challenges they may face the future. HFPS is one of the most promising strategies to close these gaps, and is presently receiving much attention.

In order to advance student learning, several authors indicate that nursing education should transform (Del Prato, Bankert, Grust, & Joseph, 2011:109; Greysen et al., 2011:976; Frenk, Chen, Bhutta, Cohen, Crisp, Evans, Fineberg, Garcia, Ke, Kelley, Kistnasamy, Meleis, Naylor, Pablos-Mendez, Reddy, Scrimshaw, Sepulveda, Serwadda & Zurayk, 2010:5; Benner, Sutphen, Leonard, Day & Shulman, 2009:52). This transformation would require nurse educators to develop new and advanced ways of facilitating deep learning in highly complex, demanding and unpredictable learning environments. The transformation of nursing education is challenging for most institutions. The key to bringing about a permanent transformation of

nursing education is to change how nurse educators think about the learning process (Regan & Onello, 2013:107; Parker & Myrick, 2010:326).

HFPS is unique in the sense that educators are exposed to a direct, face-to-face encounter with students and, therefore, educators learn about student learning and students' perspectives on learning. Simulation can play an important role in transforming educators' perspectives, as they have to critically evaluate the strategies they employ to improve student learning (Klaassen, Smith, & Witt, 2011:87). HFPS challenges educators' perceptions of educational strategies, as educators witness the effectiveness of the strategies directly during a simulation. The dynamic nature and continuous advancement of simulation challenge the comfort of educators (Anderson, Bond, Holmes, & Cason, 2012:e59). The dynamic nature of simulation results in learning by both the student and the educator.

1.2.1 EDUCATOR LEARNING

In literature, the terms for “educators utilising simulation” are used interchangeably and lack consistency. Much of the emerging literature uses terms like faculty, teachers, facilitators, instructors and clinical teachers (Hallmark, Thomas, & Gantt, 2014:351). The inconsistent use of terminology not only makes it difficult to review literature, but may also lead to unintended misperceptions about the role and therefore the development of educators who use simulation.

The way simulation has traditionally been used in nursing education has a long history, but generally simulation has been limited to practical repetition of skills by students and assessment of students' practical skills (Yuan et al., 2012:297). Over time educators may develop a limited perception of the uses of simulation. Concurrent with technology's rapid development, simulation has expanded too – it is now considered to be a learning strategy (Harder, Ross, & Paul, 2013:1243). When educators consider simulation as merely an *assessment* strategy for practical skills, the benefits of HFPS as a *learning* strategy are disregarded. Educators need a deep, accurate understanding of the potential that lies hidden in HFPS; only then will educators be motivated to utilise HFPS fully. The philosophical and theoretical foundations of using HFPS need serious consideration if the way HFPS is utilised is to improve.

1.2.2 PHILOSOPHIES AND THEORIES IN HIGH-FIDELITY PATIENT SIMULATION RESEARCH

HFPS is a diverse learning strategy and complements a number of philosophies and theories. Authors report that they use a variety of adult-learning theories that they apply to HFPS learning experiences. Some of these are constructivism, lifelong learning, Knowles's adult learning, brain-based learning, Kolb's experiential learning, behaviourism, situational learning, authentic and collaborative learning, and Vygotsky's theory on socio-cultural learning and reflective practices (Reed, 2012:e211-e212; Parker & Myrick, 2009:325-327; Rothgeb, 2008:490). Simulation complements most of these adult-learning theories well. However, despite the variety of philosophies and theories applied to student learning, advanced learners and, in this case, educators' learning about HFPS, little attention is given to the theories that underscore learning through HFPS.

1.2.3 EXISTING PROCESSES OF LEARNING

Information about the learning processes of nurse educators is limited. As educators create an authentic learning experience for students, they learn as well. Educators reassess their own perspectives on the content and learning strategies that they apply in their modules (Reid, Hinderer, Jarosinski, Mister, & Seldomridge, 2013:288).

In a systematic review Nehring et al. (2013:4) report that only 25 articles and 10 dissertations have explored the processes of educators' learning during HFPS. Data remains anecdotal and independent from learning theories (Steinert, Mann, Centeno, Dolmans, Spencer, Gelula & Prideaux, 2006). According to McGaghie et al. (2010:54) medicine shares the need identified by nursing education for a deeper exploration of the process of learning of educators during simulation.

My personal experience has been that recommendations mentioned in the literature are helpful when implementing HFPS, but lack a deeper explanation of the educators' personal learning experiences when using HFPS. Presently, educators who develop and implement HFPS do so based on their clinical and educational expertise, creativity and technological skills. Most of those who venture into HFPS feel ill prepared, as few education modules teach the skills of this innovative strategy. Harder et al. (2013:1245) express the focus on pedagogy very eloquently. They explain,

High-fidelity simulation is much more than the mannequin. It is the technology, the environment, the instructor and the students. Often the focus is on the mannequin and the environment; however, the individuals who are facilitating the simulation experience also need to be considered. Putting a mannequin and a group of students together in a room is not going to promote student learning, rather it is the pedagogy and not the technology that will assist the students best.

Literature is not clear on a single best strategy for developing educators' knowledge, understanding and skills. The standardised approach to developing educators interested in implementing HFPS may be a difficult feat, as a one-size-fits-all approach may not be applicable (Hollema, 2015:4; Durham, Cato, Lasater, Jones, et al., 2014:359; Anderson et al., 2012:e64).

1.2.4 DEVELOPMENTAL STRATEGIES

Literature confirms two important approaches to the development of educators. Firstly, the use of a blended approach is suitable for developing educators. Secondly, authors agree on the key role that a dedicated, full-time simulation coordinator or champion plays and state that it is essential for success and for sustaining HFPS (Al-Ghareeb & Cooper, 2016:385; Kardong-Edgren, 2015:201; Nehring et al., 2013:1). The coordinator is responsible for supporting the development of educators and for guiding and expanding simulation that is incorporated into modules – this is not an administrative position. Educators indicated that if they are supported in the implementation of the innovative technology of simulation, they will be more likely to adopt HFPS as a learning strategy (Billings, Allen, Armstrong, & Green, 2012:292).

According to the criteria used by Kelly and Hager (2015:376), the nature of learning by educators at the research site was initially informal or developed in an unstructured fashion. The majority of educators received training in the use of simulation from representatives. However, few of the representatives are trained educators, neither are they grounded in education theory. Nevertheless, they play an important role in developing educators' knowledge and technical skills and provide training in troubleshooting (Durham et al., 2014:359).

Simulation educators combine their practical experiences with information gained from academic journals, grey literature, webinars, and journal clubs. An interesting suggestion involves a train-the-trainer approach to educator development via brown-bag meetings, two workshops, and a web-based simulation resource site (Nehring et al., 2013:25).

Other suggestions for informal learning include observing experienced educators during simulation, reading the simulation literature, working with experienced educators in simulation, and using trial and error. Some institutions have compiled guidebooks explaining the technology, simulation equipment, capabilities of the simulators, how to develop and implement scenarios, and how to troubleshoot the equipment and scenarios (Dalrymple, Martin, & Smith, 2013:89; Nehring et al., 2013:25-26). A number of development programmes have been developed and are described in the literature, but pre- and post-testing have not confirmed the effectiveness of these strategies (Nehring et al., 2013:27).

A formal learning process complements informal learning. In particular, attending a hands-on simulation workshop or an online course in simulation is recommended in the literature (Durham et al., 2014:359). Attending a simulation workshop is a minimum requirement for educators facilitating simulations, but doing so is no more than a good starting point.

Generally, the content of simulation workshops cover an overview of simulation, logistics, pedagogy, scenario development, and debriefing (Harder et al., 2013:1244; Nehring et al., 2013:25). Simulation conferences and pre-conference workshops are additional sources of information about simulation (Laerdal Medical United, 2010:3). Simulation workshops and conference proceedings are often good sources of information, and are helpful, as simulation technology is advancing fast, in line with continuous improvements in technology (Cheng et al., 2016:420; Hollema, 2015:4; Dowie & Phillips, 2011:36). However, developing HFPS skills cannot only rely on simulation workshops or conferences; educators need a community for support and discussion (Anderson et al., 2012:e60). A blended approach of formal and informal development of educators is more effective than a stand-alone, formal approach.

1.2.5 ACQUIRING THE NECESSARY TECHNICAL SKILLS

The technical skills required of educators to implement HFPS simulations are described in the simulation literature (Durham et al., 2014:359). The skills and competencies required of educators receive more attention in research than the process of learning does. Most studies indicate that educators experience high levels of stress during initial phases of implementation (Harder et al., 2013:1244). Publications provide examples of the way educators develop, and give examples of educator development programmes (Al-Ghareeb & Cooper, 2016:282; Nehring et al., 2013:1, 25).

Due to the technical nature of simulation, learning to do HFPS is difficult. The diffusion of innovation theory divides people into groups according to their willingness to adapt to new ideas: (a) *innovators* (2.5%), (b) *early adopters* (13.5%), (c) *early majority* (34%), (d) *late majority* (34%), and (e) *laggards* (16.0%) (Kaminski, 2012). Akhtar-Danesh, Baxter, Valaitis, Stanyon, and Sproul (2009:327) indicate that educators might adopt simulation at varying levels, as *supporters* and *positive enthusiasts*, *traditionalists*, or *help seekers*. Therefore, educators may see their roles in simulation differently, and it implies that educators might be involved at different levels during HFPS. Involvement may also be related to a process of developing confidence, leading to higher levels of commitment in the future.

The strategies recommended for developing educators' knowledge, understanding and skills are fluid. Currently, practices include hands-on workshops or online courses in simulation. Vendors contribute by presenting informative training for the practical management of high-fidelity simulators and technologies. Simulation conferences and pre-conference workshops are helpful sources information (Durham et al., 2014:359; Laerdal Medical United, 2010:3). Grey literature like manuals and policies may play a role in the development of educators.

One more recent recommendation suggests a simulation fellowship for developing educators over an extended period (Ng & Ruppel, 2016:62). Harder et al. (2013:1244) support the view that developing educators using simulation may take an extended period to achieve.

1.2.6 ORGANISATIONAL INFLUENCES ON EDUCATOR LEARNING

Organisational culture can either contribute to or hinder the adoption and incorporation of HFPS in curricula (Nehring et al., 2013:29; Taplay, Jack, Baxter, Eva, & Martin, 2014:10). Authors emphasise the importance of all aspects of the organisation participating in all the phases of implementation of simulation. To secure the buy-in of all involved requires tremendous effort, and the support of executives, in particular, is essential (Taplay, Jack, Baxter, Eva, & Martin, 2015:32). Administrative functions, such as job descriptions and annual evaluations, are poor indicators of the effort made to present simulation activities, and provide little guidance for the process of educators' learning during implementation of simulation (Taplay et al., 2014:10). Alternative "rewards" and workload implications are also described in the literature (Jones & Hegge, 2008:e9).

The development of HFPS educators is presently not standardised and strategies to expand the use of HFPS vary from institution to institution (Durham et al., 2014:359). Organisational

history and culture have a significant influence on the way in which departments implement HFPS. The following are examples of these influences:

- In the past, application of technology in nursing education, training and clinical opportunities in patient care was limited. Using simulation as a *learning* tool is a new strategy for nurse educators and implementation is often met with resistance (Durham et al., 2014:358).
- In the near future, the application of simulation in nursing education will change the educator's role and skill set, and awareness of this change will contribute to the motivation of institutions to implement HFPS (Durham et al., 2014:360).
- Developing educators in the use of simulation (designing, implementing and evaluating) still needs clarification (Rutherford-Hemming et al., 2016:3; Anderson et al., 2012:e61).
- The success of such a venture depends on a variety of factors, such as dedication to using simulation, and student-centred learning, curricular considerations, collaboration between educators, staff and management (Skiba, Connors, & Jeffries, 2008:227).

1.2.7 BARRIERS TO THE IMPLEMENTATION OF HIGH-FIDELITY PATIENT SIMULATION

Although most nurse educators agree that HFPS is an effective, safe and good-quality learning strategy for students, adoption of HFPS has been slow (Al-Ghareeb & Cooper, 2016:284-285; Josefyk, 2013:np; Miller & Bull, 2013:241). Authors in the field mention a number of barriers and some contextual factors that hinder the process of implementation.

Barriers can be either internal or external in nature and include, (a) time, (b) training, (c) educators not considering HFPS as applicable, or considering it to be unimportant, (d) lack of space or equipment and conflicting schedules in the lab, (e) funding, (f) staffing, (g) difficulty of engaging all students while a few are involved in simulation, and (h) educators who are uncomfortable using technology (Rutherford-Hemming, Lioce, Kardong-Edgren, Jeffries, & Sittner, 2016:6; Hollema, 2015:2; Nehring et al., 2013:1). Authors agree that educators should be knowledgeable about using technology (Durham et al., 2014:357).

Authors often mention that the slow adoption of HFPS in nursing education is a concern. Literature from developed countries, like the USA, Canada and Australia, describes barriers to the implementation of HFPS but do not recommend solutions (Al-Ghareeb & Cooper, 2016:284; Nehring et al., 2013:23). The barriers educators experience in implementing HFPS as identified

in the literature may be part of the development process educators experience in implementing HFPS, and which, when they have been overcome, serve as the impetus to develop confidence in the use of HFPS.

Institutions' and educators' circumstances and learning needs vary. DuPont (2012:116) indicates that there is no relationship between motivation to adopt HFPS and the practical integration of HFPS technology. According to DuPont (2012:116) implementing HFPS,

is not an entirely planned process and... teachers' decisions to implement technology may largely rely on non-conscious decisions that are mediated not only by motivation but also by volition and attitudes.

Defining the internal and external discrepancies between institutions able to implement HFPS successfully and those institutions with slow adoption, needs further investigation. There may also be unknown factors that affect the utilisation of HFPS negatively. Furthermore, the question whether accreditation of educators' development, which is presently receiving attention, will increase the adoption of HFPS, is still unanswered.

1.2.8 BACKGROUND TO THE PROBLEM STATEMENT

This study is the result of both theoretical and practical gaps/problems in the learning processes and skills development of simulation educators, which resulted from implementing simulation. I described the literature in Section 1.2 and will only summarise the gaps in this section.

The *first theoretical gap* is the initial overuse of quantitative measures (for example, multiple-choice questions, closed-ended questionnaires and Likert scales) to determine the effectiveness of HFPS. These measures do not provide meaningful answers to questions about development and improvement of simulation skills. The nature of traditional educational strategies and those of HFPS differ quite considerably (Jeffries, 2008:71).

The early findings and descriptions of the role and development of the educator using simulation were based on the findings of quantitative methods (Taplay et al., 2015:30; Walton, Chute, & Ball, 2011:299). As simulation is a new strategy, qualitative research findings might be more suitable for identifying the underlying factors that influence educator development, educators' general learning processes, preferred learning styles and the outcomes of the learning of educators. The findings of qualitative research methods might provide the

foundations for quantitative scrutiny. Literature reviews was another source of information, but the primary studies had small sample sizes and were single-centre studies (Al-Ghareeb & Cooper, 2016:285; Faz, Van Sell, & Sheriff, 2014:58; Nehring et al., 2013:26-28). Quantitative studies might have missed some of the variables appropriate for simulation.

Most of the evidence concerning simulation educators' development is based on surveys with predetermined questions (Nehring et al., 2013:26). Topping, Bøje, Rekola, Hartvigsen, Prescott, Bland, Hope, Haho, and Hannula (2016:1112) confirm the current need for significant exploration of the best way to prepare educators to become competent in the use of HFPS.

The *second theoretical gap* is the need for a deeper understanding of the learning of educators implementing HFPS, because the technical skills involved in simulation should be integrated in the appropriate learning theories. As HFPS is a new learning strategy, research should determine the best ways educators gain “their knowing” about simulation and what they consider to be beneficial.

Literature describes learning theories and philosophies for effective student learning. However, the *third theoretical gap* was the limited research that referred to learning experiences of educators implementing simulation. Confronted with HFPS, educators have to master complex technology and a new learning strategy at the same time.

Evidently, the value of the original adult learning theories and philosophies, such as constructivism, lifelong learning, Knowles's adult learning, brain-based learning, Kolb's experiential learning, behaviouristic theories, authentic and collaborative learning, Vygotsky's theory on socio-cultural learning theory and reflective practices, are theories appropriate for application in HFPS as a learning strategy for students (Reed, 2012:e211-e212; Parker & Myrick, 2009:325-327; Rothgeb, 2008:490). However, the learning educators experienced seemed to be more complex than described by these theories. Noticeable is that most of the theories originated before technology became part of everyday life. In contrast, both the NLN Jeffries simulation theory, published in 2016, and the transformative learning theory of Mezirow – theory used in this study – were developed concurrently with technology becoming part of educational practices. A two theories developed in the post-modern era and consider the use of technology in learning.

The *fourth theoretical gap* is the wording of the “teacher” construct in the NLN Jeffries simulation framework (NJSF). The word teacher, usually, evokes perceptions of a traditional, teacher- centred approach. However, simulation is a student-centred approach. In the study, I

use the term educator instead of teacher. The NJSF “teacher” construct accounts for only the demographics of the educator, and not the other influences in learning and implementation. The framework does not guide simulation practice and future research sufficiently.

The *practical gap* resulted from international donations of simulators and funding to develop HFPS facilities at nursing schools/departments at universities and nursing colleges in South Africa. The successes at the school of nursing at the research site lead to other institutions approaching the research site for advice about implementing HFPS. Our social responsibility was to provide reliable information regarding the development of simulation educators, to ensure optimal use of simulators and to remain sustainable. However, as we had to learn from trial and error and because of the gap in the literature, I embarked on this study to provide valid information to these institutions.

1.3 PROBLEM STATEMENT

The implementation of HFPS as a new learning strategy at the research site required a paradigm shift. The nurse educators experience problems transferring general or traditionally educational skills to HFPS. Successful simulation educators search their existing perspectives for more effective strategies in order to implement HFPS successfully at the research site. Educators experimented with new strategies or transformed older perspectives to suite the implementation of HFPS. A clear understanding of the transformative learning that nurse educators experienced is strategically important for future adoption of HFPS.

1.4 CONTEXT OF THE STUDY

The school of nursing at the research site received a grant in 2011. One of the aims of the project that resulted from the grant was to implement HFPS as a learning strategy. HFPS was a new learning strategy for nurse educators in South Africa at the time; there were no simulation experts to guide the implementation of HFPS. The motivation for this study stems from the personal challenges we experienced in the process of establishing and expanding HFPS at a school of nursing in South Africa.

1.4.1 NATIONAL AND LOCAL CONTEXT

When it was initiated, HFPS was a brand-new strategy for nursing education in the South African and African context. In fact, the school of nursing of this study was the first to establish HFPS as a comprehensive learning strategy in undergraduate and post-registration curricula in

South Africa, and probably in Africa. Nurse educators reported experiencing severe stress caused by implementing this new learning strategy (Thurling, 2016).

Anecdotal experiences and discussions with nurse educators at the research site highlighted the challenges dealing with complicated technology, differences in opinions between team members, and the fear that insufficient knowledge or skills could be exposed in the presence of peers. Nurse educators also had to switch from a teacher- to a student-centred teaching approach, leading to feelings of insecurity. These insecurities affected every nurse educator uniquely due to different sets of skills possessed by nurse educators. The variations in skills were related to interests, pre-existing knowledge and skills, and biases regarding educational strategies.

Observing these variations highlighted the complex nature of implementing an advanced learning strategy for nursing education. The following is a short description of how simulation is practised at the research site. The process of simulation design is labour intensive.

1.4.2 NURSE EDUCATOR PREPARATION FOR SIMULATION

After the HFPS facility had been constructed and furnished, I prioritised the development of nurse educators, so that they could use HFPS successfully in their modules. Nurse educators had to identify their own learning needs and select the learning strategy that meets their needs. Educators selected from an array of formal and informal learning options for developing their skills.

The initial informal options included hands-on demonstrations and playing around with the functionality of the different simulators, journal club discussions and webinars. Educators started out by observing experienced colleagues facilitating HFPS and student learning responses to scenarios. I guided them to design, prepare and facilitate simulation scenarios according to the content of the nursing modules they presented. Educators developed their simulation skills and understanding over time and with the support of the coordinator. In the beginning, educators only observed the debriefing of their students, which was led by an expert. As their confidence developed, educators progressively took more responsibility for facilitating debriefing of and reflection by students after an HFPS experience. Eventually, educators took responsibility for the quality and content of their students' simulation experiences. Educators became active instruments in their students' learning during simulation. After a day of simulation, educators discussed personal learning experiences with peers. I

encouraged them to record learning experiences in journals. Educators then changed or improved the scenarios according to experiences and recommendations of colleagues. Educators who showed commitment to implementing simulation were sponsored to attend a simulation workshop.

1.4.3 DESCRIPTION OF SIMULATION PRACTICES

The nurse educators' roles in HFPS are planning, preparing, implementing, debriefing and guiding reflection by students (INACSL Standards Committee, 2016:S5). A *scenario* (like a script) is the systematic and detailed planning of a learning experience for an individual or group of students according to the module outcomes, learning and skills in place, and learning needs. A number of simulation planning templates are available and are used to plan scenarios. Educators agree on the outcomes of the scenario, what is required during the simulation and the general principles for debriefing.

The environment is *prepared* a day before. A complicated scenario requires a number of educators to assist during the scenario. On the day of the simulation, the patient is handed over to the students, as in real life. The facilitator clarifies the objectives for students and answers questions.

During *scenario*, one educator controls the manikin features, another answer the phone, as students are required to report the patient's condition to a doctor, for example. There is a facilitator for the students and someone to debrief and guide students' reflections. Students' actions are recorded with cameras at different angles to the simulation action.

After the simulation, the facilitator guides students' *debriefing* and *reflection* according to outcomes achieved by the students and watched after the simulation by viewing the audiovisual recordings of the experience of the scenario. During reflection, facilitators use a variety of techniques to focus or direct students' learning (Issenberg, Ringsted, Østergaard, & Dieckmann, 2011:159-159; Parker & Myrick, 2010:327). Both students and facilitators benefit from the simulation and reflection activity. Students report that they often think about the learning experienced during simulation.

1.4.4 EXPERIENCES OF EDUCATORS IMPLEMENTING HIGH-FIDELITY PATIENT SIMULATION AT THE LOCAL SETTING

Indicators of successful implementation of HFPS became apparent after two years.

Approximately seven educators adopted HFPS as a learning strategy in three undergraduate and one post-registration nursing module (2012). Eight modules had incorporated HFPS by 2016. Student learning opportunities more or less doubled every year; it started with 46 in 2011, and numbered 1 232 in 2016. *I considered these significant increases to be part of the evidence that we were doing something right.*

In 2012, the school of nursing started presenting an annual international, inter-professional *simulation workshop*, which has evolved into a biannual accredited short learning programme. A total of 120 educators from different health professions and representing tertiary institutions in South Africa and neighbouring countries attend the workshop. Leaders in the use of simulation at the school of nursing serve as facilitators at the workshop, and their involvement increased over time. Educators at the school of nursing have already provided support to educators at other institutions in using HFPS.

The school of nursing became a *beacon* for those who needed mentoring in implementing HFPS. When I look back at our starting point, I realised that educators' perspectives have changed drastically over the years of implementing HFPS. The extent to which simulation is used has increased consistently, however, other institutions did not increase the use of HFPS as much, and its use still remains limited (Thurling, 2016), despite educators from these institutions attending the simulation workshops and subsequent support provided on request. I became interested in determining why some educators are successful in implementing HFPS, and others experience barriers. The importance of exploring the learning experiences of educators who are using simulation became clear. Understanding their experiences provides some clues and guidance for initiating and maintaining simulation successfully.

1.5 RESEARCH QUESTIONS

The research questions of this study directed the paradigm, methodology and research design of the study.

1.5.1 MAIN RESEARCH QUESTION

The research question of the study is the following:

How do nurse educators at a school of nursing in South Africa, who have not implemented HFPS before, experience their learning from a transformative learning theory (TLT) perspective?

1.5.2 RESEARCH SUB-QUESTIONS

The sub-questions of this study in relation to the simulation educator experiences are:

1. How did participants experience their first HFPS?
2. What learning experiences followed more HFPS?
3. Why did participants implement HFPS in modules?
4. How did implementing HFPS influence participants' attitudes, knowledge and skills?
5. What education practices changed due to learning experiences during implementation of HFPS?
6. What influences did the implementation of simulation have on educator reflective practices?
7. How did implementing HFPS change educators' educational paradigms?

These research questions were selected according to Kirkpatrick's four levels of educational outcomes learning: 1) reaction; 2) learning (attitudes, knowledge and skills); 3) behaviour; and 4) results (impact on practice) (Steinert et al., 2006:3; Elfrink, Kirkpatrick, Nininger & Schubert, 2005:79).

1.6 PURPOSE OF THE STUDY

The purpose of this study was to explore, analyse and interpret nurse educators' transformative learning experiences while implementing HFPS at a school of nursing at a university in South Africa. The findings of this study will expound on simulation educators' development at the research site in the future, and ultimately contribute to the international academic debate regarding the "teacher" construct in the NJSF.

1.7 THEORETICAL FRAMING

This study is bordered by two learning theories and a philosophical approach. The theories and philosophies determined the nature and methodology of the study. The learning theories applied in this study include the NJSF, the TLT and the philosophical grounding of the interpretative phenomenology analysis (IPA).

With these theoretical and philosophical approaches in mind, I selected current strategies that reflect the dynamics of life since the turn of the century. Most learning theories and philosophies in adult learning predate the application of technology to learning. Therefore, the NJSF and the TLT of Mezirow (1997 to 2012) were used for the reasons explained in Section 1.3 (the fourth gap).

This study uses a qualitative approach, the IPA, as a method to explore, analyse and interpret experiences that answer the research question. IPA is relatively new strategy, capable of providing deeper insight into experiences. The methodology was introduced by Jonathan Smith, Paul Flowers and Michael Larkin (2009), who are presently the main authors in IPA.

1.7.1 NLN JEFFRIES SIMULATION FRAMEWORK

Pamela Jeffries is one of the main authors of the field of simulation. She played a key role in developing and testing a simulation model (often called a framework) to promote student learning via simulation (Jeffries, 2005:97). Jeffries published the first national NJSF in the USA in 2005 (Jeffries, 2016:1), followed by an article, *A framework for designing, implementing and evaluating: Simulations used as teaching strategies* (Jeffries, & Rizzolo, 2006:7-9). These two documents guided how simulation was implemented at many international facilities and at the research site. The framework provides a reliable understanding of the simulation process and guides future research (refer to Figure 1.2). Initially, the framework was a result of a literature review on constructivist, sociocultural, and learner-centred theories. At the time of implementing HFPS at the research site in 2011, the general literature on HFPS provided little information of how to prepare educators for using HFPS.

The NJSF guides educators using HFPS to design, implement and evaluate scenarios, challenge students to develop their knowledge, improve skills performance, critical thinking and self-confidence, while maintaining student satisfaction. In addition, the framework serves as a guideline for further research, as it did for this study. Revised versions of the simulation framework followed in 2007 and 2012. The simulation framework consists of five constructs, namely, teacher, student, educational practices, outcomes, and simulation design characteristics (refer to Figure 1.2) (Jones et al., 2014:353).

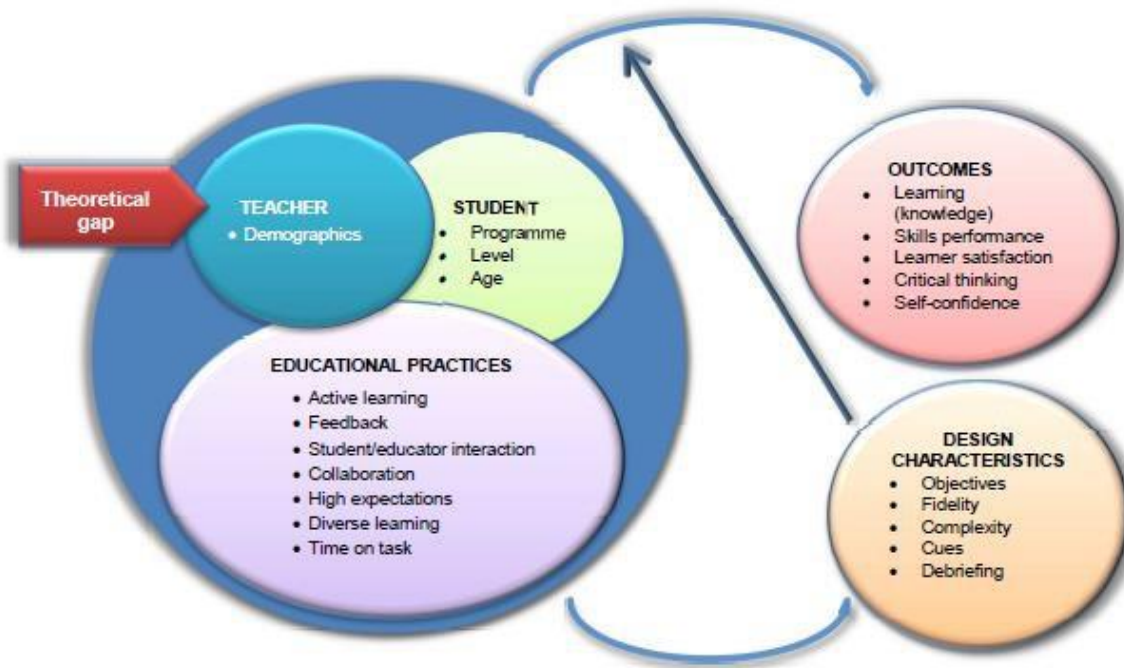


Figure 1.2: NLN Jeffries simulation framework (adapted from Jeffries, 2012:97)

This study explores the teacher construct in the NJSF, which indicates that demographics of the educator play an important role (see Figure 1.2). The constructs of student, educational practices, outcomes and design characteristics receive more attention, including research, than the teacher construct (Bambini, Washburn & Perkins, 2009:79; Jeffries, 2005:97). Jones et al. (2014:360) recommend that the term teacher should change to a facilitator, as facilitator was mostly used in studies. In 2016, Jeffries' work evolved and was termed the NLN Jeffries simulation theory (Jeffries, 2016:2) (refer to Fig. 1.3). The reformulation as a simulation theory did not influence this study, as it was published near the end of the study.

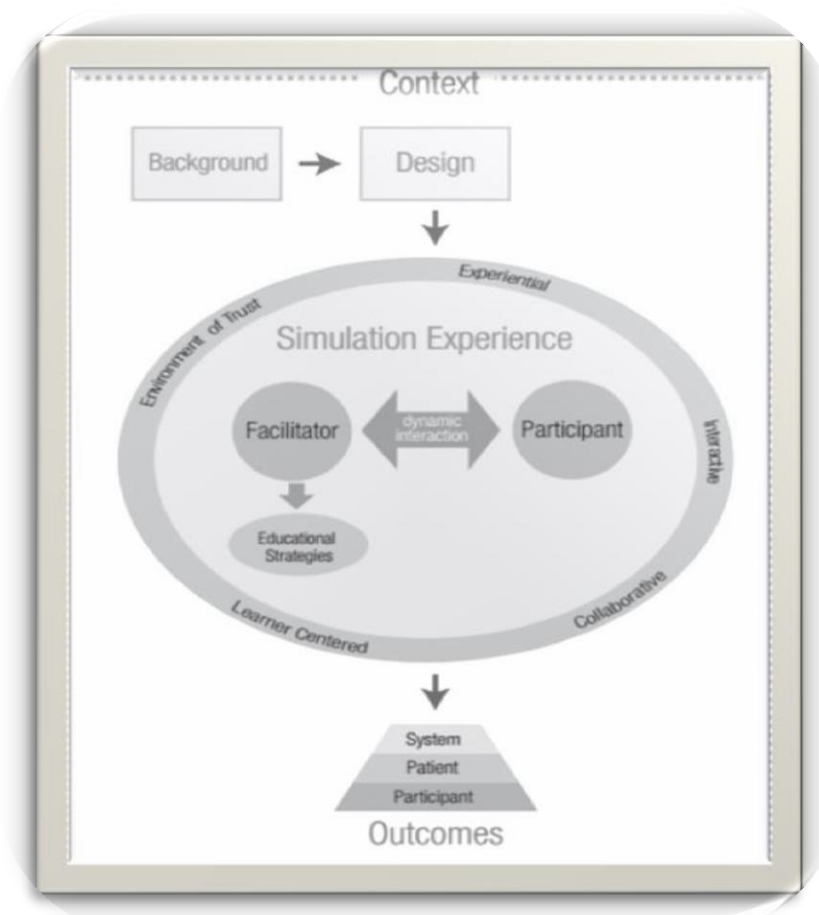


Figure 1.3: NLN Jeffries simulation theory (Jeffries, 2016:40)

1.7.2 THE TEACHER CONSTRUCT

The teacher construct is central to the entire NFSF. As indicated in Figure 1.2 the teacher construct requires a deeper understanding than the other constructs do. The description of teacher construct needs expansion to guide future research and the practices of nurse educators using HFPS. The model mentions only demographics of an educator as being important. Over time the demographics, roles and responsibilities, values and attributes of the educator did receive more attention from more authors, but the literature still remains inconsistent regarding these aspects (Durham et al., 2014:356-357).

The standards for best practices in simulation require educators to have a complex skill set if they are to use HFPS effectively for learning (Hollema, 2015:4). Cognitive knowledge of simulation principles is not sufficient to ensure effective use of HFPS, as it takes time to develop a student-centred approach through a culture and environment conducive to deep

learning (Mariani & Doolen, 2016:33). At the same time, educators using HFPS have to master the sophisticated technology and software of HFPS and must be able to maintain a positive, supportive, non-judgmental and safe learning environment (Boese, Cato, Gonzalez, Jones, Kennedy, Reese, Decker, Franklin, Gloe, Lioce, Meakim, Sando, & Borum, 2013:22; Nehring et al., 2013:2).

In reality, educators must develop complex skills relating to the use of HFPS. However, the NJSF does not reflect these complexities. LaFond and Van Hulle Vincent (2013:469), in a critique of the NJSF, confirm the lack of published reports examining the teacher construct between 2005 and 2011. Only a few studies allude to the role and responsibilities of nurse educators who use HFPS (Durham et al., 2014: 353-362; Patel, Yoskowitz & Arocha, 2009:793; Jeffries, 2008:71).

1.7.3 TRANSFORMATIVE LEARNING THEORY

The TLT forms part of the theoretical framework of this study and the following description of the theory serves as a short overview. The architect and most predominant scholar of transformative learning is Jack Mezirow. Mezirow's TLT evolved over the past 25 years (Taylor, 2007:173).

Mezirow discovered that adult learners' understandings of personal, cultural, and social perspectives result from lived experiences. Points of view and habits of mind are based on past experiences, forming a frame of reference for making sense of learning experiences (Mezirow, 1997:5). He noticed that adult learners have the ability to modify their assumptions and expectations of learning. The students in Mezirow's original study experienced a change in frame of reference, which he called a perspective transformation. Adults have the ability to critically reflect on assumptions and consider alternative options that may be effective for new perspectives. New learning results in a more inclusive, discriminating, self-reflective, and integrative perspective on an experience (Mezirow, 1997:5–12). In Chapter 2 I will discuss the TLT in more depth.

1.8 RESEARCH PARADIGM: INTERPRETATIVE PHENOMENOLOGY ANALYSIS

Ontological, epistemological, methodological, and axiological assumptions describe the research paradigm of this study (refer to Table 1.1).

Table 1.1: Philosophical underpinnings of interpretative phenomenology analysis

Philosophical assumption	Interpretative Phenomenology Analysis (IPA)
Ontology: Assumptions about the nature of being and reality	Lived experience takes on a particular significance for people. IPA is <i>phenomenology</i> in that it is committed to the examination of the way people make sense of their major life experiences. The context of experiences shape participants' meaning-making of lived experiences. The participants' meaning-making can evolve or change over time. This relativistic ontology means that reality is not predefined. The researcher shares the fundamental property of being a human being with participants.
Epistemology: Assumptions about the nature of knowledge and knowing	People who have experienced a significant experience in their lives reflect about what happened. They are engaged in a considerable amount of reflecting, thinking and feeling as they work through what the experience means. Knowledge is created from an emic epistemology or insider view. Knowledge is a result of direct, subjective interaction with participants to gain an in-depth understanding of what an experience means to them.
Methodology: Assumptions about how things are done	IPA is a self-conscious and systematic interpretive endeavour concerned with a detailed exploration of the reflections of a particular person on the significance of major life experiences and complex topics. IPA is idiographic in that the goal is to find out what the experience is like for a particular person and what sense this particular person is making of what is happening to him/her. The IPA researcher is engaged in a <i>double hermeneutic</i> of trying to make sense of the participant making sense of his/her experiences.
Axiology: Assumptions about ethics and values	The IPA researcher endeavours to conduct research that is "<i>experience close</i>". The examination is to be conducted in a way that enables the experience to be expressed in its own terms, rather than according to predefined category systems. The researcher pursues an <i>idiographic</i> commitment to situate participants within their particular contexts, exploring their personal perspectives and starting with a detailed examination of each case before moving to a more general claim. The researcher genuinely listens, paying close attention to the participants' stories, whilst reflecting upon his/her own perceptions – thus engaging in second-order sense-making. The researcher provides an accurate account of the participants' experiences. The focused values of the study are empathetic and represent a questioning stance.

Compiled from Smith and Osborn (2015:41) and Smith et al. (2009:1-4; 32-38).

The *ontological* stance influences the rest of the philosophical assumptions underpinning a research approach. IPA is inherently phenomenological, based on the assumption that lived experience takes on a particular significance for human beings (Smith et al. 2009:1) The *epistemological* stance involves people making sense of the significance of their experiences through reflection, thought and feeling (Smith et al. 2009:3).

IPA *methodology* involves a self-conscious and systematic process of interpreting the reflections of the participant on the significance of a major life experience (Smith et al. 2009:3). The researcher is not a participant, but is a fellow human being who remains close to the experience related by the participant. IPA researchers employ their human (mental and personal) skills and capacities to come to an understanding of an experience from the participant's own perspective (Smith et al., 2009:3).

1.9 RESEARCH METHOD

The research method used in this study originates from an interpretivist and qualitative perspective. This methodology was the most appropriate for exploring, describing, and analysing experiences described by the participants, and to answer the main research question of this study. The design used was an IPA. A short description of the complete research process is given below, and I discuss it in full detail in Chapter 3.

1.9.1 RESEARCH DESIGN

IPA had its origins in psychology (Hefferon & Gil-Rodriguez, 2011:756). IPA addresses mainly practical issues in order to bring about change. Jonathan Smith, a health psychologist, introduced interpretative phenomenology analysis in 1996 as a tool to describe behaviour and lifestyles related to health issues (Smith & Osborn, 2008:60). The design provided a flexible approach to exploring the research problem. IPA was the ideal tool to examine a less-understood research problem. IPA facilitates consideration of the context, content and meaning- making of participants' experiences (Smith et al., 2009:43).

The nature of the IPA is hermeneutic, idiographic and interpretive. It follows the traditions of both Husserl's lived experience and Heidegger's hermeneutics (Shinebourne, 2011:22-24). The IPA enhances a deeper understanding than other descriptive *phenomenology designs* by adding the following:

- The *hermeneutic* approach's intention is to understand the whole in order to understand the parts (Roberts, 2013:215).
- The *idiographic* approach highlights the cognitive, linguistic, affective and physical being of the individual experiences (Reid, Flowers, & Larkin, 2005:21).
- The *interpretive* feature is a two-stage interpretation process. These experiences of everyday living develop particular significance for a person, who interprets the experience. The second stage is the interpretation by the researcher of the participant's interpretation of his/her experiences (Roberts, 2013:217).

IPA design uses certain methods to collect and analyse data. Four methods of data collection were used in this study: semi-structured interviews, reflective journals and summaries of participants, and the researcher's reflective notes, which were made after interviews (Burton & Bartlett, 2009:199).

1.9.2 POPULATION

The population of the study was nurse educators trained or experienced in the implementation of HFPS at a school of nursing at a university in South Africa.

The eligibility criteria were nurse educators who had:

- qualifications in nursing education, or
- training and experience in clinical mentoring or preceptorship, and
- been involved in at least five HFPS events from design to execution.

The eligibility criteria ensured homogeneity of participants.

1.9.3 UNIT OF ANALYSIS

A purposive sampling strategy determined the size of the sample. Seven participants met the criteria, gave written consent and were included in the study.

1.9.4 DATA COLLECTION

Data collection strategies employed for this study were:

- Face-to-face semi-structured interviews;
- Dyadic, semi-structured, face-to-face, in-depth interviews;

- Reflective journals of participants;
- Participants' reflective summaries; and
- The researcher's reflective notes.

Data collections commenced five years after initial training in HFPS. The focus of data collection in this study was on experiences of implementing HFPS, and not experiences of participants' training.

1.9.5 DATA ANALYSIS AND INTERPRETATION

Data analysis in IPA has a structured, systematic approach, as described in Smith et al. (2009:82-105). The steps followed were:

- Listening and relistening to audio-recordings;
- Initial noting (quotes and codes);
- Identifying emerging categories;
- Searching for connections across levels of categories;
- Moving to the next case; and
- Clustering cases.

These steps were followed by inductive and deductive reasoning, iteration, and cycling and recycling of strategies of interpretation (Larkin & Thompson, 2012:105). An accurate, case-by-case account summarised each participant's background and experience of HFPS (refer to Chapter 4).

Five superordinate themes, each with subordinate themes, were identified. The superordinate themes identified are,

1. Frames of reference,
2. New world of HFPS,
3. Critical reflection on experiences,
4. Critical self-reflection, and
5. Actions following transformative learning.

Finally, a description of the transformative learning process of nurse educators was elucidated by applying the lifecycle of a butterfly as a metaphor.

1.10 TRUSTWORTHINESS

Both the traditional measures of trustworthiness and Yardley's criteria for good quality research are described in Section 3.1. The following criteria of trustworthiness were applied: credibility, dependability, confirmability, transferability, and authenticity. Yardley's (2000:219) criteria were used to ensure that the research was of good quality, sensitive to context, exhibited commitment and rigour, was transparent and coherent, had impact and was important.

1.11 ETHICAL CONSIDERATIONS AND PARTICIPANT PROTECTION

Individual and institutional ethical principles that were applied to this study are described in Section 3.10. The following principles were applied: gaining institutional ethical approval and permission and individual informed consent, ensuring privacy, namelessness and confidentiality during data collection and analysis, autonomy, right to self-determination, and full disclosure, beneficence, non-maleficence, justice and values.

I was both the coordinator of HFPS and the researcher in this study. Coercion is not applicable as my role in implementing HFPS was not at a higher authoritative level, but rather the result of a collegial relationship. As coordinator, I was responsible for logistical tasks and developing nurse educators to implement HFPS. The focus of this study does not evaluate the participants' experience of simulation training, but participants' experiences of implementing HFPS.

1.12 VALUE OF THE STUDY

The study may contribute to the theoretical debate on the under-researched construct of teacher (termed *nurse educator* in this study) in the NFSF. The study's findings confirm the importance of the transformative learning nurse educators experience when implementing HFPS.

The study may inform the development of future nurse educators using HFPS at the research site and, hopefully, in other settings too. A number of schools of nursing and other health professions institutions are presently in the process of establishing or have recently started incorporating HFPS into curricula. This study is, therefore, timeous for the South African setting; in the near future the country will require many healthcare professional nurse educators to implement HFPS efficiently, especially in nursing education, where new curricula will be implemented within the next three years. In addition, a number of HFPS facilities have been established and equipped in a number of countries in Africa. These sparsely positioned

institutions often have to implement HFPS in isolation, due to the distance between educational institutions, and the limited number of nurse educators able to mentor other nurse educators new at implementing HFPS throughout Africa and beyond.

The findings of this study could contribute to meeting the social responsibility institutions have towards funders, to ensure cost-effective use of funds used to acquire expensive equipment. The findings of this study could contribute to refine the content of the simulation short learning programme presented at the research site.

Ultimately, students learning may benefit from quality simulation encounters, because a better understanding of the learning processes of nurse educators will benefit effective utilisation of HFPS. Two direct benefits of simulation for students already established are the bridging of the theory-practice gap and student-nurse educator interaction may improve (Cremonini et al., 2015:194). The findings of the study may contribute to the transformation of nursing education as mandated by the Carnegie Foundation and the Institute of Medicine (Frenk et al., 2010:19-23; Benner et al., 2009:85). Developing nurse educators using HFPS should contribute to ensuring more reliable research findings regarding simulation. Adept nurse educators using HFPS should ensure quality and consistent simulation experiences for students, about which there is, at present, inconsistent research findings. The quality of simulation design, facilitation and debriefing lacks detailed description, as noted in reports (Cuellar, Carter, Houser, Nehring, & Tomlinson, 2012:4).

Concept clarification of nurse educators using HFPS can advance the implementation of HFPS simulation locally and at other institutions. This study's findings can also inform standards, policies and quality assurance measures for high-fidelity simulation.

The study might contribute to trustworthiness of the mentoring process of nurse educators at institutions implementing HFPS in South Africa. Simulation is costly and labour intensive. Effective use simulation of HFPS can justify the capital and human resource investment, and the outputs of simulation maximised. Gaining success in the use of HFPS, nurse educators may be willing to investigate and incorporate more technologies into student learning. Confidence in HFPS and observing the positive outcomes of student learning may lead to self-confidence. The use of more technologies can make nursing education more palatable for students (Josefyk, 2013).

1.13 OVERVIEW OF THE STUDY'S CHAPTERS

In order to guide the reader, each chapter starts with a diagrammatic depiction of the overview of the content of that chapter. Below is a list of the chapter numbers and headings:

Chapter 1: Overview and purpose

Chapter 2: Transformative learning theory

Chapter 3: Research methodology

Chapter 4: Research analysis and findings

Chapter 5: Interpretation of the findings

Chapter 6: Critical reflection

1.14 SUMMARY

The chapter presented an overview of the study, the background, problem statement, research method used to explore, analyse and interpret the transformative learning experiences of nurse educators implementing HFPS in South Africa. The philosophical assumptions, theoretical framing of HFPS and context were clarified. The trustworthiness, ethical considerations and value of the study were described. The next chapter focuses on the philosophies, concepts and process of learning described in the transformative learning theory.

CHAPTER 2: TRANSFORMATIVE LEARNING THEORY

To make 'meaning' means to make sense of an experience, we make an interpretation of it. When we subsequently use this interpretation to guide decision-making or action, then making 'meaning' becomes 'learning' (Mezirow & Taylor, 1990:1–20).

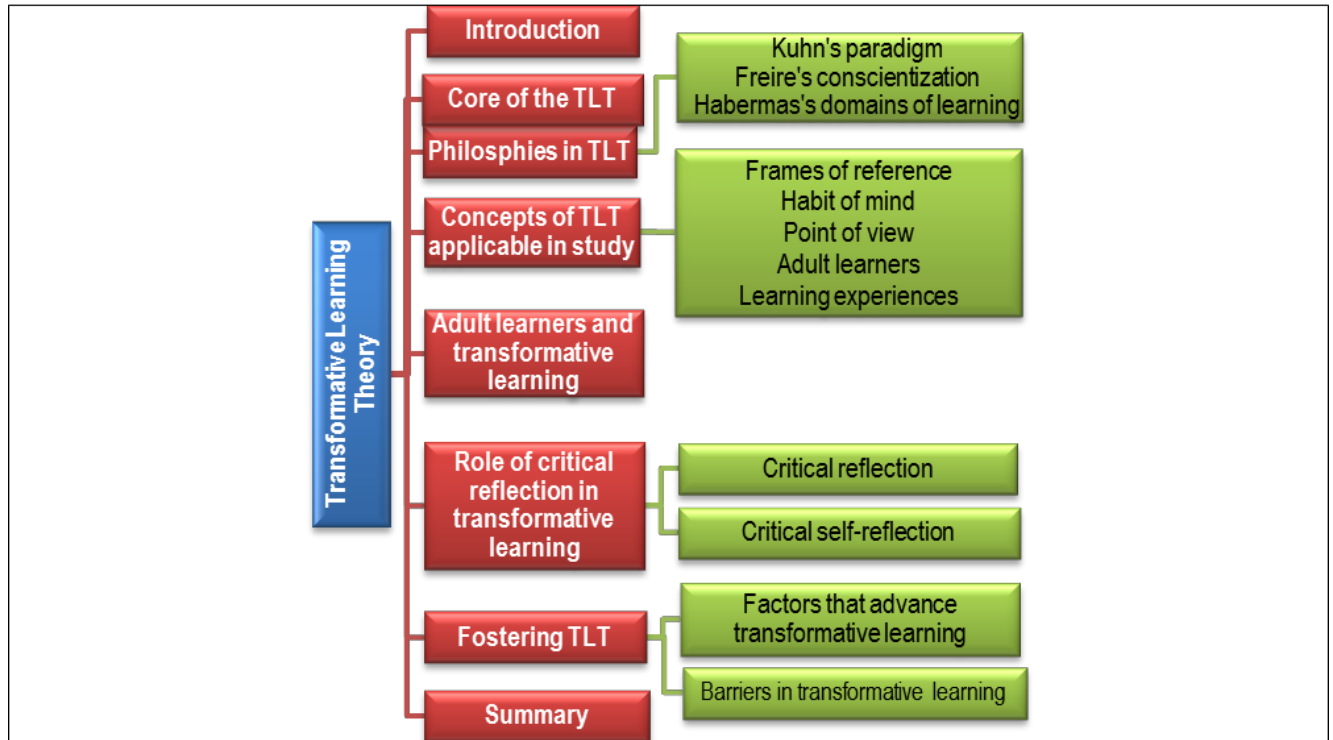


Figure 2.1: Overview of Chapter 2

2.1 INTRODUCTION

The best illustration of transformation is the metamorphosis of a caterpillar into a butterfly. A worm winds itself into a protective cocoon in which a new being starts to develop. Although, from the outside, the hard chrysalis seems to be dead, a delicate butterfly is developing inside. When this totally transformed creature emerges, it takes off in flight, something the caterpillar would never dream of doing. In the same way, learning is not a visible occurrence, but a time-consuming process that happens inside a learner, which involves rearranging experiences, thoughts, knowledge, values and ethics through a re-examination of experiences and recreation of newer and better perspectives and actions for the future. Reflection on an

experience, and critical self-reflection brings about transformation through learning (Gardner, & Kelly, 2008:118-124).

Learning leads to transformation of perspectives when meaning is made from experiences through reflection (Mezirow, 1997:5). The processes of transformation and reflection are mostly painful and difficult, and not always rational. This is because transformative learning involves the transformation of “problematic frames of reference” that include sets of fixed assumptions and expectations (Mezirow, 2012:82; Mezirow, 2003:58). Transformative learning is an intensely intimidating process, because assumptions have an emotional foundation. A person’s own sense of value and sense of self are anchored in frames of reference (Mälkki, 2010:48). Any threat of disruption and chaos to existing frames of reference will cause feelings of anxiety, because, in essence, the sense of self and personal values are questioned. These anxieties are part of the learning process and must be considered by the educational institutions. Transformation can be viewed from either a political, social or personal outlook (Duenkel, Pratt, & Sullivan, 2014:269). In this study, transformation refers to a permanent shift in personal perspectives of nurse educators who are implementing HFPS as described by the TLT.

2.2 TRANSFORMATIVE LEARNING THEORY RESEARCH

Jack Mezirow is the original author of the TLT (Kroth, & Cranton 2014:3). Mezirow’s wife sparked his interest in the phenomenon when she enrolled at a college in 1975 as an older student. His study of the learning experiences of women entering or re-entering university during their 30s gave rise to his description of the TLT. The initial study consisted of the experiences of 83 women who enrolled in university programmes at an older age than was the norm in the United States at the time. Mezirow later expanded his study throughout the United States. In essence, the theory reflects a particular vision of adult education and a conceptual framework for understanding how adults learn (Dirkx, 1998:1). His first seminal paper on TLT, *Perspective transformation*, published in 1978, was met with interest (Kitchenham, 2008:120; Mezirow, 1978a:100-110).

Mezirow continued to expand and adapt the theory over the following 28 years (Kitchenham, 2008:105). Mezirow’s continuous willingness to debate the TLT with critics and to revisit shortcomings of the theory was widely respected (Taylor & Cranton, 2013:34-47; Kucukaydin, & Cranton, 2012:43-57; Dirkx et al., 2006:123-139). Mezirow’s participation in debates demonstrates his personal, lifelong commitment to transformative learning. Though the TLT originated in the previous century, it has kept up with changes caused by the industrial age,

through the modern age, into the postmodern age of the 21st century (Moore, 2005:401). In contrast, traditional learning theories from the 20th century remained unchanged or adapted only in particular aspects. Remarkably, from the onset of the age of information and technology, the TLT became appropriate for present and future adaptations to innovation. In 2012, at the age of 89 years, Mezirow published his last contribution, a chapter in *The handbook of transformative learning* (Mezirow, 2012:73–95). He passed away in 2014.

Mezirow's work continues through the works of associates, among whom Cranton, Taylor, Baumgartner, Dirkx, Kovan, Tolliver, Tisdell, O'Sullivan, Morrell and O'Connell can be listed (Taylor & Cranton, 2013:34; Collay & Cooper, 2008:1; Cranton & King, 2003:32; Macintosh & Wiggins, 1998:11).

2.3 PHILOSOPHIES IN TRANSFORMATIVE LEARNING THEORY

The TLT was not developed in isolation. Kuhn's paradigms, Freire's conscientisation and Habermas's domains of learning were philosophies that influenced the TLT significantly. Each of the three scholars had different philosophies, because of their unique backgrounds. The differences between the philosophies and their influences on the constructs of the TLT are summarised in Table 2.1. A description of the constructs of these influential scholars follows Table 2.1, and the corresponding TLT concepts will feature in Section 2.5.

Table 2.1: Theoretical roots of transformative learning (Kitchenham, 2008:106)

Philosopher	Term in the original	Term in TLT
Kuhn (1962)	Paradigm (or paradigm shift)	Perspective transformation Frame of reference Meaning perspective Habit of mind
Freire (1970)	Conscientisation	Disorienting dilemma Critical self-reflection Habit of mind
Habermas (1971, 1984)	Domains of learning	Learning processes Perspective transformation Meaning scheme Frames of reference (meaning perspective)

Adapted from Kitchenham (2008:106).

2.3.1 KUHN'S PARADIGMS

Thomas Kuhn described paradigms as ways in which a group of scientists explain unanswerable questions, thus enabling society to solve problems (Di Biase, 2000:3). However, the questions in research are open to various interpretations and therefore paradigms require revisiting from time to time. Consequently, there is not one single, true paradigm, but only a progression towards truth (White, 2011:20). This progression indicates a correspondence between TLT's *frames of reference*, as described by Mezirow, and the meaning of paradigms, explained by Kuhn (Taylor, & Cranton, 2013:33). Regardless of whether the shift of meaning perspective takes place on a personal or educational level, the effects can be dramatic. Mezirow (1990:13) explains "personal as well as scientific paradigm shifts can redirect the way that we engage the world" – this is the source of Kuhn's (1970) reference to these paradigm shifts as revolutions in science.

2.3.2 FREIRE'S CONSCIENTISATION

Paulo Freire worked as a nurse educator in a traditional village in Latin America, where he observed the oppressive social norms brought about by learning (Mezirow, 1990:16). Freire (1985:51) defined learning as *conscientisation* ("free thought") that is further described as,

an event calling forth the critical reflection of both the learners and educators, the literacy process must relate speaking the word to transforming reality, and to man's role in this transformation.

For Freire, learning is political in nature, as politics will determine the nurse educator's method of presentation, assessment, learning strategies and materials used. Freire paralleled inadequate teaching strategies with the "banking" method of learning, where the teacher deposits information and rewards those deemed worthy of "receiving the gift of knowledge" (Kitchenham, 2008:107). Unfortunately, the student becomes dependent on and limited to the teacher regarding learning (Kitchenham, 2008:106-108; Dirkx, 1998:2). In order to improve education, Freire provided a clear description of transformative education.

Education should be democratic, transformative, and relational, should welcome input from students. Most importantly, critical consciousness will permit a level of risk-taking, to encourage students to practise voicing their views on world issues in the classroom. Learning cannot be limited to classroom experiences, as transformation takes place in real life too, through solving

real-life problems (Dirkx, 1998:4). Within the transformative theory consciousness plays a crucial role and acts as a catalyst in the process involving a disorientating dilemma, critical reflection, critical self-reflection and critical discourse (Dirkx et al., 2006:137). Critical thinking and critical reflection on actions are necessary to transform lives.

2.3.3 HABERMAS'S DOMAINS OF LEARNING

Jürgen Habermas demonstrated his idea of personal transformative learning. Initially, he had deep roots in Marxism, though he abandoned and readopted this ideology a number of times as he experienced different perspectives at different universities during his academic career (thereby demonstrating that transformative learning is not essentially stable). He eventually settled for a communicative learning approach, as he saw that there exists no empirical test for truth, but that reaching consensus of understanding is essential (Kitchenham, 2008:108). Habermas (1973:np) classified three domains of learning that were influential in the development of the TLT, namely, (a) instrumental, (b) communicative, and (c) emancipatory domains (Cranton, 2011:81; Kiely, 2005:19; Cranton & King, 2003:31).

Instrumental learning is task-oriented and based on rules for practice. It is about learning to control and manipulate the environment and other people, and has an emphasis on improving performance (Mezirow, 2012:77). In essence, instrumental learning involves assessment of truth claims (Mezirow, 2003:59). *Communicative learning* is about making meaning when others communicate their feelings, intentions, values and moral issues. Words carry hidden meanings, such as coherence, truth and authenticity, that create an awareness of the assumptions, intentions and qualifications of the person who is communicating (Mezirow, 2003:59). Communicative learning assists us to determine the validity of beliefs through a rational discourse to arrive at the best judgment, rather than assessing truth claims (Mezirow, 2012:78). Conversely, *emancipatory learning* involves critical self-reflection on one's meaning perspectives, an exploration of alternative perspectives, and taking action on new perspectives (Baumgartner, 2012:103; Mezirow, 1990:18) Knowledge generation occurs through critical self-awareness (Baumgartner, 2012:103).

Taking responsibility for one's learning processes requires development in all three domains, that is, instrumental, communicative and emancipatory learning (Kucukaydin & Cranton, 2012:44). Having presented the philosophic foundations of transformative learning, a description of the TLT according to Mezirow, ensues.

2.4 CONCEPTS OF TRANSFORMATIVE LEARNING THEORY APPLICABLE TO THIS STUDY

The TLT is concisely defined as “a metacognitive epistemology of evidential (instrumental) and dialogical (communicative) reasoning” (Mezirow, 2009:93). Knowledge is constructed through a process of critical reflection on the meaning of one’s experiences (Mezirow, 2012:74). The learning process involves challenging presuppositions, exploring alternative perspectives, transforming old ways of understanding and acting on new perspectives (Mezirow, 1990:18).

Only a significant experience will cause a person to reflect and shift to new frames of reference (meaning perspectives or a set of assumptions and expectations about themselves and the world) (Poutiatine, 2009:192). Transformative learning consequently causes a deep shift in frames of reference, resulting in a noticeable change in actions (Cranton, 2011:75). New frames of reference lead to more open and permeable perspectives that can be justified better (Cranton & Taylor, 2012:3; Mezirow, 2009:93). Mezirow (2012:76) describes transformative learning as follows,

the process by which we transform our taken-for-granted frames of reference (meaning perspectives, habits of mind, mind-sets) to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action. Transformative learning involves participation in constructive discourse to use the experience of others to assess reasons justifying these assumptions, and making an action decision based on the resulting insight.

Inevitably, transformative learning causes a person to “change direction” by making decisions and taking action based on the new insights they have gained.

Since its inception, the TLT has continued developing and research about the theory has increased exponentially, resulting in a comprehensive, complex and dense description of concepts and processes (Taylor & Cranton, 2013:33). The TLT has become a broad umbrella theory describing diverse perspectives on individual or social transformation, thus, creating diverse beliefs and opinions about the theory (Taylor, & Cranton, 2013:34-35; Cranton, & Taylor, 2012:3). To provide a clear description of the TLT, I decided to focus the discussion on the work of Mezirow and his associates (Edward Taylor and Patricia Cranton), who were primarily concerned with the development of the theory.

The following section describes transformative learning and the concepts most relevant to this study, as guided by the main research question, that is, How do nurse educators at a school of nursing in South Africa, who have not implemented HFPS before, experience their learning from a TLT perspective? (Refer to Figure 2.2 for a visual representation of the selected concepts in relation to the main research question.)

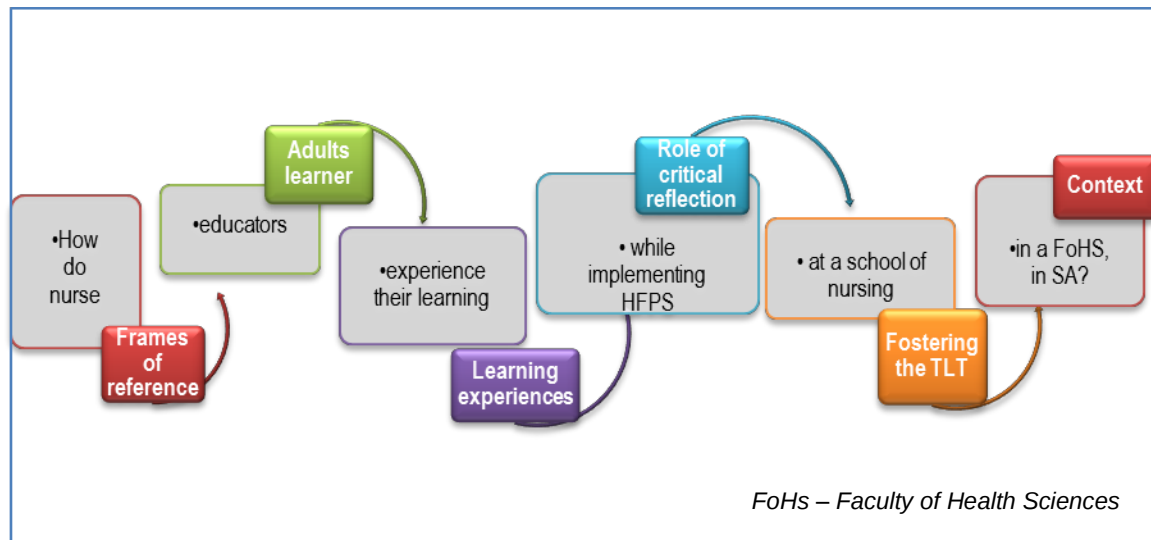


Figure 2.2: Description of research concepts related to the research question

Each component of the research question relates to key concepts of transformative learning, including, *frames of reference*, *adult learner*, *learning experiences*, and *context*.

2.4.1 FRAMES OF REFERENCE

In making sense of an experience, we refer to our frames of reference to structure the way we interpret the experience. A frame of reference, or a meaning perspective, is therefore the structure of assumptions and expectations through which sense impressions of the world are filtered (Mezirow, 2012:82). The way we interpret experiences forms the foundation of what we believe about the external world and ourselves. These meaning perspectives (frames of reference) influence interpersonal relationships, political orientations, cultural bias, ideologies, schemata, stereotyped attitudes and practices, occupational habits of mind, religious doctrines, moral and ethical norms and so on (Mezirow, 2003:58-59).

Frames of reference can be conscious or unconscious, and they influence our perceptions, cognitions, feelings, moods, intentions and expectations. Mezirow (1990) adds that frames of reference also influence what we fail to perceive and think,

What we perceive and fail to perceive, and what we think and fail to think are powerfully influenced by habits of expectation that constitute our frame of reference, that is, a set of assumptions that structure the way we interpret our experiences.

Meaning perspectives (frames of reference) are the filters that we use to make meaning of our experiences in an irrational world among daily occurrences. These filters don't arise by default, but are refined over time, as a person learns to engage in critical reflection. Initially, individuals tend to assimilate meaning perspectives uncritically, but over time, as their knowledge of the outer world increases due to socialisation and an accumulation of experiences, they develop the ability to reflect. Through critical reflection incongruent experiences could be rejected or a new frame of reference could develop (Kroth, & Cranton, 2014:4-5; Mezirow, 1990:3).

A educator may, for example, feel irritated when a student uses a mobile phone in class, because he/she interprets the student's behaviour as being disrespectful, whilst the student is actively engaged in learning by accessing relevant information by using technology. Only through a combination of critical reflection and discourse will the lecturer be able to question a taken-for-granted frame of reference and come to a new understanding. This example illustrates the constructive nature of meaning-making through human interaction and communication.

The reflection on assumptions is a metacognitive function that results in deep transformation. Transformation of perspectives is irreversible, as the new frame of reference replaces the previous one (Moore, 2005:404).

Returning to the above-mentioned example, the lecturer could decide to incorporate technology in the classroom, thus enhancing student engagement and academic success. In this way, an action decision follows meaning-making, resulting in a new approach to learning.

Furthermore, frames of reference mature through continuous reflection on significant experiences (Mälkki, 2010:47). Therefore, through this experience, the lecturer could commit to a process of continuous critical reflection for the ongoing improvement of classroom practices. (See Section 2.5.4 for a further elaboration on the role of critical reflection according to the TLT.)

A frame of reference encompasses cognitive, conative, and emotional components, and is composed of two dimensions, a *habit of mind* and resulting *points of view*. This implies that a change in frame of reference affects both habits of mind and points of view (refer to Figure 2.3). Figure 2.3 illustrates the development of habits of mind and points of view and perspectives off TLT. An explanation of Figure 2.3 follows.

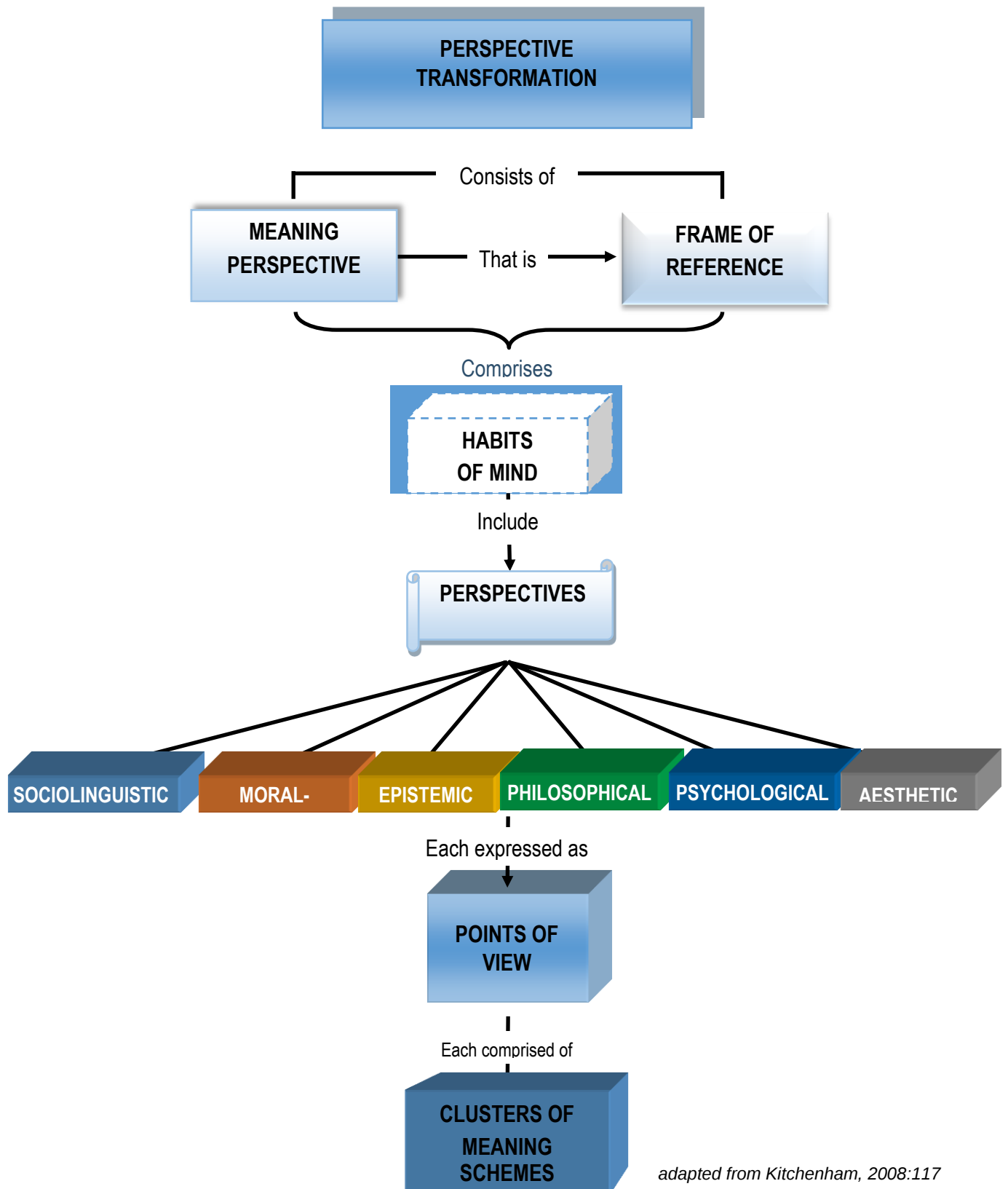


Figure 2.3: Associations of frames of reference, habits of mind and points of view

2.4.2 HABITS OF MIND

Habits of mind are broad sets of assumptions that act as filters for interpreting the meaning of our experiences (Baumgartner, 2012:109; Mezirow, 2012:82-83). Habits of mind are abstract, broad, orienting, habitual ways of thinking, feeling, and acting. The dimensions of habits of mind influence the socio-linguistic, moral-ethical, epistemic, philosophical, psychological and aesthetic spheres of a person (Helskog, 2014:80; Kitchenham, 2008:117).

For instance, someone who grew up in poor socio-economic circumstances could be fearful of being poor, consequently acting ungenerously towards those in need. Habits of mind are often uncritically assimilated, thus, reinforcing existing frames of reference (Mezirow, 2012:84). In response to news reports relating to crime, for example, someone who is fearful by nature may justify their hypervigilance.

Examples of habits of mind are conservative or liberal thinking; being fearful or confident in unknown circumstances; a tendency to respect or to challenge authority, behaviour patterns of perfectionism, being a victim or being incompetent (Mezirow, 2012:83). Habits of mind are learned from a set of cultural, political, social, educational and economic conventions and determine how someone categorises experiences, beliefs, people, events, and even oneself (Mezirow, 2009:93). Whilst habits of mind are more substantial and durable than points of view, they articulate as smaller expressions of points of view (Mezirow, 2012:83).

2.4.3 POINTS OF VIEW

A point of view is an expression that creates an awareness of a person's habit of mind as meaning schemes are made known. Mezirow (2012:83-84) explains that a point of view,

comprises clusters of meaning schemes – sets of immediate specific expectations, beliefs, feelings, attitudes and judgments – that tacitly direct and shape a specific interpretation and determine how we judge, typify objects, and attribute causality.

When voicing a point of view one's frame of reference is revealed, lifting it to conscious awareness, where it can be scrutinised and examined by individuals themselves or by others.

Perspective-taking consequently makes meaning schemes accessible for scrutiny and change (Mezirow, 2003:60; Mezirow, 2009:93). When alternative points of view are presented, participants in the discussion may feel attacked, because one's sense of self and values are intertwined with feelings, intentions, beliefs and values (Illeris, 2014:151). Essentially, the process of change in points of view is not so much about exchanging one point of view for another, as it is about becoming more open to other points of view. Whereas another's point of view can be considered, habits of mind cannot, because they are concealed, comprehensive and complex (Mezirow, 1997:6).

Should the fearful person mentioned in Section 2.4.2 have a discussion with a victim of crime:

The victim describes in amazement how some young person helped him during his ordeal. The victim expresses his confidence in peoples' willingness to help others in need. When the fearful person begins to put more faith in strangers, his demeanour and speech may be more positive towards strangers, strangers may react positively towards the fearful person. As strangers become more positive towards him, he can feel more positive and be less judgmental of strangers. The fearful person's point of view becomes more inclusive by accepting that, although crime and corruption exist, there are also people who are willing to help.

Points of view, according to Mezirow (1997:6), "are subject to continuing change as we reflect on either the content or process by which we solve problems and identify the need to modify assumptions". (Refer to Figure 2.3.) New points of view can be established, firstly, through critical reflection and, secondly, through deliberating new or alternative ideas. The third and powerful way of developing a new point of view is to be exposed to another culture. Examination of one's own "culture" may reveal shortcomings and ethnocentrism (Mezirow, 1997:7).^{1,2} Points of view give a sense of self and of value located in a specific person or group of people (Mezirow, 2009:93).

New points of view are constructed and applied to determine the validity of the underlying assumption(s). Experimenting with others' points of view is central to making meaning, creating new understanding and to learning. The process of learning is not limited to cognitive activities,

¹ Culture is the deeply learned confluence of language, values, beliefs, and behaviors that pervade every aspect of a person's life, and it is continually undergoing changes" (Ginsberg & Wlodkowski, 2009:9).

² Ethnocentrism: "The belief that one's own ways are the best, most superior or preferred ways to act, believe or behave" (Leininger, 2002:50). "The inherent tendency to view one's own culture as the standard against which others are judged" (Bhopal, 2014:19).

but involves deeper features of the being of a person (Helskog, 2014:80; Mezirow, 1997:5). New points of view are the open door for further and deeper learning.

2.5 ADULT LEARNERS AND TRANSFORMATIVE LEARNING

Transformative learning is a significant feature of adult learning (Barclay-Goddard, King, Dubouloz, & Schwartz, 2012:214). Adult learning differs drastically from that of children. Mezirow (1990:141) describes learning as the most significant developmental task of adulthood. A feature of adult learning is the commitment to learn from experience (Illeris, 2014:159).

Adults learn through a process of personal meaning-making of experiences. The experiences result from a change that took place and was of personal importance to a person. A significant experience could be the loss of a spouse, change of job or severe illness. Previous learning can be the positive or negative building blocks of pre-existing frames of reference. The experiences causing transformative learning can take different forms and may be positive, negative, mundane or transcendent. Adults make an effort to learn from changes, especially those experiences that are significant for a person, seasons of life and gaining awareness of a bigger world (Mezirow, 2003:58).

Therefore, transformative learning results from experiences at an individual or social level. Results of a deeper understanding derived from experiences include formulating new knowledge, and directing new values and new perspectives (Mezirow, 1997:6). The new meaning-making may cause critical self-reflection and reconstruction of ineffective, existing perspectives (refer to Section 2.4.2). The adult incorporates new information into well-established, symbolic frames of reference, through an active process of thought, feeling and disposition (Mezirow, 1997:10). The opposite is also true: a person or group of people may choose to ignore a problematic experience and, consequently, not revisit their existing beliefs, values and assumptions (Arends, 2014:359) and not benefit from the experience.

2.5.1 LEARNING EXPERIENCES LEADING TO TRANSFORMATIVE LEARNING

Mezirow (2009:8) defines learning broadly as any process that leads to an enduring capacity for change. The process of making new meaning of an experience and diverting from previous understandings cause a change in future actions (Illeris, 2014:159; Taylor & Cranton, 2013:33). Transformative learning is the interpretation of and adaptation to a fresh or a revised

understanding resulting from experiences, and adapting actions according to the new understanding (Mezirow, 2003:58). Adults learn mainly through three processes, dialogical, instrumental and critical reflection on experiences (Mezirow, 2003:59-60).

2.5.2 THREE DOMAINS OF LEARNING

Based on Habermas's work, Mezirow (1997:7) identified three domains of learning, namely, instrumental, communicative (dialogical) and emancipatory or self-reflective learning (see Section 2.3.3). These three domains of learning are the key components of frames of reference (Cranton & Roy, 2003:88-90).

2.5.2.1 *Instrumental learning*

Instrumental learning involves an activity of which the aim is to acquire knowledge. This kind of learning may involve activities that examine causes and effects or solve problems through experimentation. When a person needs to acquire new information or skills in order to adapt to a current job, instrumental learning is the most appropriate type of learning (Dirkx, 1998:1). Instrumental learning allows us to manipulate and control the environment, and provides tools to predict outcomes of actions, and is therefore empirical in nature (Cranton & Hoggan, 2012:521). A straightforward example of instrumental learning is a person who learns to perform a complex manual task by means of a new, unfamiliar software program. The learning will involve a discourse with someone who knows the software and then the learner becomes proficient through learning exercises (experience) with the software. According to Fraser (2015:140), innovation lies at the heart of critical reflection and transformative learning.

2.5.2.2 *Dialogical learning*

The key to fostering transformative learning is communicative (dialogical) learning (Kitchenham, 2008:120). Communicating with another person helps to examine and test new perspectives.

Dialogical learning, also called communicative learning, relies on a constructive interpersonal relationship. Dialogical learning depends on two people understanding one another's "language" used to engage in critical discourse. For an example, the phrase, "the computer crashed", may confuse someone not familiar with computers, even though the phrase is English. Appreciation of the perspective of another is vital for living successfully in a society

(Cranton, & Hoggan, 2012:521). Dialogical learning is applicable to both internal and external learning about conscious or unconscious assumptions (Dirkx, 1998:7).

Dialogical learning is a process in search of the best judgment to solve a troubling issue. During a dialogue, intentions, ideologies, values and beliefs are the focus of reflection and critical self-reflection to improve understanding, descriptions and explanations of life's experiences (Taylor & Cranton, 2013:35). So, the aim of dialogical learning is cultivating intellectual and empathetic understanding for another (Mezirow, 2009:91).

2.5.2.3 Self-reflective learning

Self-reflectiveness examines where underlying assumptions come from and how these assumptions are limited by one's understanding of life (Taylor, Cranton, & Mezirow, 2012:323). Interaction and dialogue promotes self-reflection, raising the individual's or societal awareness of a wider perspective or different points of view. A deeper awareness produces deeper learning, possibly resulting in social change (Mezirow, 2012:77). Self-reflective learning results in freedom from the constraints caused by uncritically assimilated assumptions about abilities or character (Mezirow, 1990:18).

Mezirow (2012:77; 2009:93) attributed the most importance to the roles of instrumental and communicative learning in transformative learning. In short, according to his point of view, doing and communicating are main functions of adult learning. He considered reflection as being an inherent part of the complete process of transformative learning.

In Section 2.6.1, I expound further on self-reflective learning. Self-reflective learning involves revising two types of reflective assumptions. The first assumption is the critical reflection on external assumptions and the second assumption is critical self-reflection on internal assumptions. In the context of this study critical reflection may reconsider an assumption that managing technology is a complicated skill. Critical self-reflection on internal assumptions may consider the implementation of more current educational strategies. A person may have the point of view that "I might be too old to learn about managing technology".

2.5.3 EXPERIENCES OF LEARNING

Adult learning is composed of both prior and present experiences (Taylor & Cranton, 2013:35). As discussed before under Section 2.5, learning is much more than the accumulation of knowledge. John Dewey's work influenced the thinking of Mezirow significantly. Dewey

highlighted the role of experiences as media or vehicles *for* learning and not as experiential learning as defined by Kolb and Kolb (2005). Kolb and Kolb describe learning *from* experiences.

Dewey is often mistakenly associated with experiential learning as pedagogy, which was not his intention (Mezirow, 2009:75). His intention was not to equate experience with knowledge, instead, he stated that experiences lead to learning through solving problems. Mezirow (2009:74) points out that Dewey is, in fact, a *pragmatist* in relation to learning, and not a philosopher. Dewey considers learning to be a product of life and living, of which experiences cause learning. Learning is a result of *experiences* between individuals and their environment, involving emotions, aesthetics, ethics and knowledge (implicit knowledge). Mezirow (1990:141) himself also links learning to life experiences:

No conscious experience is free from interpretation, indeed, to have an experience means that we have identified its content, i.e., we have construed its meaning.

The question necessitating an answer is how to research experiences that lead to transformative learning. The experiences that lead to transformation are broad in nature. Associates of Mezirow continued his work of defining four descriptions of experience leading to transformative learning that required further research: 1) *past experience*, 2) *cultural experience* and/or social/historical experience, 3) *contextual experience*, and 4) *discrepant experiences* (Taylor & Cranton, 2013:37). These types of experience have the potential to lead to transformative learning. Nevertheless, the unpredictability of transformative learning results from the unique disposition of each person.

While different people may experience the same event in different ways, Mezirow (2012:86) was able to identify 10 distinct phases of learning that most people might experience in the process of transformative learning. These distinct phases are products of the study of middle-aged women re-entering higher education after a break from studies for a significant period, as described in Section 2.2.

2.5.3.1 Phases of transformative learning

Mezirow (1978a:100-110) described the 10 phases of transformation in his study of women who re-entered higher education after an extended period of absence. Mezirow also indicated that transformative learning takes different forms and shapes for different people. The phase in

between is not always chronological or strictly cyclical; some learners might not even experience all 10 phases. Table 2.2 lists the phases of the TLT and provides a description for each phase. The first phase is a *disorienting dilemma* and the last *the formation of the reintegration of new frames of reference* into one's life.

Table 2.2: Phases of the transformative learning theory

Phase of TLT	Descriptions
1. Disorienting dilemma	The trigger event for TLT is a called a <i>disorienting dilemma</i> , ³ which is a significant life experience, e.g. the death of a family member or a change in occupation, that can challenge a person's existing perspectives (frames of reference). The initial disorienting dilemma is a trigger for the development of the following two phases and will not take place if the event does not have significant meaning for the person (Kitchenham, 2008:107).
2. Self-examination with feelings of fear and anger, guilt or shame	If old perspectives do not solve the dilemma, the door opens for the possibility of transformative learning (Cranton, 2011:76; Meyer, Land, & Baillie, 2010:xxi). Personal, social, economic, political, psychological and religious assumptions are tools for the way we make sense of the world. These assumptions are re-examined (Baumgartner, 2012:102).
3. A critical assessment of assumptions	The third phase is <i>critical assessment of assumptions</i> . The <i>person reflects</i> and <i>examines</i> personal beliefs, values and roles. The process of self-reflection may elicit strong emotions, like fear, anger, guilt, shame and alienation, from traditional role expectations. New perspectives are certainly frightening.
4. Recognition that one's discontent and the process of transformation are shared	Discontent and discomfort causes the person to seek a discourse on the issue as meaning is socially constructed. The discourse may take two forms, turning to an authority to justify the existing perspective, or to another who has had a similar experience, enquiring about the way they resolved the matter (Taylor et al., 2012:350). An important feature of transformative learning is taking on the perspectives of others. The person appraises the assumptions and decides to assume the perspectives or not.

³ In this study, the disorienting dilemma was a disruptive technology, HFPS, that challenged nurse educators' perspectives.

Phase of TLT	Descriptions
5. Exploring options for new roles, relationships and actions	Alternative actions for the way forward are implemented, resulting in a more flexible world view (Mezirow, 1990:144).
6. Planning a course of action	The new roles and relationships build competence and confidence. Perspectives shift towards a wider world-view, breaking away from a narrow, problematic, fixed or static viewpoint of meaning (Kitchenham, 2008:107).
7. Acquiring knowledge and skills for implementing plans	The person then explores new roles and relationships, followed by planning actions within the perspective. The person plans new ways to implement the new perspective.
8. Provisional trying of new roles	As the person creates or formulates a plan of action, he/she seeks the necessary knowledge and skills to implement the plans.
9. Building competence and self-confidence in new roles and relationships	New roles are tested and adjusted as necessary. As transformation of perspectives takes place the person becomes aware of a wider perspective and the subjectivity of own perceptions (Snyder, 2008:165).
10. Reintegration into one's life according to conditions dictated by the new frame of reference (Mezirow, 2012:86)	Based on the new convictions, new perspectives integrate into the person's life. Not all experiences lead to transformation, but when perspectives are transformed, noticeable changes are seen in the way a person's thinking and how they act (Kroth & Cranton, 2014:3). The new perspectives are "more inclusive, discriminating, open, emotionally capable of change, and reflective", resulting personal development (Mezirow, 2000:7).

Mezirow later added one more phase to the transformative learning process. He added "renegotiating relationships and negotiating new relationships" between Phases 8 and 9. The amendment was made after criticism about the lack of social influences in changing perspectives. Transformation is not only an internal process, as is validated socially within relationships (Kitchenham, 2008:107; Moore, 2005:404). Despite the amendment, authors still refer to the original 10 phases in later publications (Mezirow, 2012:101; Snyder, 2008:165).

Having covered the learning aspect of transformative learning, the explanation continues with the role of critical reflection in new meaning perspectives, frames of reference and, finally, a new perspective.

2.6 ROLE OF SELF-REFLECTION IN TRANSFORMATIVE LEARNING

Frames of reference are the filters we use to make meaning of our experiences in the world. A frame of reference or “meaning perspective” is “the structure of assumptions and expectations through which we filter sense impressions” (Mezirow, 2012:82). Frames of reference refer to cultural and psychological assumptions that provide meaning for an experience. Significant experiences that challenge prior assumptions provide the impetus to revise existing frames of reference and build new frames of reference (refer to Figure 2.3).

Meaning schemes are the building blocks of the frames of reference and constitute concepts, beliefs, judgments and feelings that shape the interpretation of experiences (Kitchenham, 2008:109). As indicated before, there are no fixed truths or definite knowledge, because circumstances change continuously. In adult learning, it is important to understand contextual factors, critically reflect on meaning schemes and conduct self-reflection about frames of reference to determine what is true and justified.

The concepts of frames of reference, habits of mind and points of view were discussed in Section 2.5.1. The following is a deeper description of how transformative learning develops.

2.6.1 CRITICAL REFLECTION ON MEANING SCHEMES

Mezirow (2012:103) emphasises that reflection is essential for the learning process. The reflective process results in meaning schemes, and eventually frames of reference, being developed. The process of building meaning schemes or frames of reference takes place at three different levels:

- *Within meaning schemes* that expound on existing knowledge, complementing it or revisiting existing systems of knowledge,
- *By new meaning schemes* that are compatible with the existing schemes, and
- *Through meaning transformation*, by becoming aware of limitations of previously learned assumptions (Mezirow, 2012:103).

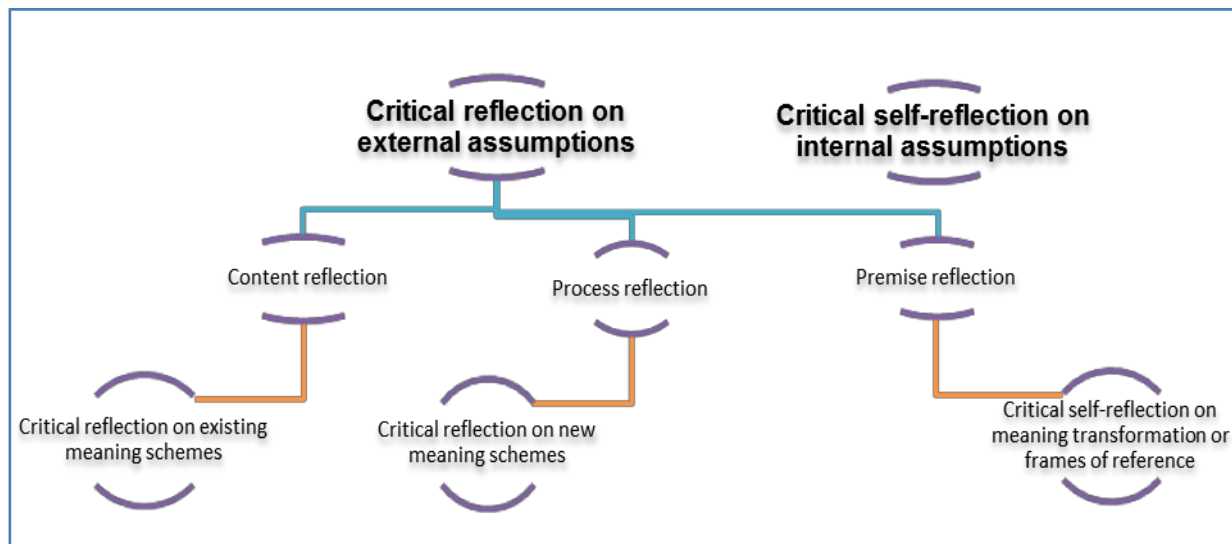


Figure 2.4: Reflection within the transformative learning theory

Critical reflection on meaning schemes involves structures of assumptions, beliefs and values. In the TLT, the three reflective processes are *concept*, *process* and *premise* reflection. The first two, content and process, involve critical reflection on external assumptions (refer to Figure 2.4). *Content reflection* is reflection on the achievement of an experience, thereby *expanding* existing meaning schemes. Process reflection focuses on the origins of what happened and questions if there are any other factors that need further investigation. Process reflection creates a *new* meaning scheme (Mezirow, 1997:6). These reflections only affect points of view at a basic level (Poutiatine, 2009:191; Kitchenham, 2008:110,115). Critical reflection on meaning schemes is a result of objective reframing (Dirkx et al., 2006:125). The *objective reframing* can occur, for example, while a student is reading a case study about a patient with asthma, or listening to a speaker's point of view. Objective reframing is task-oriented and generally involves problem solving (Kroth, & Cranton, 2014:4; Mezirow, 1997:7). The next level of critical reflection is critical self-reflection.

2.6.2 CRITICAL SELF-REFLECTION ON MEANING TRANSFORMATION

Critical reflection on external assumptions (*content and process reflection*) may eventually lead to a higher order of reflection, namely, critical self-reflection on internal assumptions (*premise reflection*), which leads to transformation of perspectives (Mezirow, 2012:23). The nature of critical self-reflection (premise reflection) exposes meaning transformation that requires the person to see the larger perspective within his or her own value system. Critical self-reflection

does not only include reflection on action and consequences, but also on the origin of circumstances causing the perspective (Kear, 2013:1084). The deeper the reflection, the more profound the transformation, resulting in an in-depth meaning transformation of an experience through a reflective discourse (Mezirow, 2012:73). Critical self-reflection is a self-reflective *subjective reframing*. Critical self-reflection requires the support of others, a good self-image and the absence of intense anxiety (Kitchenham, 2008:116; Dirkx et al., 2006:125). Critical self-reflection is more complex than critical reflection and has a more permanent effect on reframing.

Not all reflections are on the same level – some are superficial and others deep. Critical self-reflection is not only the reflection on action and consequences, but also involves reflecting on the source of circumstances that led to the perspective, and it is a subjective approach (Kear, 2013:1084). Critical self-reflection is *premise* reflection that helps the person to see the large view of what is happening within his or her own value system while the habits of mind are changing. The final product of transformative learning is a transformation of the points of view and habits of mind (Kitchenham, 2008:120). Changing habits of mind has a more permanent effect than changing a point of view (refer to Section 2.5.1). Of the two, changing a habit of mind is much harder than changing a point of view, due to the permanent nature of habits of mind. The critical reflection development of a child to an adult demonstrates this well.

Meaning perspectives (frames of reference) are the filters that we use to make meaning of daily occurrences and our experiences an irrational world. Initially, a child's process of developing meaning perspectives is uncritical, but perspectives begin to develop with socialisation and an accumulation of experiences. Over time, knowledge and experiences establish perspectives, and frames of reference change (Mezirow, 1990:3). Meaning perspectives develop over time and become more entrenched with more experiences (Kroth & Cranton, 2014:4).

Meaning perspectives develop through dialogical reflection, and provide a frame for making meaning of new experiences. If a person's framework is unable to make sense of experiences, the frame must adjust. Key to fostering transformative learning is communicative learning (Kitchenham, 2008:120). Communicating with another person helps to examine and test new perspectives.

2.7 FOSTERING THE TRANSFORMATIVE LEARNING THEORY

Fostering transformative learning is regarded to be a key responsibility of the nurse educator working with adult learners. Snyder (2008:1650) identifies three more considerations in making meaning of experiences, namely, first, the *context* must be appropriate for transformative learning; second, the learner must engage in *self-reflection*; and third, the learner must engage in *critical discourse*.

The purpose of intentional interventions for experiential and active learning is to enable the person to examine previously held assumptions about self and others and to formulate a new world-view understanding about the realities and complexities of the world we live in (Kasworm & Bowles, 2012:391). Essential to the process of experiential and active learning is a discourse, a holistic approach, an awareness of context and an authentic relationship (Mezirow, 1991a:12).

As already indicated, Mezirow emphasises discourse as essential to transformative learning, examining what people consider as the truth about their norms, values, moral decisions and ideals (Mezirow, 2012:78). Although the role of the nurse educator is to facilitate a dialogical discussion, the responsibility reaches even further, to enabling students to examine and change habits of mind. This will enable students to autonomically and critically reflect on their own assumptions and be open to distinguishing their own perspectives (Mezirow, 2003:63).

Fostering dialogical learning for transformative learning requires that learners are encouraged to reflect on and share feelings and thoughts. All involved, including the nurse educator, should also display cultural awareness of alternative ways of doing. The learning process should be holistic in that it should involve the body, mind and spirit in the learning process. An understanding of the transcendental nature of one's beliefs and the ability to consider another's beliefs, may allow for open dialogue (Cooper, n.d.).

Transformation is dependent on social transformation, which may differ in different contexts (Taylor et al., 2012:3). Socialisation is interwoven with transformative learning and includes talking and listening to others (communication). Arends (2014:359) emphasises that the context for transformation is essential. Mezirow (1991a:78) claims that, in optimal conditions for participating in discourse, and in the presence of accurate and complete information, the perspective transformation of the person will,

be free from coercion and distorting self-perception, be able to weigh evidence and assess arguments objectively, be open to alternative perspectives, be able to reflect critically on presuppositions and their consequences, have equal opportunity to participate (including the chance to challenge, question, refute, and reflect, and to hear others do the same), and be able to accept an informed, objective, and rational consensus as a legitimate test of validity (Mezirow, 1991a:78).

In the same way as there are enabling factors that can enhance transformative learning, there can also be barriers to the process. The notion of the TLT is that an enforced view (power coercion), cannot result in transformative learning, as the person cannot examine the veracity of his/her perspectives, because someone has predetermined it (Kitchenham, 2008:109).

Essential elements of fostering transformative learning are open dialogical communication, a holistic approach, awareness of context and authentic relationships. Therefore, it will require nurse educators to apply the essentials as part of HFPS skilfully, and therefore the process of the development of these skills as applicable to this study must be investigated.

2.8 REFLECTING ON THE APPLICATION OF THE TRANSFORMATIVE LEARNING THEORY IN NURSING EDUCATION AND HIGH-FIDELITY SIMULATION

The literature review in this chapter presented the fundamentals of the TLT. Over the past three decades nurse educators have shown great interest in adult learning. The TLT moves beyond the constructivist approaches to education. I saw the potential of transformative learning as an approach to assist nurse educators to adapt and change their perspectives in a rapidly changing world. So far, research has paid little attention to the role of transformative learning in the use of HFPS in nursing education.

The following is some of the last advice that Jack Mezirow gave in a summary of the TLT. He sees the role of nurse educators as providing students with the ability to reflect on their future professions (Taylor et al., 2012:334; Mezirow, 2012:73–95). The following is a paraphrase of Mezirow's words into instructions to nurse educators, and specifically myself, and serves as a reflection on my own perspectives.

2.8.1 MEZIROW'S PRINCIPLES ADAPTED FOR NURSE EDUCATORS

1. Expose students to seeking the meaning of experiences in both the mundane and the transcendent,
2. Give students the opportunity to make sense of themselves and others by believing in their ability to be thoughtful and responsible,
3. Emphasise engagement with learning and, to advance students' understanding, they should grow in their ability to provide sensible reasons for their actions,
4. Create a safe environment for making meaning of experiences, within and outside students' awareness,
5. Revisit frames of reference in the cognitive, affective and conative dimensions,
6. Allow students to examine frames of reference, points of view or habits of mind that will shape, limit, distort or set free their future perspectives; students should learn to see people as agents who made meaning from their experiences that may be true or justified,
7. Help students to learn to discern beliefs and understandings that produce interpretations and opinions that are truer or more justified than relying on others' beliefs and understanding,
8. Engage students in a reflective discourse to assess their own reasons and assumptions that support their beliefs, and, if possible, arrive at a tentative, better judgment rather than at that of a traditional authority of judgment,
9. Develop an understanding that others also make meaning of experiences and arecommunicating their meaning-making,
10. Show students how to take into account the assumptions (intent, truthfulness, and qualifications) of another's communication,
11. Provide students with the opportunity to reflect on the truthfulness, justification, appropriateness, and authenticity of a communication,
12. Allow students to imagine how things can be done differently, and
13. Provide situations for students to learn to transform frames of reference through critical reflection on assumptions, critical self-reflection on assumptions and dialogic reasoning

when the beliefs and understandings they generate become problematic (Mezirow, 2009:103-104).

Nurse educators are key to the development of future professionals. Learning is a process of critically reflecting on assumptions, and critical self-reflection on personal perspectives. Changing frames of reference is central to adapting and developing in the future. The implementation of HFPS indicates the ability of nurse educators to transform and face the challenges posed by transformation. The study's hidden outcomes reveal nurse educators' frames of reference, points of view and habits of mind.

2.9 SUMMARY

The chapter describes the core, philosophies and concepts of transformative learning in adults. The concepts of the frame of reference, habits of mind and points of view are explained and applications described within the context of the study. The role that self-reflection plays in transformative learning was highlighted and contextualised. Aspects relating to how to foster transformative learning were emphasised. The next chapter describes the research methodology applied to determine the learning experiences of nurse educators implementing HFPS.

CHAPTER 3: RESEARCH METHODOLOGY

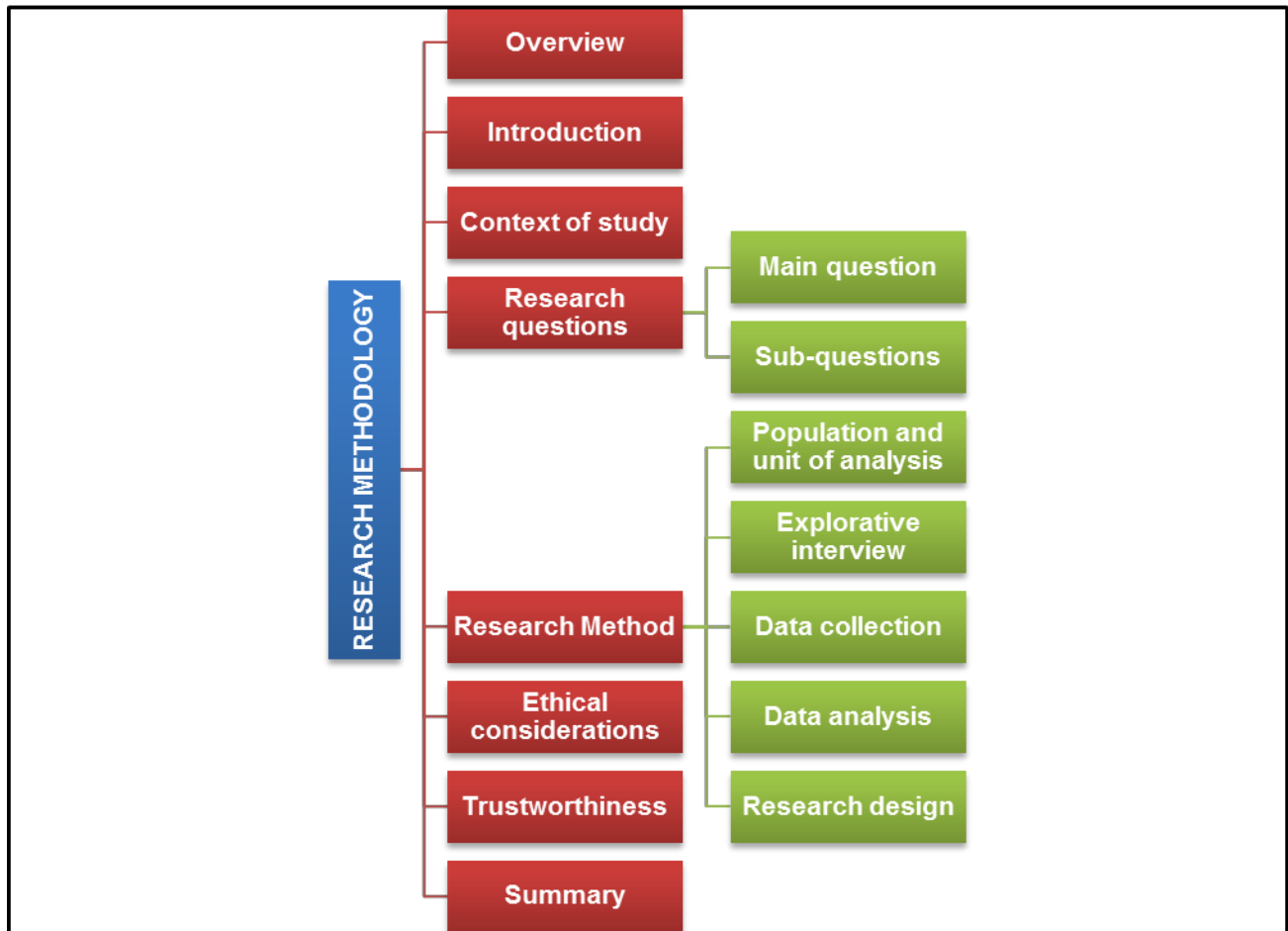


Figure 3.1: Overview of Chapter 3

3.1 INTRODUCTION

Researchers apply a variety of research methodologies to investigate and answer research questions. Methodology refers to the complete process of research. Three main major research approaches can be employed to answer research questions, namely, quantitative, qualitative and mixed methods approaches (Bergman, 2010:171-173; Creswell, 2014:4; Stirling, 2010:39).

A *quantitative paradigm* involves a positivistic approach, and is ideal for investigating the relationship between two or more variables to establish certainties. Findings of a quantitative paradigm result in generalised statements regarding observed phenomena. The major requirement of quantitative methodology is to establish reliability of findings and certainties. Researchers implement control mechanisms that support deductive reasoning to minimise

paramount quantitative methodology to minimize biases and ensure precision (Polit & Beck, 2017:11; Flick, 2009:13). A limitation of quantitative research is its inability to answer research questions, in which case the variables are unknown. In addition, quantifying data often obscures basic social processes (Smith, Bekker, & Cheater, 2011:41).

A qualitative paradigm investigates phenomena of which little is known, or attempts to explain cases of idiographic phenomena. The *qualitative paradigm* makes use of interpretivist methods, amongst others, and focuses on meaning attributed to a phenomenon and other influences within the natural environment. The researcher plays an important role in the interpretation of the data (Creswell, 2014:99; Pringle, Drummond, McLafferty, & Hendry, 2011a:20). A qualitative paradigm professes *trustworthiness* rather than reliability and generalisability (Mustafa, 2011:27). The limitation of a qualitative paradigm is that findings cannot be generalised to different settings.

A combination of quantitative and qualitative paradigms is a third possible paradigm; this *mixed methodology* approach provides a dual perspective on a research question and makes sense of both external and internal world experiences. The researcher selects the approach that will answer the perspective research question best.

The purpose of this study was to explore, analyse and interpret nurse educators' transformative learning experiences while implementing HFPS at a school of nursing at a university in South Africa. The findings of this study will expound on the learning experiences of nurse educators developing the necessary skills to use simulation at the research site, and will ultimately contribute to the international academic debate regarding the teacher construct in the NJSF. A qualitative methodology called IPA was selected to address the research question.

In this chapter I describe the methodology of the research undertaken by means of IPA from a TLT perspective to answer the research questions. In this qualitative study, I intended to make meaning of a complex phenomenon relating to the learning experiences of nurse educators who implement simulation as a learning strategy. I will do this by applying an IPA design.

3.2 CONTEXT OF THE STUDY

The context of the study contributed to the selection of a topic of interest for this study in two ways. The first contribution involved local experiences at the research site relating to the development of nurse educators to implement HFPS. Secondly, the concerns and needs

voiced by other institutions confirmed that they experienced a similar need to know how to develop nurse educators optimally in the use of HFPS.

Presently, the nurse educators at the research site are leaders in simulation in South Africa, as they have successfully implemented simulation in a number of undergraduate and postgraduate programmes. The school of nursing at the research site implemented HFPS in 2011. Since then, the number of students exposed to HFPS increased each year, from 57 in 2011 to 1 326 in 2016, as nurse educators' skills improved and the need for HFPS was recognised. A number of modules adopted simulation as a learning strategy for first and third year general nursing theory, midwifery and advanced midwifery, critical care and paediatric nursing.

The simulation facility at the research site developed five HFPSs in authentic environments. These environments can be rearranged for different scenarios, but generally represent an adult and a paediatric ward, an adult and a paediatric intensive-care unit, formal and informal houses, which are used for home births and home visits, a community area (that can be used as a church, court, school or clinic) and, lastly, three debriefing areas. These areas are equipped with cameras and recording equipment. Procedures and policies are based on the Standards of Best Practices in Simulation as compiled by the International Nursing Association for Clinical Simulation and Learning (INACSL).⁴

The topic of this study resulted from a personal need to know how to prepare nurse educators to implement HFPS in an effective manner. HFPS requires nurse educators who are able to design scenarios congruent with the learning outcomes of the modules, underpinned by appropriate educational theories, skilled in preparing and facilitating a scenario, and following it by immediate debriefing that guides students in reflecting on experiences. The main challenge for nurse educators is the complexity of all the technology involved in simulation. Nurse educators from other institutions in South Africa and Africa consulted with the school of nursing for advice on establishing HFPS as learning strategy, and they voiced their need for a deeper understanding of the best way to prepare nurse educators to implement HFPS effectively. My experiences as a consultant for some institutions were that institutions acquired expensive equipment for HFPS, but left it unused or underutilised.

⁴ Published in *Clinical Simulation in Nursing* (2013, 9:S1).

In an attempt to address the needs of these institutions, I organised and presented a week-long credit-bearing simulation workshop with the help of my colleagues. In the past three years, 60 health professions nurse educators from South Africa and neighbouring countries attended simulation workshops. The simulation workshop covers the theoretical principles of simulation and the didactic, technical and administrative management of a simulation laboratory. During the workshop participants experience simulation in the way students experience simulation, and they learn hands-on how to design, prepare, implement and perform debriefing in the light of their own experiences and the theoretical underpinnings of simulation.

Following the simulation workshops, I visited some of these institutions, had informal discussions and acted as a mentor to some of the attendees of the workshops. Later, I realised that knowledge and skills of HFPS did not guarantee that the use of HFPS would be promoted at the other institutions. Some other factors might play a role in either advancing or limiting the use of HFPS. Factors I identified during informal discussions are that the local nurse educators had more hands-on practise opportunities, informal training, and the presence of a community of simulation nurse educators with whom they could discuss and support one another. Unfortunately, no statistics have been published reflecting the use of HFPS in South Africa before the onset of this study. The absence of reliable statistics makes it difficult to monitor trends of implementing simulation. Different factors hinder or assist the success of implementing HFPS at the local or the national level in South Africa.

Nurse educators at the research site also advanced the use of HFPS in South Africa and in some countries in Africa on academic platforms. Nurse educators participated in conference proceedings during plenary sessions, oral or poster presentations on research findings and hands-on workshops at national and international academic platforms. Publications include four articles published in accredited journals and a chapter on simulation in a peer-reviewed textbook on advanced learning strategies. Two nurse educators are mentors to schools of nursing implementing HFPS in South Africa and Africa. Four PhD and four Master's students (nurse educators at the research site) enrolled and selected topics in the field of simulation.

This study therefore describe the experiences of nurse educators who implemented HFPS successfully. Only a number of publications focus on the barriers to implementation of HFPS (Nehring et al., 2013:1-34). In this study, the purpose is not to describe the barriers to simulation implementation, although the barriers are a main focus of other studies and sufficiently covered, However there is little studies that explore the experiences of nurse educators who successfully implemented HFPS.

3.3 RESEARCH QUESTIONS

The main and sub-research questions this study endeavoured to answer are presented in this section.

3.3.1 MAIN RESEARCH QUESTION

How do nurse educators at a school of nursing in South Africa, who have not implemented HFPS before, experiencing their learning from a TLT perspective?

3.3.2 SUB-QUESTIONS

1. How did participants experience their first HFPS?
2. What learning experiences followed more HFPS?
3. Why did participants implement HFPS in modules?
4. How did implementing HFPS influence participants' attitudes, knowledge and skills?
5. What education practices changed due to learning experiences during implementation of HFPS?
6. What influences did the implementation of simulation have on nurse educator reflective practices?
7. How did implementing HFPS change nurse educators' educational paradigms?

3.4 RESEARCH METHOD

The nature of this qualitative study is not only descriptive, but also interpretive in nature. I considered this method to be the most appropriate for exploring, describing, and analysing transformative learning experiences and interpretation of the social world of nurse educators who start implementing HFPS at a school of nursing at a university in South Africa.

3.4.1 RESEARCH DESIGN

IPA was the most effective design to answer the research question and the sub-questions. I deliberately selected IPA in order to develop a deeper understanding of the nurse educators' learning experiences while implementing HFPS. IPA is a wide, flexible approach to a

phenomenology inquiry committed to a *double hermeneutic* process of coming to an understanding of the way participants' make sense of experiences in the context of their lived worlds (Smith, 2011b:10; Palmer, Larkin, de Visser, & Fadden, 2010: 99-100). IPA is a tool for studying meanings, experiences and subjectivity – this is reason why the use of IPA has increased internationally in a number of research fields (Todorova, 2011:35).

Conjointly IPA and the TLT are concerned mainly with understanding people's lived experiences and the sense- or meaning-making of experiences. Smith, Flowers and Larkin (2009:par. 850) list a number of studies that used the design of IPA to generate thick, detailed descriptions of lived experiences in health, psychology and education research. Arends (2014:362) states that there is transformative power in sense-making from the life experiences of the participants and the researcher. Both IPA and TLT support the idea that life experiences are the authors of knowledge, and contribute to the soundness of findings. However, IPA is not limited to making sense of experiences – it also explores, describes and interprets the way participants make meaning of social nexuses (Cooper, Fleischer, & Cotton, 2012:5; Pringle et al., 2011a:21; Smith et al., 2009:par. 848). The interpretations in IPA are devoid of critical or suspicious judgments and accept participants' stories as true (Pringle et al., 2011a:21). This non-critical outlook matched the purpose of the study.

3.4.2 BACKGROUND OF INTERPRETATIVE PHENOMENOLOGY ANALYSIS

Jonathan Smith, a health psychologist, introduced IPA in 1996 as a tool to describe human behaviour and lifestyles related to health issues within psychology (Smith, & Osborn, 2008:11). Psychology, at the time, was criticised by mainstream researchers for over employing positivistic approaches to research in the field. Quantitative paradigms are unable to provide a rich and detailed description of people's experiences. Consequently, Smith developed a unique research method for psychology in the mid-1990s.

By developing the IPA research design Smith also provided an alternative research method for discourse analysis, which was popular at the time of the publication (Smith, 2011b:56). According to Smith and Firth (2011:56), discourse analysis did not address personal experiences sufficiently. The IPA research design became popular in the United Kingdom, Canada, Europe and Australasia (Hefferon & Gil-Rodriguez, 2011:756; Smith, 2011a:13). Jonathan Smith, Paul Flowers and Michael Larkin are currently the most influential authors in IPA research design (Rodham, Fox, & Doran, 2015:59; Cooper et al., 2012:3; Smith, 2011b:57).

As described in Section 3.4.1.2 below, IPA draws on three philosophical approaches, *hermeneutics*, *phenomenology* and *idiography*. Each philosophical approach has a specific theoretical foundation (Pietkiewicz & Smith, 2014:8).

3.4.2.1 Philosophical orientations of interpretative phenomenology analysis

IPA has three theoretical lenses: phenomenology, hermeneutics and idiography (Cassidy, Reynolds, Naylor, & De Souza, 2011:264). In describing the IPA philosophical orientation, I will start with the phenomenological, then explain the hermeneutical, and finally the idiographical lens, also paying attention to the origins of these orientations.

3.4.2.2 Phenomenology

A number of philosophers influenced the focus of IPA. The focus of phenomenology, according to Edmund Husserl (1927), describes how individuals make sense of their worlds and experiences, and what these events mean to them (Pietkiewicz & Smith, 2014:7). IPA studies individuals' cognitive, linguistic, affective and physical perspectives of experiences, and accepts the description as true versions of the experiences. The researcher does not critique the description, but works to construct a deeper understanding of the phenomenon (Pringle et al., 2011:21).

Another philosopher, Martin Heidegger (1962), had a more profound ontological question regarding the existence of life. He emphasised that researchers also make meaning of a participant's experiences. He called this *meaning interpretation*. The normal course of life experiences conveys significance to a person. Therefore, IPA requires the researcher to consider the specific context at the research site and to accept the inter-subjectivity and inter-relatedness of meaning-making with the world (Smith et al., 2009:par. 345).

Maurice Merleau-Ponty focused on the individual viewpoint of one person that another often cannot fully appreciate, except if they share a common experience (Smith et al., 2009: par. 376- 408). Jean-Paul Sartre described phenomenology as the examination and understanding self- consciousness. Edmund Husserl explained that people make meaning of everyday, taken-for- granted experiences through reflection (Smith et al., 2009:par. 408). Reflection is therefore part of the process of making meaning. The phenomenology in this study is nurse educators' meaning- making of their learning experiences whilst implementing HFPS and transforming previous, ineffective perspectives.

The application of phenomenology to this study means focused reflection is part of the didactic practices of the learning process of simulation. After simulation experiences, nurse educators' engaged with students on their experiences and on their own personal experiences. Reflection is an attentive and systematic examination of one's experiences (Roberts, 2013:215). Honest and open, critical self-reflection expands personal understanding of experiences.

3.4.2.3 Hermeneutics

A hermeneutic perspective considers people as self-interpreting beings. Hermeneutics is the study of the interpretation of significant everyday, lived experiences. The interpretation of significant experiences allows for a better understanding of perspectives and behaviours. The *hermeneutic cycle* refers to the interpretive process of looking at the parts to make meaning of the whole and making meaning of the parts by looking at the whole. The hermeneutic cycle is a dynamic and a non-linear process (Lee & McFerran, 2015:369). IPA contributes to enlightening understanding through its *double hermeneutic process* (Smith, 2011a:10). In short, the double hermeneutic process of interpretation in IPA is the process by which participants construct their meaning-making, followed by the researcher's interpretation of the meaning-making process of the participant. These two hermeneutic cycles complement each other in the following manner.

- The *first hermeneutic cycle* represents the participants' interpretations of their everyday and certain significant lived experiences. In the hermeneutic process, the person who experienced the phenomenon can provide an accurate description of the experience and is able to answer questions about his/her own meaning-making of the experience. The participant gives insight into his/her perceptions and behaviours. The researcher provides an accurate, inductive description of the participant making meaning of the phenomenon (Roberts, 2013:217).
- The second hermeneutic cycle involves the researcher making meaning of the participant's meaning-making, through engagement with the participant. In IPA, the participant is not the only person generating meaning – the researcher interprets the meaning-making through a deductive process. The researcher is central to the analysis of the interpretations (Roberts, 2013:216). As a result, semi-structured individual interviews are one of the main data- collection strategies that can be used (Cooper et al., 2012:4).

In this study, the researcher intends to, through engagement, understand and interpret the participant's sense-making of his/her simulation learning experiences through a twofold meaning-making process. The last lens of IPA is the idiographic lens.

3.4.2.4 Idiography

Idiography is concerned with the particular and private accounts of the individual (Pringle, Hendry, & McLafferty, 2011b:14). Idiography, in contrast with making general laws about humanity, focuses on the detail of the participant's description of an experience and therefore analysis takes place at a deep level. IPA is concerned with the way people make specific sense of a particular experience in a specific context (Smith et al., 2009:par. 599). An *idiographic approach* highlights a person's cognitive, linguistic, affective and physical experiences (Reid et al., 2005:21). Furthermore, an idiographic approach conveys the intention to make sense of the whole by understanding the parts, and the parts can be understood by making sense of the whole (Roberts, 2013:215). IPA is therefore not concerned with generalisations, but preserves the uniqueness of each participant's experience and meaning-making (Smith et al., 2009:par. 99). IPA is therefore "idiographic in its commitment to analyse each case in a corpus in detail" and commonly involves "the detailed analytic treatment of each case followed by the search for patterns across the cases" (Smith, 2011a:10).

Essential traditions of the philosophical foundations of IPA are summarised and displayed in Table 3.1.

Table 3.1: Traditions in IPA

Tradition/lenses and original author	Contribution	Essential features	Reference
Phenomenology Edmund Husserl (1927)	Meaning-making of own significant experiences (implementing simulation)	Understanding own experience may transcend the particular to illuminate experience of others Reflection on "taken for granted" activities and expanding the personal meaning Reflection is an attentive and systematic examination	(Smith et al., 2009:par. 220)
Phenomenology Martin Heidegger (1962)	Ontological question of existence	Person-in-the-context Inter-subjectivity Relatedness to the world	(Smith et al., 2009:par. 345)

Tradition/lenses and original author	Contribution	Essential features	Reference
Phenomenology Merleau-Ponty (1962)	Contextualised phenomenology	Worldliness of our existences Own viewpoint One cannot entirely share the experience of another	(Smith et al., 2009:par. 376)
Phenomenology Sartre (1956)	Self-consciousness Seeking meaning	Action-oriented, meaning-making self-consciousness Process of becoming	(Smith et al., 2009:par. 408)
Hermeneutics (interpretation) Schleiermacher (1998)	Grammarly and psychological interpretations Holistic view of interpretation	Interpretations can be made from text itself and some connections can be made in light of the larger set of data or theory	(Smith et al., 2009:par. 439, 469)
Hermeneutics Heidegger 1927	Formulating phenomenology implies interpretation Relationship between interpretive work and fore-structure and of understanding to reconsider bracketing	Fore-understanding and lived form of bracketing is a cyclical process and not always achievable Reflective practices are closely related to the cyclical process	(Smith et al., 2009: par. 515)
Hermeneutics Gadamer (1990)	New stimulus can speak in its own voice	One can hold a number of conceptions to be compared, contrasted and modified Meaning is strongly influenced by the moment in which the interpretation is made	(Smith et al., 2009: par. 544, 599)
Idiography Gregen (1991)	Sense of detail Depth of analysis	Examining a single case Personally unique perspective of the relationship with a phenomenon of interest	(Smith et al., 2009: par. 603)

The rich philosophical underpinnings are the most useful feature of IPA, as it generates rich data owing to its arduous research methodology. The rigorous research methodology is an emotionally taxing and a time-consuming design (Biggerstaff, & Thompson, 2008:214; Vivar, McQueen, Whyte, Armayor, & Navidad, 2007:66).

3.4.3 NATURE OF INTERPRETATIVE PHENOMENOLOGY ANALYSIS RESEARCH

The main focus of an IPA study is the deep description of significant and subjective experiences and considering the contextual influences on experiences (Smith et al., 2009:par. 35). IPA is sensitive to the intricacies of subjective experiences and context, nonetheless, is not focused on generalising findings, but works to keep the idiographic perspective intact (Shinebourne, 2011:24; Smith et al., 2009:par. 35). In addition, IPA considers the process more significant than the outcomes or conclusions of the phenomena (Smith et al., 2009:par. 900).

Examining a phenomenon repeatedly and in depth leads to a deeper understanding (Cooper et al., 2012:5). For instance, if you walk on an unfamiliar path for the first time you may only see the landmarks along the way. If you then repeatedly walk the same path, *and you pay attention*, you become aware of more features around you. You can learn more about the people around you, the smells or temperature changes. IPA functions in the same way to generate deeper understanding of a phenomenon.

Characteristic of IPA is the use of first-person expressions by the researcher and the participants. In fact, it is essential to present data in such a way that the imagined reader can identify with the experiences (Smith et al., 2009:par. 1190). The full extent of the uses of IPA must still be discovered, and Shaw (2011:28): states, “the future is bright”.

The number of participants recommended for IPA is four to six (Hefferon & Gil-Rodriguez, 2011:757). Each participant’s data presents an individual case-based narrative (Callary, Rathwell, & Young, 2015:66). However, lead researchers recommend that, when circumstances require it, one may go beyond the boundaries, while guarding against compromising an in-depth understanding of the phenomenon at the cost of numbers. When more than four to six participants are involved, a narrative that represents at least half of the participants’ views is compiled (Pringle et al., 2011a:22).

The setting for IPA research is naturalistic (like the simulation environment in this study), as understanding is derived close to the natural context (Tomkins & Eatough, 2010:225). As a result, the findings remain context-dependent.

The participant’s view and interpretation is central to the interpretations the researcher makes. The interviewer should therefore be skilled at exploring the participants’ interpretations (Biggerstaff & Thompson, 2008:217). Semi-structured interviews are generally the main source

of data. Interpretations of the data are supported by extracts of the participants' own words (Smith et al., 2009:par. 91). IPA offers a rich, detailed, first-person account of participants' experiences (Smith et al., 2009:par. 1191). A number of data-collection strategies can be used to capture data reflecting the participant's experiences (Tomkins, & Eatough, 2010:244).

3.4.4 SCOPE OF INTERPRETATIVE PHENOMENOLOGY ANALYSIS RESEARCH

After the publication of the IPA methodology, researchers in social, clinical and educational psychology showed interest, despite criticism from other corners. Presently, the use of IPA is not limited to psychology – healthcare research has shown significant interest in the methodology, specifically for exploring patients' experiences of suffering from acute or chronic diseases. Healthcare is the discipline that shows the most interest in IPA (Smith, 2011a:19). A good example of the use of IPA is the exploration of a cancer patient's experiences of pain (Smith, 2011a:9). According to Lyons (2011:1-2), the increased use of IPA in healthcare settings may be ascribed to acknowledgement of the importance of the psychological and social dimensions involved in disease or in health. IPA offers considerable potential for research on the experiences of patients of health conditions (Kirkham, Smith, & Havsteen-Franklin, 2015:399).

IPA also features in studies exploring nursing care (Pringle et al. 2011b:9; Biggerstaff, 2008:214), nursing and midwifery (Brocki & Wearden, 2006:87), medicine (Roberts, 2013:216; Smith, 2011a:21; Biggerstaff, Thompson, & Deborah, 2008:221) and education (Bainger, 2011:32). The use of IPA in teaching and learning is still a novel idea, but the number of studies using IPA has increased in recent years (Cooper et al., 2012:1).

However, a researcher using IPA must be aware of the criticism and challenges related to the use of the design. This would apply to the use of any research design.

3.4.5 REASONS FOR SELECTING INTERPRETATIVE PHENOMENOLOGY ANALYSIS

HFPS is a learning strategy new to nurse educators in South Africa. I selected IPA as a research method due to its usefulness in under-researched populations (Cassidy et al., 2011:264). Roberts (2013:215) emphasises that only the person who has experienced a

phenomenon can express its deeper meanings to the outside world. Therefore, IPA clearly emphasises the importance of the participants' individual contributions.

The participants' contributions may result in the following. *Firstly*, the first-person descriptions provide insights into the commonalities and the specific features of their own experiences. *Secondly*, the descriptions by participants provide others who share their particular experience with a deeper understanding of themselves. *Thirdly*, the contribution of participants highlights the deeper aspects that may open doors for further future research (Roberts, 2013:215; Smith et al., 2009:par. 905).

These benefits of IPA fit the purpose of the study like a glove. HFPS is, at this time, at a pivotal point at which it needs urgent and meticulous implementation due to the importance of the strategy and costs involved. Simulation is a fresh, new learning strategy that is being implemented for the first time. The newness and pedagogical challenges involved are quite unlike any previous experiences in education. The construction of the understanding of the phenomenon is not limited to the researcher, as is generally the case. In this study, both the participant and the researcher make sense of the phenomenon of nurse educators' learning processes. An understanding of the ways nurse educators implement simulation effectively as a learning strategy is required for successful implementation of HFPS at a local, national and international level.

IPA also matched the theoretical perspective of TLT. According to Taylor and Cranton (2013:34), TLT explores how people make sense and meaning of experiences in their lives, as does IPA. IPA and TLT complement one another very well in this study.

However, before deciding on IPA, I considered two additional research designs for this study, as described below.

3.4.6 ALTERNATIVE RESEARCH DESIGNS CONSIDERED

The number of qualitative research designs that are available to researchers has increased to about 17 different strategies (Onwuegbuzie, Leech, & Collins, 2012:1). An *alternative research design* considered from this plethora of qualitative research methods was *grounded theory*.

The nature of grounded theory is also interpretive, and is used for compiling a theoretical account that explains a particular phenomenon (Smith et al., 2009:par. 391). Grounded theory endeavours to provide a higher-order conceptual account of a clear epistemological position.

However, grounded theory design requires more participants than were available for this study. In grounded theory, theoretical saturation is essential for trustworthy data analysis and interpretation. For example, Taplay et al. (2014:1) involved 43 participants in research using grounded theory to describe the organisational culture involved in the establishment of simulation. As the previously mentioned study required over 40 participants to describe the phenomenon, grounded theory was not an option to consider in this study as at the most 15 nurse educators used simulation at the research site. IPA was more suitable, as the methodology is concerned with an in-depth understanding rather than large numbers of participants (Shaw, 2011:30) and using grounded theory was therefore not feasible.

I also considered discourse analysis as a possible phenomenology research design for this study. Discourse analysis makes meaning by integrating ways of saying (by informing), doing (through action), and being (identity), and grammar plays an important role in bringing about this integration (Gee, 2011:8). The design of discourse analysis focuses on power or interaction and its role in social constructionism (Smith et al., 2009:par. 931). My concern with discourse analysis design was that the method might not deliver the deep understanding required for this study. In addition, the focus of the study is neither idealistic in nature nor focused on the way language is used (Smith et al., 2009:par. 937), but rather about the meaning behind what is said.

IPA goes beyond the standard thematic analysis of data. Although IPA was suitable for this study, it is not without criticism and challenges.

3.4.7 CRITICISM OF AND CHALLENGES IN INTERPRETATIVE PHENOMENOLOGY ANALYSIS

The variations amongst qualitative research designs are often miniscule and when commenting on a design, attention should be given to nuance. Most criticisms of IPA are founded within different epistemologies, methodologies (Hefferon & Gil-Rodriguez, 2011:756)⁵ and practical implications.

In general, the number of new qualitative methodologies and designs is increasing, and each is based on a specific epistemological assumption. Critics of certain methodologies should appreciate and understand a design's epistemological assumptions. Firstly, qualitative

⁵ Published criticism must adhere to the same academic rigour as required from the methodology under scrutiny. In my search for criticism, I found little evidence of fundamental flaws in IPA. Those I did find are more in the nature of questions, concerns and warnings, rather than actual criticism.

methodologies cannot be criticised from a positivistic paradigm, as the purposes of these two paradigms are different. Qualitative research is concerned with meaning and with the quality of the experience, rather than with causal factors (Pietkiewicz & Smith, 2014:7). Secondly, author guidelines for qualitative research publications sometimes do not facilitate the expression of the epistemic nuances that result from different perspectives (Pietkiewicz & Smith, 2014:8).

IPA is more concerned with cognition than discourse analysis is. Some researchers and authors are concerned that this cognitive focus by IPA may dilute the phenomenological focus (Brocki & Wearden, 2006:89). Phenomenology focuses on meaning-making and not on pre- or non- propositional cognition. Fundamentally, the argument does not apply, as IPA falls in an interpretive (hermeneutic) and not a phenomenological paradigm (Rodham et al., 2015:60).

3.4.7.1 Methodology

Some critics may interpret the flexible research design of IPA as a lack of rigour. A flexible research design is, instead, a safeguard. As the research deepens, the collective use of different data-collection strategies make IPA suitable for a number of settings (Tomkins & Eatough, 2010:244; Brocki & Wearden, 2006:99-101; Larkin, Watts, & Clifton, 2006:103). Researchers cannot predict during the proposal phase the usefulness of the findings of an IPA research project and whether the data collected will provide answers to all the research questions (Brocki & Wearden, 2006:101). When data does not answer all the research questions, additional data-collection strategies may be explored. Therefore, the flexible nature of IPA makes it suitable to adjust for these challenges.

Methodological dilemmas can arise, as data-collection strategies may not be suitable for IPA. For example, Tomkins and Eatough (2010:244) used focus groups in their study. In hindsight, they realised they may have lost the individual voice and idiographic nature of the individual participants in the “group”. However, researchers are still encouraged to push the boundaries of the IPA design (Rodham et al., 2015:60). According to Smith et al. (2009:par. 1206), using focus groups or observational methods requires analyses done by skilled and experienced researchers.

Smith and colleagues published a textbook about rigorous implementation and data analysis with IPA called, *Interpretative phenomenology analysis: Theory, method and research*, in 2009. In this study, I used these guidelines to ensure *rigour*. The authors propose a flexible approach and state that there is no right or wrong way to implement IPA. The authors also warn IPA researchers about sticking blindly to a design and specific data-collection strategies, which they

call “methodologism” and “methodolotry” (Smith, 2011b:55; Smith et al., 2009:par. 846). However, these original authors set criteria for *trustworthiness* for IPA. In this study, I made use of their guidelines to ensure rigour.

In response to concerns raised by Chamberlain, Smith (2011a:17) published criteria for good-quality IPA research. Chamberlain (2011:57) expressed concern about the ability of the IPA design to generate sufficient themes to formulate theories. Smith’s criteria ensure rigour in data collection. Smith’s view is that the researcher cannot guarantee that the quality of data would be sufficient to contribute to developing a theory at the time of planning the IPA research (Smith, 2011a:57). IPA should inform understanding at different levels of constructing, illuminating and illuminated, or a mix of all three (Smith, 2011b:57). As a researcher using IPA, I first clarified the criticism and challenges related to the use of the design – this applies to the use of any research design.

3.4.7.2 *Practical implications*

This research design has complex philosophical foundations, making it a difficult skill to master and collecting the data is therefore laborious. IPA is a complex design due to the philosophical foundations of the design (Rodham et al., 2015:59; Biggerstaff & Thompson, 2008:218). Initially, I found the philosophical underpinnings challenging, but literature indicates this experience to be common. The complexities of the design may result in superficial interpretations of data (Hefferon & Gil-Rodriguez, 2011:757).

The large volume of data that IPA generates is challenging to manage, sort and interpret. Consequently, when a large volume of data is generated, the researcher must implement rigorous strategies to manage the data (Biggerstaff & Thompson, 2008:218). In this study, I used software to organise data. I describe the use of software in Section 3.6.5.

3.5 POPULATION AND UNIT OF ANALYSIS

In this study the population consisted of nurse educators using simulation at one school of nursing. I used a *purposive* recruitment strategy to approach and invite participants to participate in the study (Smith et al., 2009:par. 51).

3.5.1 POPULATION

The study's population parameters were set with caution, as the population may influence the depth and richness of the data about the topic under investigation (Smith & Osborn, 2007:52). A recommendation for newcomers to IPA is to select a homogeneous group of participants in terms of their experience of the topic under investigation (Smith et al., 2009:par. 98).

A variation in the homogeneity of a population may lead to the inclusion of large number of participants who will generate too much data, which may cast doubt on the trustworthiness and ethics of the study. Therefore, the boundaries of the population need to be both specific and pragmatic (White, 2011:255; Smith et al., 2009:par. 51, 1034, 1063; Reid et al., 2005:22). The total population consisted of 15 nurse educators trained or experienced in the implementation of HFPS, however, only seven nurse educators met the eligibility criteria of significant experience that formed the unit of analysis and consented to participate.

3.5.1.1 *Eligibility criteria for participation*

Eligibility criteria for IPA help the researcher to identify prospective participants that can provide an in-depth understanding and help the researcher answer the research question.

In this study, the eligibility criteria are nurse educators who:

- have qualifications in nursing education, or
- have been trained and possess experience in clinical mentoring or preceptorship, and
- who have been involved in at least five HFPSs from design to execution.

In this study, **seven participants** met the criteria, gave written consent and were included in the study. There were other possible participants, but they did not have the required number of HFPS experiences.

3.5.1.2 *Description of unit of analysis*

The eligibility criteria ensured purposive selection of a homogenous group of participants (Pringle et al., 2011a:22). The prospective participants were selected for their ability to provide convergent and divergent perspectives on learning experiences gained while implementing HFPS.

3.5.1.3 Number of participants

Less is more when using IPA. Small samples, three to four participants provide deep insights (Smith et al., 2009:par. 1638). Experts in IPA research recommend the use of a small number of participants, as the purpose is not to merely collect facts, but to gather deep, detailed and reflective data (Callary et al., 2015:66; Silverman, 2011:393). Smaller units of analysis contribute to in-depth data analysis, richness and to preserving the idiographic nature of each individual case (Pietkiewicz & Smith, 2014:8). Experts in IPA warn against the inclusion of too many participants, because large numbers of participants may generate too much data, thereby overwhelming the researcher, which, in turn, may limit the depth of data analysis (Roberts, 2013:216; White, 2011:255; Smith et al., 2009:par. 51, 1034; Reid et al., 2005:22). Compared to other phenomenological research designs, the number of participants may be considered to be too few, but in IPA a sample larger than six is considered to be a larger study (Shinebourne, 2011:23).

Interpretation of the data starts, first, with all the data collected from one participant as planned in the proposal. A number of data-collection strategies are used in IPA to ensure rich data. The data provided by the first participant is first analysed and interpreted before moving on to collecting the next participant's data. Only when all participants' data has been collected, analysed and interpreted, data is compared and contrasted. Finally, the researcher examines all participants' data together, and studies it to determine what the participants said and what they meant by what they said; the uniqueness of the context and the uniqueness of each participant are considered. The researcher compiles a narrative of the shared experiences of each participant. In case of large sample sizes, the experiences shared by *most* participants are represented in the narrative (Pietkiewicz & Smith, 2014:8).

3.5.1.4 Selection of participants

Participant selection was both purposive and theoretical (theoretical sampling). A *purposive* selection of participants means including participants who are able to address the research question (Callary et al., 2015:66; Silverman, 2011:388). *Theoretical* selection focuses on the participants who are most familiar with the phenomenon, and looking for those who may have a deviating (or contradictory) opinion and those who are able to fill the gaps identified as the study progresses (White, 2011:256; Smith et al., 2009:par. 1028).

Variations in participant experiences contribute to richness of the data and the value of the study, because it speaks to the idiographic nature of each participant's experience. Homogeneity is important for the unit of analysis in IPA. Participants with first-hand experience to inform the topic at hand best are selected (Larkin, & Thompson, 2012:103).

3.5.1.4.1 Purposive selection of participants

Purposive sampling involves the selection of participants who have first-hand experience of the phenomenon under study (Smith et al., 2009: 51). A *purposive selection* of participants involves inviting participants who have experienced the phenomenon the researcher is interested in studying to participate (Silverman, 2011:388). Purposive selection of participants should focus on potential participants who are able to contribute to a deep and rich understanding of the multiple perspectives of a phenomenon (Smith & Osborn, 2007:52).

The selected participants were involved in the school of nursing's undergraduate and/or postgraduate modules. Some were full-time nurse educators, some part-time and others were mentors or preceptors. Some smaller modules have only one or two nurse educators and needed more support during simulation to manage all the tasks. Some of the participants had practiced as clinical specialists for a number of years, which enriched the data with in-depth and thick descriptions.

Large class sizes in the undergraduate modules necessitated the involvement of more nurse educators during HFPS, which could have limited the exposure of nurse educators to simulation experiences. Nevertheless, each participant had sufficient exposure to meet the eligibility criteria of the study. All the participants had experienced more than five simulations, and some many more – some as many as almost 100 simulations over a period of four years. The participants' experience of HFPS had been gained over at least one year. However, nurse educators' different responsibilities at the school of nursing had an influence on the number of exposures to simulation they had experienced. The number of simulations they were involved with is not an indicator of interest in HFPS.

The participants experienced components of working as a team, designing simulation scenarios and implementing the simulations. Some of the teams were small, due to fewer students taking the module, but all had to function within a team. Nurse educators regularly reflected on their experiences during and after simulations and served as sounding boards for one another or "instruments" for creating their knowledge through their interactions with one another.

I invited the prospective participants (selected because they met the eligibility criteria) to participate either face-to-face or telephonically. I explained the purpose of the study and explained what their involvement would entail. Most prospective participants were aware that I was conducting this study and expressed excitement about participating. All the prospective participants consented to participate. We scheduled a time, date and venue that suited both the participant and the researcher. A week before the interview, I confirmed the date and time with the participant. Purposive sampling, supplemented by theoretical sampling, provided an in-depth description of the phenomenon (Smith et al., 2009:par. 1028).

3.5.1.4.2 *Theoretical selection of participants*

Theoretical selection of participants for this study involved selecting those who were able to speak to the theoretical purpose of the study. The participants' backgrounds in nursing education and their experiences with the theoretical application of simulation principles contributed to the theoretical meaning-making and interpretations of the study.

Theoretical sampling also involves including participants until the study reaches saturation (Smith et al., 2009:par. 1028). Saturation therefore determines the number of participants, and sample size cannot be determined before data gathering. Saturation of data in IPA is reached when the different levels of interpretation are exhausted (Lee & McFerran, 2015:372).

3.5.1.4.3 *Explorative interview*

The purpose of the explorative interview was to ensure trustworthiness of data collection and analysis. During the explorative interview I evaluated the interview preparation, interview schedule, data collection strategies and the data analysis process with one volunteer who met the eligibility criteria (White, 2011:259). The explorative interview helped refine my interview skills, technical skills with audio-recording and the software⁶ of AtlasTi 7.5™, Mendeley™ and Scrivener™.⁷

The promoter of the study audited the explorative interview to ensure correctness of interview technique, coding of data and comments on data. None of the interview questions needed change and the interview technique was acceptable. The explorative interview and associated

⁶ Initially, learning to use the software was difficult and time consuming but, over time, I was able to work faster and master more advanced applications of the software. The software helped me to be more organised and to access literature or data faster, therefore saving time.

⁷ Computer Assisted Qualitative Data Analysis (CAQDAS) is software designed for managing qualitative data, referencing manager and a writing software (Schönfelder, 2011:np). Scrivener is text-organising software.

data were included in the study, as none of the interview questions changed. The same ethical considerations and methodological *rigour* were applied in the explorative interview and the interviews of participants in the study (Yin, 2011:35). The data collected during the explorative interview were subsequently included as part of the data collected.

The main lesson I learned from the explorative interview was to allow participants time to formulate their answers. Reviewing the audio recording of the explorative interviews, I experienced myself being in a hurry to obtain a description. However, I interrupted the next participants less often as I gained more interviewing experience.

3.6 DATA COLLECTION

IPA data-collection strategies support the delivery of rich, naturalistic, detailed, first-person accounts of the experiences participants expressed (Smith et al., 2009:par. 1186). The data-collection strategies in this study were semi-structured face-to-face (several one-on-one and one dyadic) interviews, reflective journals written by participants, summaries of learning experiences by participants and the researcher's reflective notes, made after interviews. The most popular data-collection strategy in IPA is the semi-structured one-on-one interview (Smith et al., 2009:par. 1186).

Compared to other qualitative data-collection strategies, interviews are easier to manage and the rapport that can develop between the participant and researcher can deepen the quality of data. The rapport leads to openness between the researcher and participant (Smith et al., 2009:par. 1196).

3.6.1 PREPARATION FOR DATA COLLECTION

Data-collection strategies of IPA focus on meaning-making by the participant. In order to access the experience of the participant, data-collection strategies are selected with the aim of accessing the experiences of a participant. Data is therefore collected "close" to the participant's experience, and does not involve observations from a distance (Smith, 2011a:10). The researcher engages with data to arrive at a hermeneutic perspective. The process of IPA is truly a cyclical process of repeated reflection on and interpretation of data. A description of preparation for data collection follows.

3.6.1.1 Preparation of the interview schedule

The research sub-questions provided the main substance of the interview schedule. I was guided by the interview schedules of a number of other qualitative studies in formulating the questions, and I considered Kipling's seven questions. I also tried to imagine the learning process of someone new to implementing simulation, and I formulated appropriate questions to deliver data of participants' lived experiences (Smith et al., 2009:par. 1262).

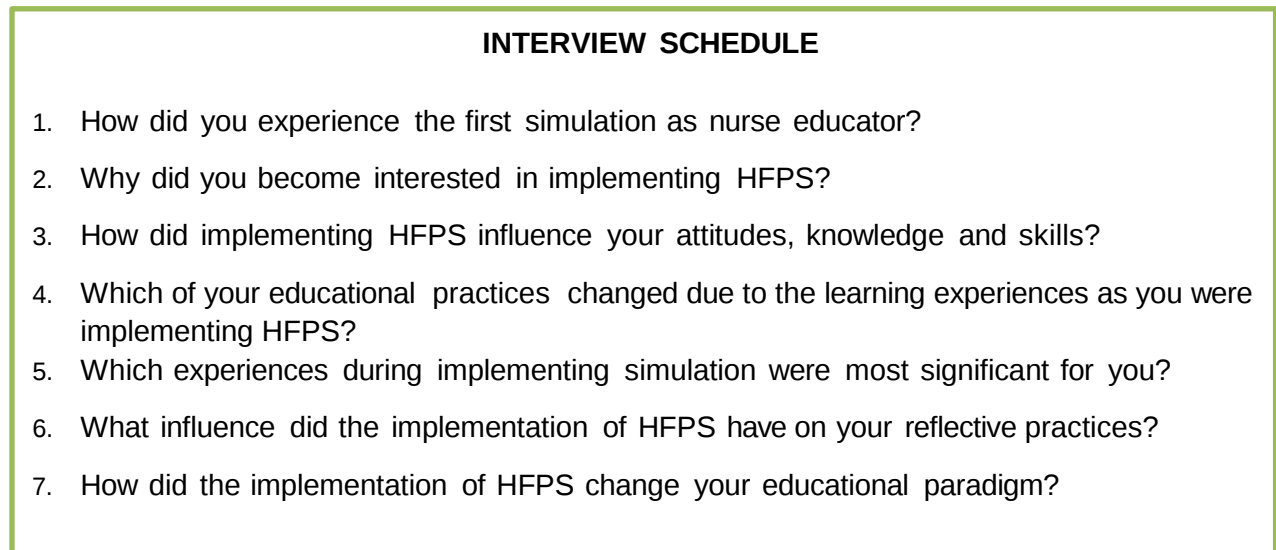


Figure 3.2: Interview schedule of the questions posed by this study

I avoided the use of *a priori* theoretical constructs to formulate research questions, in order to avoid bias. The purpose of the interview schedule is to direct the interviewer in gathering data to answer the research question at hand. Figure 3.2 presents the interview schedule of the questions this study posed to participants.

3.6.1.2 Preparation of participants for the interview

At the start of the implementation of simulation (about three years ago), I provided each of the educators who implemented HFPS with a personal journal for recording his or her reflective notes. I also made them aware that I planned to conduct research using their experiences of implementing simulation as data.

After obtaining ethical clearance, I personally contacted possible participants, informed them about the purpose of the research and invited them to participate. All the prospective participants consented and I scheduled appointments that suited the participant and me. A

week before the scheduled interview, I confirmed the time and place of the interviews via email. I provided the consenting participants with the information leaflet, consent document and the interview schedule (Appendices 3.4, 3.5 and 3.6). Participants had sufficient time to reflect on the interview questions before the interview and to reflect on their previous HFPS learning experiences. On the day of the interview, I explained the purpose and procedures of the interview to the participants again (Smith et al., 2009:par. 1133).

3.6.1.3 *Preparation of the environment for interview*

I prepared the interview area where I intended to collect quality data, and I limited interruptions during interviews. In IPA, it is characteristic that data is collected in the natural setting – the data then reflects the nature of the experiences (Burton & Bartlett, 2009:21; Larkin et al., 2006:107). Hence, the interviews for this study took place in the simulation environment in which the participants implemented HFPS. The environment contributed to participants remembering of specific simulation experiences or events that contributed to their learning (context sensitivity) (Jacob & Ferguson, 2012:7-9).

I posted a “do not disturb” sign on the door of the interview venue. This should have prevented interruption of the interviews. Interviews were only interrupted twice, once by a student and once by an administrative staff member. However, the interruptions did not significantly influence the flow of the interview, as I limited the duration of these interruptions to less than a minute. Some background noises of the academic environment that could potentially disrupt the interview, obscure the conversation on the recordings or interfere with transcription of the data, were audible. Participants did not seem to be distracted, because nurse educators are used to frequent distractions due to the nature of the work of a nurse educator. Participants did not seem to be distracted by interruptions. However, I believed interruptions could break one’s train of thought.

3.6.1.4 *Preparation of technology for data recording*

Interviews were recorded on an Olympus digital audio recorder and I used my smartphone as a backup recording device, as recommended by Willig (2013:114). I declared the recording of the interviews to participants before the interview. After the interviews, I checked the recordings for quality and completeness. I deleted all the audio files from the recorder as soon as the electronic files had been saved successfully into AtlasTi 7.5.

The interviews recorded on the digital recorder were top quality and were used for transcription. Both the digital audio recordings and transcribed documents were stored in AtlasTi 7.5 software to organise data during the analysis. All the digital files and software were stored in a password-protected computer for *confidentiality* purposes (Desai & Potter, 2006:150).

3.6.2 INTERVIEWS AND DISCUSSION

The following is a description the data-collection strategies that were used in this study: a face-to-face semi-structured interview, a dyadic face-to-face interview and a face-to-face unstructured discussion.

3.6.2.1 *Interview and discussion principles used in interviews and discussion*

Before the interview I ensured that written consent and biographical information were provided by participants. During this time I started to establish rapport.

3.6.2.1.1 *Establishing rapport*

I established rapport with the prospective participants even before the study commenced, as I had a role as researcher and coordinator of HFPS (Creswell, 2014:187). As the coordinator of HFPS, I emphasised a supportive and respectful approach among nurse educators and students from the onset of the implementation (my dual role in this study is clarified in Section 3.6.4).

Establishing rapport with participants can take a number of forms, such as a friendly greeting, showing appreciation, and making participants feel comfortable and welcome, with the aim of relieving tension during the interview (Pietkiewicz & Smith, 2014:10). I focused on being authentic during the interviews, as participants knew me and trying to behave like a researcher would be awkward.

The first question I asked was broad and non-threatening:

How did you experience your first simulation as nurse educators?

By means of this question I conveyed to the participant that there is no right or wrong answers, and thereby I put the participants at ease (Pietkiewicz & Smith, 2014:10).

3.6.2.1.2 *Communication during interviews*

South Africa has 11 official languages and the majority of the participants' home language was Afrikaans. I requested the participants to speak English. The nurse educators at the university are required to be at least bilingual and can therefore express themselves well in English. The medium of language on campus moved more towards English the past few years and educators mostly present classes in English. Participants were requested to speak English during the interviews as to capture deep and rich descriptions of participants' meaning-making of experiences. If interviews were conducted in Afrikaans nuances of meaning-making can be lost in the translation of the transcripts to English. Simulation is new, and therefore simulation terminology is not yet available in any of the 10 official languages. The use of Afrikaans would hamper conversations during the interviews, as the terminology of simulation does not exist in Afrikaans. Willig (2013:114) clarifies the issue as follows: "*all* types of transcription constitute a form of translation of the spoken word into something else".

Before the interviews, I explained to the participants that they may use words from their first languages if they experienced difficulties in expressing themselves. In such cases, I translated the words into English for the participant and verified that my words expressed their meaning-making. As nurse educators, the participants of this study were not lost for words and focused on the questions posed to them. Using English during the interviews did not affect the quality of the data collected. The same questions were posed to all the participants and questions were clarified as necessary. I conducted all the interviews myself, from a researcher perspective.

3.6.2.1.3 *Ensuring quality of data collected*

Key features that contributed to quality of data are well formulated interview questions, good listening skills, appropriate body language of the interviewer, the setting of the interview, the atmosphere and the overall conduct of the interviewer (Jacob & Furgerson, 2012:8). The collection of "rich"/"thick" data is paramount in all qualitative/phenomenological studies. Rich data can be collected when the researcher listens to the participant's full story and creates an environment that encourages him/her to speak freely, but reflectively (Smith et al., 2009:par. 1194). Rich data involves an understanding of the interpretation of the participant's making sense of experiences.

Strategies used to collect rich and thick descriptions were:

- Phrasing questions in a way that displayed my interest in their experiences;

- Avoiding making judgments about participants' comments;
- Asking open-ended questions, which are easier to answer from one's personal experience (Smith et al., 2009:par. 1271);
- Starting with the easier questions (Jacob & Furgerson, 2012:3);
- Using prompts to keep the discussion going, rather than asking long questions (Pietkiewicz & Smith, 2014:10; Smith et al., 2009:par. 1236);
- Remaining sensitive to the participants' emotions and non-verbal communication when they tried to avoid answering certain questions;
- Assuring them that they do not have to talk about something they did not want to;
- Repeating some of the questions later in the interview to confirm that the participant understood the question; and
- Affording participants the opportunity to elaborate, if they wanted to (Pringle et al., 2011a:23).

In preparing myself for interviews, I revised the kind of questions I had to avoid. These were questions that:

- *Expressed an excess of empathy*, that lead participants to the kind of experience or emotions they are expected to express (e.g. "I think implementing HFPS must have been difficult for you");
- *Manipulated* respondents by questioning their description of an experience (e.g. "was the implementation of HFPS really as difficult as you say?");
- *Leading questions* that placed words in the mouth of a participant (e.g. "I suppose the implementation of HFPS is difficult, isn't it?"); and
- *Closed questions* that required no further discussion of an experience (e.g. "you consider the implementation of simulation difficult?") (Smith et al., 2009:par. 1275).

Fortunately, participants were enthusiastic about talking about their experiences – it seemed they could not wait to talk about their experiences. As the coordinator of HFPS, I understood the experiences participants related during the interview and often recognised the incidents mentioned.

The dynamics of conducting a semi-structured interview were more edifying than I expected. Sometimes I sensed that the participant wanted to talk more about an experience, but did not know how or if they should. I learned that reformulating the question later in the interview opened the opportunity for discussion again. Participants were often more willing to elaborate

about an experience later, as they became more comfortable as the interview progressed (Pietkiewicz & Smith, 2014:10). Sometimes participants repeated something they already said before, in the interview, indicating to me the consistency of the data.

By chance, I discovered that participants were willing to discuss a matter deeper when I started a few sentences relating to a “hypothetical” simulation experience, followed by the outcome of experience. I omitted the middle part of the experience, then paused. Participants were keen to fill in the rest of the story with their own experiences and interpretations. The following remark is an example of this strategy:

The students made a fatal mistake... but when the students left they were happy and all smiles.

I did not refer to a real experience, but participants identified with a similar personal event and were willing to discuss their experiences and interpretations. I avoided hypothetical stories that could remind participants of their own failures and lead to embarrassment. The hypothetical discussion drew out real experiences without asking the question directly.⁸ I acknowledge that this technique has limitations, but it worked very well with nurse educators. In addition, I know the participants as colleagues in HFPS – some for up to 10 years. One may conclude that knowing the participants, being aware of their experiences and observing them for a period, promoted an in-depth discussion.

After the interviews, I practiced researcher *reflexivity* by reflecting, firstly, on my interview technique. I identified that I sometimes became rushed and had to practice more self-control during the interviews. I also identified questions that I had to reformulate more clearly, especially when the participants misunderstood a question. I wrote reflective notes on effective and ineffective strategies and new data that had been generated and that needed further exploration during the next interview.

After each interview, I coded, analysed and interpreted the data before I conducted the next interview. I knew what had been described and what needed further exploration. When I experienced problems during data analysis with the meaning-making of a participant, I conferred with the participant personally (member-checking). Analysing data before the next interview worked well, as IPA is a lengthy process and one can easily lose information related to meaning-making if all the interviews are conducted first and then analysed.

⁸ Only one participant exhibited defensiveness.

3.6.2.2 Face-to-face semi-structured interviews

The first data-collection method used was individual (one-on-one), face-to-face, in-depth, semi-structured interviews, which is the most common qualitative research strategy (Roberts, 2013:216; Willig, 2013:105). Semi-structured interviews derive first-person accounts and is the most common data-collection strategy in IPA (Smith, 2011a:18; Brocki & Wearden, 2006:90).

IPA requires a flexible data-collection strategy. During semi-structured interviews, the researcher can ask additional questions as the need arises.

Conversely, a structured interview would have been too rigid for this IPA study, because the participants' experiences are the focus of the interviews; and this type of approach needs a more flexible interview schedule. On the other hand, White (2011:260) recommends that neophyte qualitative researchers avoid unstructured interviews, as in my case. The purpose of a semi-structured interview schedule is to keep the researcher focused on the participant's "story" whilst providing the flexibility to ask other, related questions (Smith et al., 2009:par. 1283; Biggerstaff & Thompson, 2008:217).

3.6.2.3 Dyadic face-to-face in-depth interview

I became aware of the possibility of using a dyadic,⁹ face-to-face, semi-structured, in-depth interview at a research workshop. Dyadic interviews are often used in research involving married couples and friends and acquaintances (Morgan, Ataie, Carder, & Hoffman, 2013:1281).

After five individual semi-structured interviews, data seemed to reach a point of saturation, as participants' comments did not contribute to any more themes as comments from previous participant interviewed were repeated, as experienced by Cooper et al. (2012:4).

Two participants, who had not been interviewed before, collaborated well during HFPS in the same post-registration module. I concluded that their shared experiences might contribute a different perspective or deeper insight if they took part in a joint discussion during an interview (Interview 6). Not totally convinced about the saturation, I conducted a dyadic, face-to-face interview with these two participants. Trying out a different interview strategy enriched the data generated by the study. My experience was that the two participants together generated a new and deeper understanding of experiences. A week before the interview, I explained to the

⁹ Dyad in this study means one interviewer and two interviewees (Morgan et al., 2013:1276).

prospective participants about the *dyadic interview* and the implication that they would be aware of one another's contributions during the interview. The ethical concern with the *dyadic interview* was anonymity and confidentiality between the two participants. Maintaining confidentiality regarding the interview would be their responsibility too. The two participants consented and did not mind discussing their simulation experiences in the presence of the other participant.

During the dyadic interview, I used the interview schedule as planned. Palmer et al. (2010:99) reports that the change in strategy creates greater opportunities for reflection on experiences, even though the research process was more complicated to manage (Palmer et al., 2010:100).

Risking the switch from an individual, semi-structured interview to a dyadic interview paid off beyond my expectations, as it facilitated a deeper understanding.

Both participants raised similar and contrasting views during the interview and were surprised by these variations between their experiences and thoughts. From an ethical point of view, I was obligated to protect both participants from embarrassment. The possibility existed for participants to compare their experiences and rate it better or inferior to that of the other. During the interview, the participants raised contrasting opinions about the influence of students on their own learning. Subsequently, they were able to reflect on their different opinions that lead to their different educational perspectives.

Dyadic interviews might not be suitable for very sensitive research topics. The uses of dyadic interviews are still developing, but I would like to explore the technique more in future. Morgan et al. (2013:1283) argue that dyadic interviews may present unique opportunities in research in the future. Palmer et al. (2010:99) express concern about the dilution of the individual's view during a focus-group interview in IPA research. A focus group differs from semi-structured interviews in that it uses an essential framework for the group interaction, focusing the discussion on a specific topic (Plummer-D'Amato, 2008:69). The focus group is very limited in its potential for understanding individual thoughts, feeling and experiences (Chenail, 2009:24).

Morgan et al. (2013:1282) raised concern about comfort during the dyadic interview. However, in hindsight, I did not notice any discomfort amongst the participants; in fact, it became a lively discussion. Participants were not obligated to answer questions they did not want to answer.

The dyadic interview lasted 90 minutes. My conclusion is that the dyadic interview may save time and generate deep insights, and combining participants in dyadic interviews may be a strategy to consider in the future.

3.6.2.4 Face-to-face, unstructured, individual discussion

I conducted a face-to-face, unstructured, individual discussion with one of the participants of the dyadic interview, who had made a comment I wanted to explore more. The discussion served the purpose of member-checking. The discussion enriched my understanding of the participants' experience and ensured quality data. I decided to discuss the comment in private as the discussion had the potential to embarrass the participant or limit the freedom of the discussion. She said:

Those who work with me should show that they care.

I deemed the comment to be important and scheduled a face-to-face, unstructured, individual discussion with the participant, which I audio recorded, because the comment was important (Onwuegbuzie et al., 2012:8).

The face-to-face, unstructured, individual discussion took place at a coffee shop. I purposely wanted to create a distance from the work environment to ensure a safe exploration of her needs for support in the learning process. The setting produced some background noise and interruptions, but did not influence the interview negatively, and I gained substantive information. I asked the participant to explain what she meant by her statement. I allowed her to explain her experiences and the way it made her feel. The discussion evolved into how important she considered HFPS to be for nursing education, and she therefore needs the physical and, specifically, the psychological support of more senior nurse educators and supervisors.

This face-to-face, unstructured, individual discussion audio recording was transcribed and formed part of the personal descriptions of the data that complemented the interview data (Onwuegbuzie et al., 2012:9). The face-to-face, unstructured, individual discussion was not an interview, as an interview schedule was not used and it was unstructured and totally participant driven. There was no a priori agenda for the face-to-face, unstructured, individual discussion. However, due to the long discussion that followed, I also recorded, transcribed and interpreted the data as I did for the individual interviews.

Interviews were not the only data collection strategy. Participants' contributed reflective journal notes, a summary of their experiences implementing HFPS, document and the reflective notes of the researcher.

3.6.3 REFLECTIVE JOURNALS AND SUMMARIES OF PARTICIPANTS

At the onset of the implementation all nurse educators who were interested implementing HFPS received a journal to record their reflections about their learning and personal thoughts during and after simulations. I could not predict at that time, at the onset of the implementation, who would be participants in the research. As part of the informed consent process, I asked participants to consent to make their reflective journals available for duplication as part of data collection.

Mostly, nurse educators wrote their reflections during the reflection (debriefing) opportunity we provided after simulations for the nurse educators as well. All the participants agreed to submit their reflective journals as part of the data collection, but only four submitted their journals. Even after repeated requests for the reflective journals, three participants did not provide access.

Ethically, participation is voluntary and I respected their privacy regarding this matter. The majority of participants commented that they did not have enough time to record all their reflections. The reflective journals that had been submitted were "transcribed" verbatim to an electronic document, so that the identity of the participants could not be determined from the electronic document.

In order to make it easier for participants, I requested a summary of their learning experiences. The same participants who submitted their journals submitted summaries of their learning experiences. A fifth summary was submitted, in which only the flow of simulation scenarios was noted.

One can only speculate about possible reasons for the participants' reluctance to submit written documentation of their reflections. The *first* reason may be that it is easier to talk about experiences than to write about them. *Secondly*, the workload of nurse educators may limit the time they have available for written reflection. *Thirdly*, participants may feel that some of their reflections are private and prefer not to share them. A future study may investigate this phenomenon. Nurse educators make use of reflective journaling by students as an assessment

strategy, but appear to be less willing or able to reflect on their own experiences. Seemingly, writing reflections was a difficult practice for the participants.

3.6.4 ROLE OF THE RESEARCHER AS INSTRUMENT OF DATA COLLECTION

As the researcher, I recognise that, firstly, researcher *subjectivity* can influence the rigour of data. Secondly, in using IPA, the researcher is also an *insider*, sharing insights with the participants as I worked with nurse educators to establish HFPS. According to Smith et al. (2009:par. 767) the insider perspective (not required for all IPA research) assists by viewing experiences through the participants' eyes. Thirdly, as an *instrument* of data collection, I assumed an empathetic and interested questioning stance.

IPA recognises that there is not a direct route to experience and that research is really about trying to be 'experience close' rather than 'experience far' (i.e. phenomenological dimension)... And experience cannot be plucked straightforwardly from the heads of participants, it requires a process of engagement and interpretation on the part of the researcher and this ties IPA to a hermeneutic perspective" (i.e. hermeneutic dimension) (Smith, 2011a:10).

The epistemology of IPA is never interrogative or critical in nature. I avoided suspicious-sounding or critical questions, as questions of this nature support a positivist approach and are not part of the qualitative paradigm of this study. The data as presented should match the participants' description of participants own words to substantiate findings (Pringle et al., 2011a:21).

The researcher is an instrument for the collection and interpretation of data. Consequently, two researchers may derive different sets of data and interpretations due to their differences in background and focus. The ideographical nature is characteristic of the methodology of IPA (Pietkiewicz, & Smith, 2014:8).

Although I coordinated the simulation and provided training in practical simulation skills, it remained a small part of the learning about HFPS. Participants had to develop various skills by themselves required by the respective modules they presented. In the dual role of coordinator of simulation and researcher, participation was not coerced. The researcher-participant interaction functioned at a horizontal and collegial level. As coordinator I had no supervisory

role or power over participants. Data collections commenced five years after initial training in HFPS. The focus of data collection in this study was on experiences of implementing HFPS, and not experiences of participants' training.

My role as researcher was that of providing an insider perspective instead of an external observer. The "Hawthorn or the "halo" effect did not play any role as, with interpretive paradigms, critical subjectivity plays a larger role (Creswell, 2014:187). The purpose of the study was more existentially focused and attempting to create an understanding of participants' experiences while implementing HFPS, and not to evaluate the training provided (Smith et al. 2009:par. 711).

I conducted the interviews myself from an "insider" perspective as I am familiar with HFPS praxis, and fluent in the technological terms and the context of the experience. An insider perspective is not required in IPA, but it is recommended. (Smith et al., 2009:893). An outsider interview perspective would not have been able to drill down into the deeper meaning of participants' experiences in this study.

3.6.4.1 *Researcher's reflective notes*

Reflective notes are the researcher's personal records of thoughts, insights, hunches or broad ideas or themes that emerged during interviews. Reflective notes differ from descriptive field notes. Taking descriptive field notes is a systematic way of recording events during an interview (Creswell, 2014:217). I wrote reflective notes after the interviews on topics and impressions that surfaced during the interviews and confirmations or contradictions of words or behaviours. The researcher's reflective journals formed part of the data collected during the study.

3.6.5 DATA MANAGEMENT

I used two electronic devices (Olympus digital voice recorder DM-450, and a Sony Xperia M4 smartphone) to record interviews. I did this to prevent accidental loss of data should the primary recording device fail. The participants' voice recordings were transferred to the hard drive of a computer that was not connected to the internet, so as to ensure participant *confidentiality*. After successful transfer, all recordings were deleted from the digital devices to prevent inadvertent access to data, because various researchers share the device for research purposes.

A language practitioner transcribed the digital recordings verbatim. This included the interviews and the one repeat interview with one participant. Both the promoter and I checked the transcripts for accuracy. The promoter was satisfied with the quality of the transcript. As I checked the transcripts, I found five words transcribed incorrectly. Transcribing interviews can take up to two weeks (Smith et al., 2009:par. 1167). I found it more valuable to spend the time listening and re-listening to the recordings than transcribing it myself. One may conclude that there is a choice between transcribing the interviews and utilising the time for data analysis. This emphasises how time consuming quality qualitative research is (Smith et al., 2009:1167). Atlas.Ti 7.5 numbers the lines of the transcripts.

The paper version of the background information, reflective journals and notes, as well as the summaries of simulation experiences, were scanned into PDF documents to ensure *confidentiality* of data. The paper documents were locked in a safe with all the other *confidential* paper documents of research data.

3.6.5.1 *Preparing data for analysis*

I used computer-assisted qualitative data-analysis software, specifically Atlas.Ti 7.5, to manage the large quantities of data, including multimedia, generated by the study. This kind of software assists the researcher to handle, organise, code, retrieve and annotate data (Schönfelder, 2011:59). The software helps a researcher to separate interview data and the researcher's impressions, explanations and descriptive interpretations (Jirwe, 2011:5). The software (Atlas.Ti 7.5) was effective in assisting the researcher to reach conclusions and make claims. The researcher could, therefore, organise arguments in a logical, justifiable and credible way without losing data (Gilgun, 2011:44-45).

3.6.5.2 *Learning about the software*

Before data-collection starts the researcher should decide how the data will be managed, and then it must be organised for analysis (Hanson, Balmer, & Giardino, 2011:380). Atlas.Ti 7.5 software makes provision for handling different kinds of documents, e.g. PDF, Word documents and multimedia files (Friese, 2015:31).

Organising data within a software program requires an organised and proficient researcher. The volume of data would probably have overwhelmed me if I had used a paper-based approach to data analysis. I attended two workshops on the use of Atlas.Ti 7.5 to enhance my proficiency with the software before data collection, and two workshops during data collection.

Knowing how the software works enabled me to plan how to collect, manage and organise the data I collected.

3.6.5.3 *The use of software*

Firstly, the original voice recording of each participant was imported into the software and could be played, paused, stopped and replayed as required (the software indicates time into the voice recording similar to the numbering system of text rows in transcripts). Secondly, transcripts, participant and researcher reflective notes and summaries of learning experiences were imported into the software. The interview transcripts of the voice recordings were linked into Atlas.Ti 7.5 and time stamped and synchronised with the voice recordings. It is possible to see the transcripts, listen to the voice recording and scrutinise data at the same time (Frieze, 2014:104). I linked each participants' interview voice recordings, transcripts, additional reflective notes and summaries of learning experiences within Atlas.Ti 7.5 in order to analyse data pertaining to a specific participant as one unit.

3.7 DATA ANALYSIS

Data analysis in IPA is a complex and time-consuming process of constant meaning-making. The data analysis involves meaning-making of a phenomenon by the participant, the researcher and the reader. The IPA method of data analysis is hermeneutic in nature and has a double hermeneutical cycle of data interpretation. The researcher presents the data according to the participant's description of a phenomenon, after which the researcher explores how the participant made meaning of the phenomenon. The researcher then makes meaning of the participant's meaning-making. Then, a reader makes meaning of the researcher's meaning-making of that of the participant (see Figure 3.3).

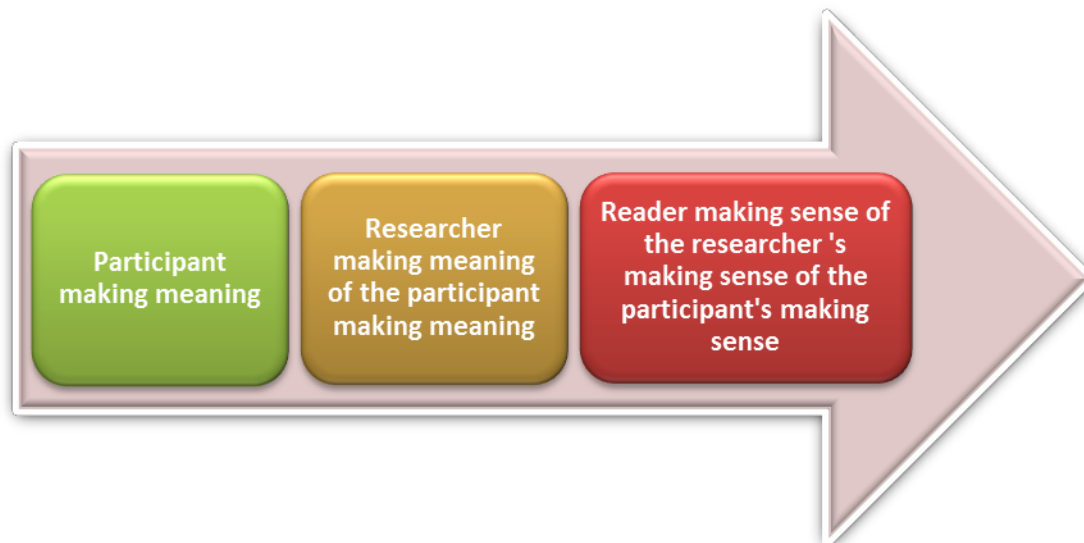


Figure 3.3: Meaning-making in IPA

As the process moves from meaning-making to interpretation the participant makes meaning of his/her experience and describes it in terms of his/her insider perspective (emic perspective). The researcher's interpretations (etic perspective) are based on the interpretations of the participants. The emic interpretation of the participant guides the interpretation of the researcher, who then interprets the participant's interpretation of experiences in the light of a framework or theory, in this case, the TLT. The systematic etic perspective preserves interpretations from being missed or discarded. This results in deeper levels of interpretation to describe a phenomenon. (Pietkiewicz & Smith, 2014:11). The process of meaning-making is described in Section 3.8.

3.7.1 Overview of the interpretative phenomenology analysis data analysis

The process of data analysis in IPA is a process of construction and deconstruction and it is cyclical (Biggerstaff & Thompson, 2008:218). Yin (2011:117) describes this process of data analysis as a five-phase cycle: (1) compiling, (2) disassembling, (3) reassembling (and arraying), (4) interpreting, and (5) concluding, which corresponds with the process of data analysis in IPA. The guidelines for data analysis in IPA are flexible and only intend to direct the process of interpretation (Pietkiewicz & Smith, 2014:1).

The process of data collection and analysis is not linear, but moves to and fro between data description, analysis and interpretation using deductive, inductive and abductive reasoning. *Inductive reasoning* notices the generalities in observations that repeat in the participants'

premises (e.g. in spring plants make flowers). *Deductive reasoning* proceeds to make predictions or reach conclusions on the grounds of observations made (e.g. plants will be flowering next year). *Abduction* involves generating new ideas or a hypothesis to explain phenomenon (Petty, Thomson, & Stew, 2012:270).

Analysis of data in qualitative research involves descriptions of structural elements indicating, 1) relationships between components, 2) the role of these components or several components, or 3) evaluating components (Gibson & Brown, 2009:3). This demonstrates the disassembling and reassembling process during data analysis. In Section 3.7.2. I describe the way I applied above-mentioned structural principles.

3.7.2 Step-by-step data analysis

Data analysis in this study proceeded progressively. Only after analysis of the data of the first interview, did I continue to interview the second participant, analyse the data and so forth. This method enabled me to improve the next interview, for example, to explore an issue that required further investigation for deeper meaning-making. Consequently, I was aware of the data that had been generated and which need more probing. When comments were not clear, I discussed and confirmed my analysis through member-checking via a phone call.

The first interview I analysed was the explorative interview. As the interview schedule was not amended after this interview, the explorative interview was also the first interview. The participant in the explorative interview received the same information as the rest of the participants, was provided written consent before the interview to be included in the study, and the interview questions were the same as for the rest of the participants.

I first analysed the data of the first interview before I conducted the second interview. Section 3.9.1 describes how I applied the guidelines for the coding and data analysis to suit this study.

3.7.2.1 Step 1: Listening and listening again

The first step recommended by most authors is that researchers first read and reread the transcripts to familiarise themselves with the data (Smith et al., 2009:par. 1743). In contrast to general practices, I did not use the transcripts for the coding process, but used the original voice recordings of the interviews, which were coded directly into Atlas.Ti 7.5. I repeatedly listened to the interviews instead of reading and rereading the transcripts. I found this auditory immersion in the data to be most useful (Pietkiewicz & Smith, 2014:12).

The repetitive listening and relistening to the voice recordings were more useful than reading and listening, because it enabled me to “replay” the recordings in my head when I reflected on the data. I am familiar with the voices of the participants, therefore listening and relistening to the recordings helped me to remember the participants’ descriptions. I also heard the tone of voice and some of the nuances in a participant’s voice, which are not detectable in transcripts. For me, listening to the electronic voice recording and linking codes directly on the electronic file provided richer data than just reading the transcripts. In addition; I also made sense of the individual participant’s experiences by reading and rereading the participants’ reflective journals and my own reflective notes on the interviews. These documents were linked in a group called a family in the software program identified by the pseudonym of each participant. Therefore, all participants’ data was linked together in one hermeneutic unit for easy interpretation.

Transcripts were imported and linked with the original voice recording through an associate manager function of the software of Atlas.Ti 7.5. This function synchronises the associated documents, like voice recording and the transcript, next to one another (Frieze, 2014:113). This ensured *rigour* of the interpretation of the data, as I could see the text and hear the voice recording at the same time to ensure consistency between transcripts and data interpretation.

In IPA, the reader should be able to understand the meaning-making of the participants. Using the voice recordings in this way made the voice of the participants accessible to the readers of the study, thus increasing the authenticity of the data and rigour of the study.

3.7.2.2 Step 2: Initial noting (quotes and codes)

Quotes are sections of the voice recordings that represent a unit of thought and capture the meaning in data (Frieze, 2014:18). Each quote has an individual identification number in Atlas.Ti 7.5 (e.g. 5:12). The first number indicates the primary document of origin and the second number the sequence of the quote within the primary document (Frieze, 2012:42). After marking the start and end of a quote electronically, I named it using prominent words that captured the meaning. Then, the quotes were coded for meaning. A code in qualitative research is a word or short phrase assigned to summarise or capture the essence of a portion of the participant words or visual image.

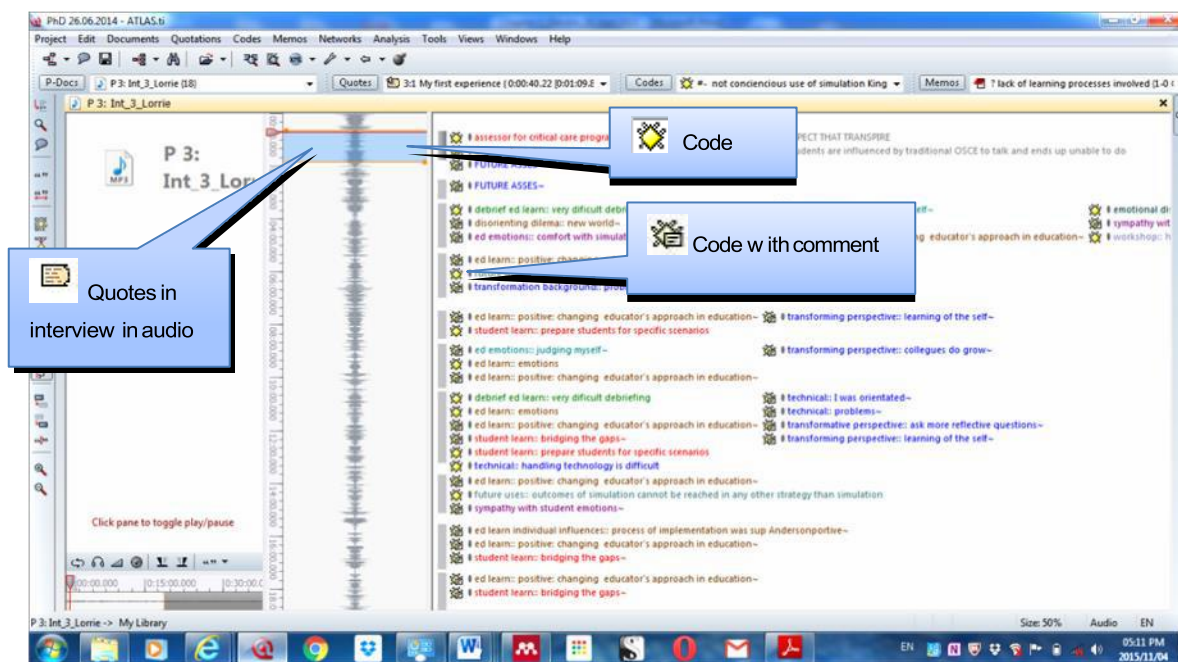


Figure 3.4: Sample of quotes, coding and comments from digital voice-recorded interviews

The first cycle of coding is *descriptive coding* (refer to Figure 3.4), where I used free- and *in vivo*-coding to describe the objects, events and experiences represented in a quote. Smith et al. (2009:par.1760) call this noting. I initially remained open minded about coding – focusing on making meaning of experiences, descriptions of relationships, processes, places, events, values and principles (Smith et al., 2009:par. 1772; Saldaña, 2009:46). Smith et al. (2009:par. 1772) recommends further cycles of *linguistic* and *conceptual* codes and *comments*. Johnny Saldaña (2009:46) lists a number of subcategories (grammatical, elemental, affective, literary and language, exploratory or procedural) one can use to analyse data while keeping in mind the research method and research.

In the second and following cycles, *values/emotions* and *linguistic/grammatical* data were coded (Smith et al., 2009:par. 1684; Saldaña, 2009:45-51). I coded values and emotions related to the effects of learning experiences. The general skill all nurse educators use regularly is language, for communication, and I therefore considered the linguistic/grammatical codes essential in this step. Linguistic comments include pronunciation, pauses, laughter, repetitions, tone, fluency and metaphors (Saldaña, 2009:46).

As the same interview questions were posed to the participants in more or less the same order, the data for the same question could be compared across the participants' descriptions. Thus, it was possible to compare similar interview quotes by participants with one another, and this provided a structure for analysis.

Capturing comments is essential in the beginning. Atlas.Ti 7.5 has a memo facility to write comments, memos or theory. The comment, memo and theory options of the software enabled me to make notes about thoughts I wanted to revisit later, define concepts (what I meant by a concept), and note concepts related to the TLT or any other theory (Smith et al., 2009:par. 1827).

I repeatedly listened to the interviews and revisited the researcher reflective notes and searched for meaning by asking myself: "What is the person trying to say?" (Smith et al., 2009:par. 1787). I also linked my personal thoughts and comments linking specific codes and quotes within the software program.¹⁰ After identifying the quotes and doing the initial coding, I revisited the codes to ensure correctness, completeness and notability (Figure 3.4).

3.7.2.3 Step 3: *Emerging categories*

Saldaña (2009:13) warns that, even though some authors suggest coding for themes, doing this may be misleading in IPA. Themes and categories are outcomes of coding, because they are secondary to data, but one should rather focus on thematic analysis (Smith et al., 2009:13).

¹⁰ Coding was a strong reflective activity and done from my personal perspective of knowledge and experiences in HFPS. As time passed, my own perspective on issues changed. For example, I knew that nurse educators experienced growth, but I initially underestimated the depth of growth nurse educators experienced.

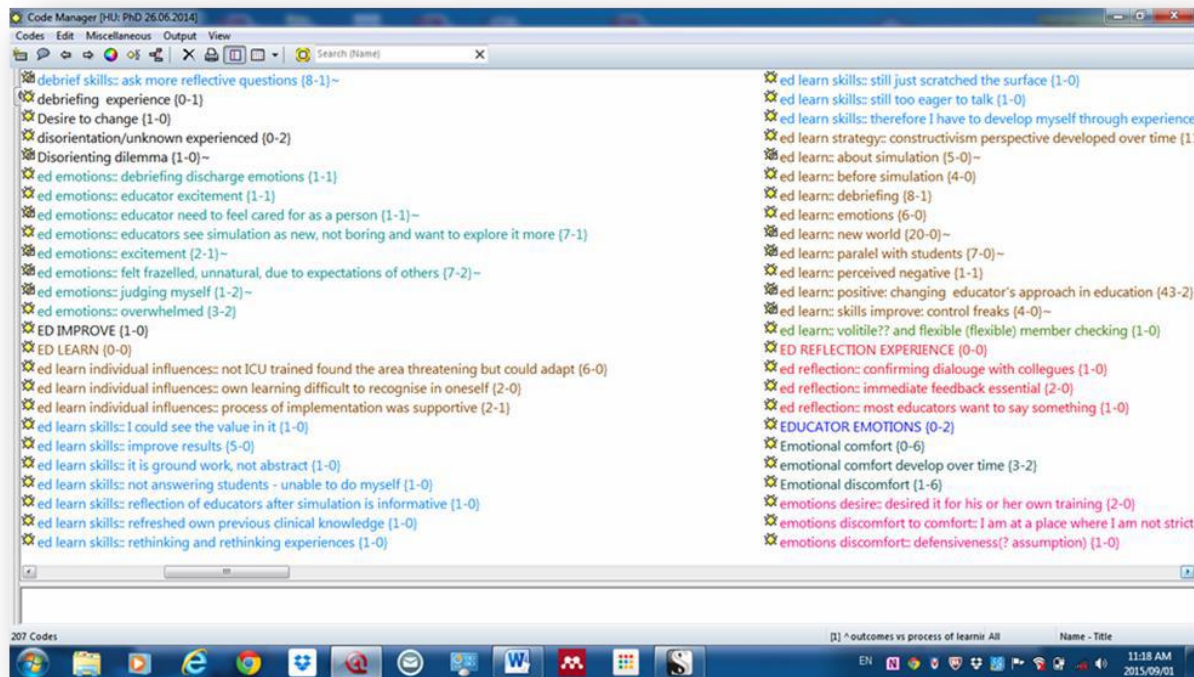


Figure 3.5: Sample of the use of colours and prefixes of categories in the code manager

In order to work towards categories, I started to group related data together. One can go about it in various ways, but I will only describe the ways I used for this study. Firstly, I grouped similar codes together by allocating the same preface. Both symbols and words, together with a double colon (:) were used, e.g. “ed learn::self” or “^ed learn::self” before the code. As Atlas.Ti 7.5 lists codes according to the preface or symbol first, these codes came together in groups. Codes in the same group were coloured the same and identified by a category name in capital letters (Frieze, 2014:48). The codes with the same colours and headings of categories in capital letters can be seen in Figure 3.5. In cases of subgroups, I made use of a single colon (:), e.g. “ed learn::self: better communication” (refer to Figure 3.5). The first number between brackets following the codes indicates “groundedness”, which is the number of times a code was repeated. The second number indicates density of the code, in other words, the number of links one code has with others (Figure 3.5).

After completing the coding of the six interviews, I generated an obviously overwhelming number of approximately 500 codes. I merged codes with similar meanings. This reduced the number of codes to a data set of approximately 250 codes.

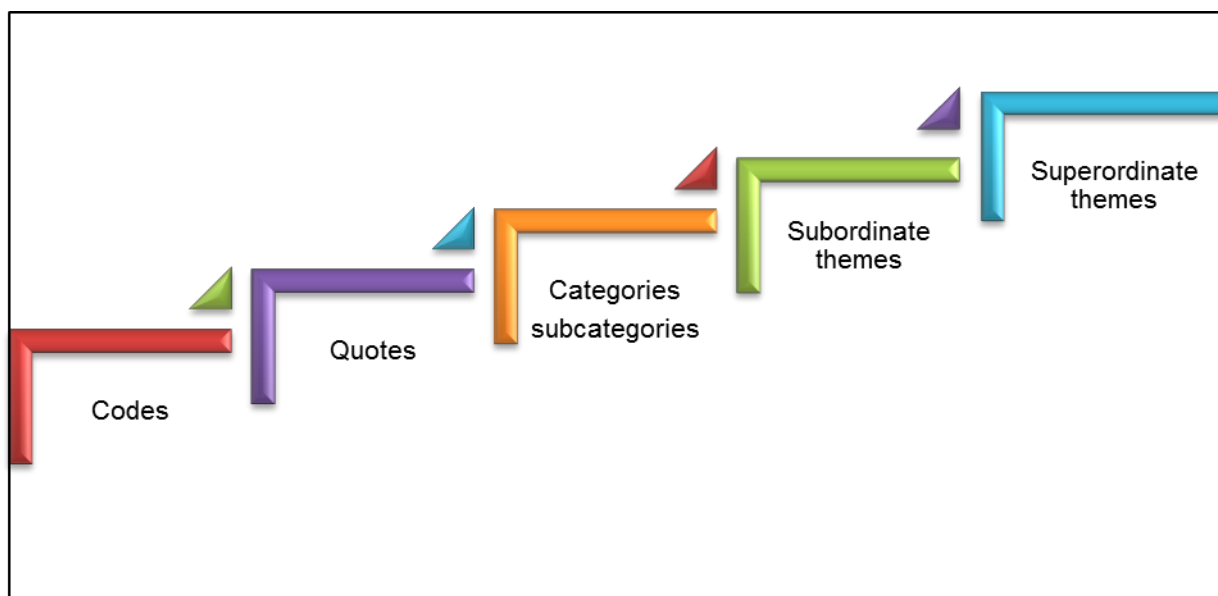


Figure 3.6: Hierarchy of data analysis according to Atlas.Ti 7.5

Figure 3.6 shows the hierarchy of data analysis in this study. The categories and subcategories were grouped under one heading (Saldaña, 2009:9). As I worked from codes towards creating superordinate themes, the groups initially seemed fragmented, but eventually the parts came together in superordinate themes (Smith et al., 2009:par. 1891).

3.7.2.4 Step 4: Searching for connections across categories

The categories and subcategories came together into themes and, eventually, superordinate themes emerged (refer to Figure 3.6 and Figure 3.7).¹¹ The word *families* in Atlas.Ti 7.5 software is similar to the concept of *themes* or even categories in qualitative data analysis, and can be seen on the left-hand side of Figure 3.7. Families can be used to cluster codes, categories and themes with similar attributes or variables together (Friese, 2014:19). The first set of themes that emerged came from the data that contributed to the framework as described in Chapter 5.

¹¹ These diagrams are not intended for deep analysis, but are presented as examples of the analysis process. The data will be described in detail in Chapter 4.

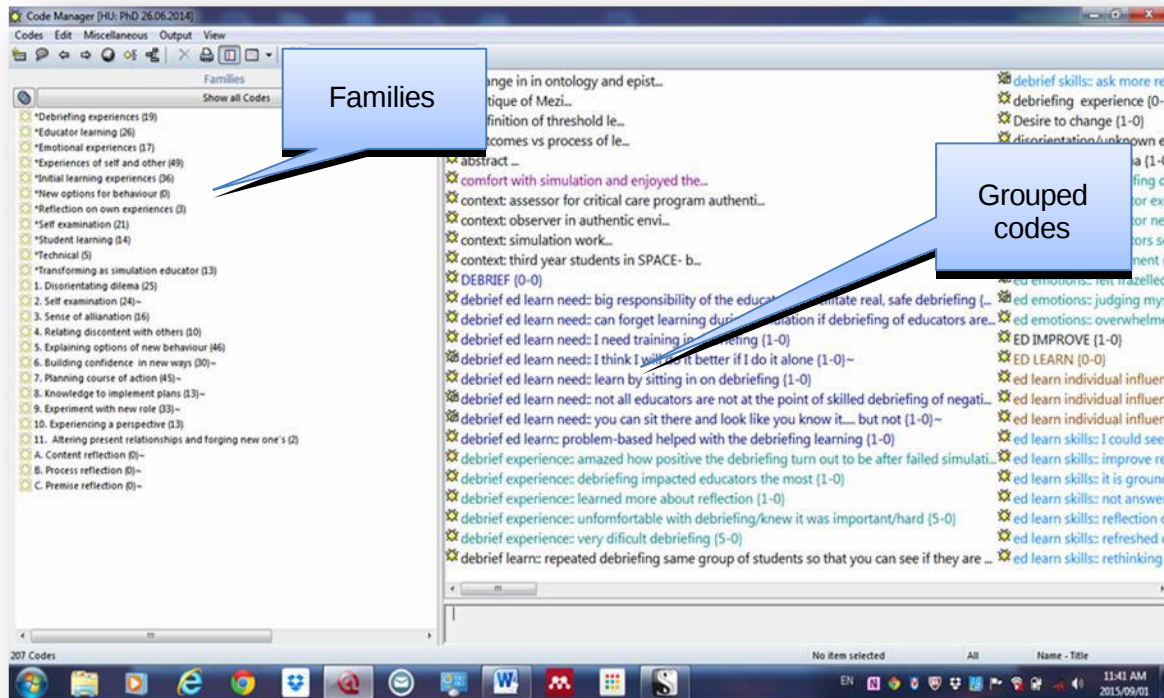


Figure 3.7: Codes, categories and family codes

The network functionality in Atlas.Ti 7.5 visualises the relationships between data categories. I could reorganise and move data around in the network view. This helped to make sense of connections and patterns (Smith et al., 2009:par. 1880). The codes, families and networks remain closely tied to the original voice recording and could be accessed directly with mere a click of the mouse (Smit, 2009:par. 1887).

The software enabled me to hear the participant's voice, as the coding and the raw data are linked. Therefore, an electronic hyperlink exists between the interpretation of data and the original words of the participant. Any data or interpretation can be verified. This function is also applicable to codes, quotes, categories (families of codes), subordinate and superordinate themes. The software enabled me to access the original audio recording directly from interpreted data.

The screenshot shows the 'Code Manager' window with a list of codes and their frequencies. The window has a menu bar (Codes, Edit, Miscellaneous, Output, View) and a search bar. On the left, there is a 'Families' list with expandable categories. The main area displays a table of codes with columns for Name, Grounded, Density, Author, and Create.

Name	Grounded	Density	Author	Create
^change in in ontology and epistemology	1	0	Super	2015/.
^Critique of Mezirow	1	0	Super	2015/.
^Definition of threshold learning	1	0	Super	2015/.
^outcomes vs process of learning	1	0	Super	2015/.
abstract	30	0	Super	2015/.
comfort with simulation and enjoyed the experience	2	7	Super	2015/.
context: assessor for critical care program authentic environment	1	0	Super	2015/.
context: observer in authentic environment	1	0	Super	2015/.
context: simulation workshop	1	1	Super	2015/.
context: third year students in SPACE- burn injuries	4	0	Super	2015/.
DEBRIEF	0	0	Super	2015/.
debrief ed learn need: big responsibility of the educator to facilitate real, safe debriefing	1	0	Super	2015/.
debrief ed learn need: can forget learning during simulation if debriefing of educators a...	1	0	Super	2015/.
debrief ed learn need: I need training in debriefing	1	0	Super	2015/.
debrief ed learn need: I think I will do it better if I do it alone~	1	0	Super	2014/.
debrief ed learn need: learn by sitting in on debriefing	1	0	Super	2015/.

At the bottom left, it says '207 Codes'. At the bottom right, it says 'No item selected' and 'All Name - Title'.

Figure 3.8: Numbering of codes and categories

The importance of a code or a family is indicated by the number of times the code was assigned (those indicated in brackets after the family name). Smith et al. (2009:par. 1969) call this “numeration” (see Figure: 3.8). However, I kept an open mind regarding the numeration of codes, as only seven participants contributed to the data and each was at a different stage of developing their simulation skills.

Regarding analysis of data, Smith et al. (2009:par. 1930) explain that: “Abstraction is a basic form of identifying patterns between emergent themes and developing a sense of what can be called a ‘super-ordinate’ theme”. I generally used abstraction to match categories. Organising the analysis process is not prescriptive or rigid in IPA, instead, it is up to the researcher to explore and use an array of strategies. There are a number of analytic processes in qualitative research, such as subsumption (the category is of a higher status), polarisation (opposites) and contextual themes (Smith et al., 2009:par. 1938-1957).

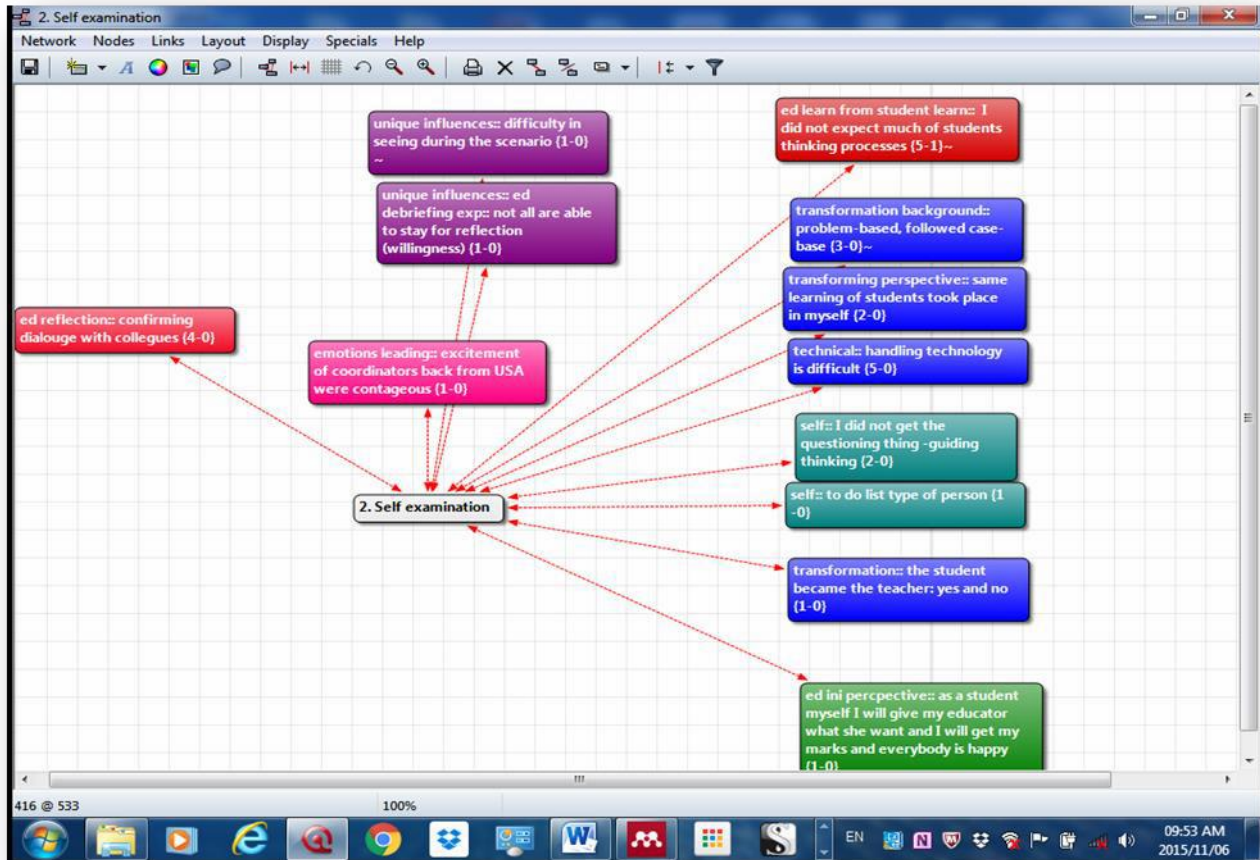


Figure 3.9: Patterns of interaction, interplay and interrelationships

I examined categories for patterns of *interaction*, *interplay* and *interrelationships*. *Interaction* refers to reverberation, which indicates how one or more categories might influence and affect the others, how categories operate concurrently, or whether there is a kind of a domino effect (Saldaña, 2011:1041). *Interplay* refers to the structural and procedural nature of categories in a sequential order, hierarchy, and taxonomy or intersections. Both interplay and interaction imply that there is an *interrelationship* (Saldaña, 2011:1034) (refer to Figure 3.8). The network function in Atlas.Ti 7.5 is a tool for exposing these patterns (refer to Figure 3.9). Smith and his colleagues recommend printing lists of categories with their codes and arranging it on a large space (Smith et al., 2009:par. 1925). Instead, I used the network facility in Atlas.Ti 7.5 to move these categories around to identify patterns and connections.

3.7.2.5 Step 5: Moving to the next case and clustering of cases

Each participant's data was grouped together in a family to give justice to his/her unique contribution. Eventually data of all the participants was compared across the interviews. I revisited categories and themes in tables and in networks to reframe data (Pietkiewicz & Smith, 2014:13). During this step, I came to recognise the ideographic nature of participants' experiences, and discuss it in Section 4.3.

Following initial analysis of the data provided by individual participants, all the participants' data was compared for correlation purposes. If data of an interview did not fit the rest of the emerging picture, or if contradictions arose, I listened to the audio recordings of all the interviews again, searching for correlations missed during the first round of coding. Searching for consensus from all the interviews was not the central purpose, however, I could have missed similar data during the first round of analysis. If there was no match, I analysed it as idiographic in nature.

I contacted participants during the analysis phase to clarify the meaning if, what the participant had said was not clear (member-checking) (Larkin et al., 2006:115). During the data-analysis phase, I used member-checking to clarify unclear meanings in order to ensure that the "right" interpretation transpired (McConnell-Henry, Chapman, & Francis, 2011:30).

The completeness of data was audited. Reaching consensus or co-coding is not a requirement in IPA (Pringle et al., 2011:21). Therefore, one promoter audited the data analysis of findings. Both promoters audited the interpretation of the data. It is also possible for different researchers to come to different conclusions about the same data from different perspectives (Eskandari, Simbar, Vadadhir, & Baghestani, 2016:141; Larkin & Thompson, 2012:112). The idiographic nature of data analysis allows for a range of perceptions and views.

3.8 ETHICAL CONSIDERATIONS AND PARTICIPANT PROTECTION

Ethical considerations and participant protection in this study focused on protection, institutional ethical approval, permission, and individual ethical commitments.

3.8.1 PROTECTION

Ethics in qualitative research is a dynamic process that needs monitoring throughout data-collection, data-analysis (Smith et al., 2009:par. 1117) and reporting phases. Ethics in

qualitative research refers to mutual respect between the researcher, who desires to obtain valid results, a participant, who is pleased to respond, and the community, which considers the conclusion as beneficial (Miller & Brewer, 2003:95). Therefore, the researcher has to weigh what is good and what is bad throughout the study and “do no harm” (Burton & Bartlett, 2009:31). In order to adhere to ethical requirements, the following aspects will be described: institutional ethical approval and permission, and individual ethical commitments.

The Belmont Report served as a foundation for the ethical principles applied in this study (Appendix 3.1). The main focus of ethics is “to do no harm” (Boor & Wood, 2006:68).

3.8.2 INSTITUTIONAL ETHICAL APPROVAL AND PERMISSION

Ethics are the general rules and methods that reflect morality in research (Mauthner, Birch, Jessop, & Miller, 2002:14). The Belmont Report (Appendix 3.1) is a general guideline for conducting research. The three intentions of the Belmont Report are to pursue respect for human dignity including promoting autonomy (freedom and self-determination) and providing protection from harm; individual and social beneficence (doing good); and justice (fairness) (Boor & Wood, 2006:68).

The study complied with the ethical standards and requirements of the local university. Firstly, the Ethics Committee of the Faculty of Health Sciences approved the proposal and provided institutional approval and permission (Appendices 3.2 and 3.3), approved the information leaflet for participants (Appendix 3.4) and the consent document (Appendix 3.5). The documents explain the purpose and procedures of the study and the contributions of participants.

When staff participates in research the university’s management requires the researcher to obtain institutional permission from the dean of the Faculty of Health Sciences, the head of the school and the vice-rector (Research). Respecting the institution and the participants, I was mindful of the fact that the participants were not only my colleagues, but also employees of the institution. My roles in the Faculty of Health Sciences were those of a researcher and the coordinator of the HFPS.

I had to be mindful of ethical principles related to both roles (Creswell, 2014:187). I started to build a professional relationship with the nurse educators I, as the coordinator, had to train. This included the participants in this study and, eventually, also the researcher. My professional behaviour ensured honesty and mutual respect for participants and, at the same time, built rapport even before the study was conducted. The researcher and participants’ trusting

relationship was important, because participants could share sensitive information during the interviews. I kept participants' identifiable information *confidential* and did not report on embarrassing discussions during the study. Pseudonyms were used to protect the participants' identities (Smith et al., 2009:par. 1122).

3.8.3 INDIVIDUAL ETHICAL COMMITMENTS

Individual ethical commitments include informed consent, privacy and namelessness, confidentiality during data collection and analysis, autonomy, right to self-determination and full disclosure, beneficence, non-maleficence, justice and values.

3.8.3.1 *Informed consent*

I invited prospective participants either face-to-face or telephonically. I explained the purpose of study to them, and invited them to participate. Prospective participants who met the inclusion criteria for the study and were considered able to provide rich information regarding their experiences, all keenly volunteered to participate. A suitable time was scheduled. A week before the scheduled date of the interview, prospective participants were provided with a copy of the consent document (Annexure 3.5) and the information leaflet (Annexure 3.4), demographical (Annexure 4.1) and the interview schedule document. Before the interview I also answered any questions they posed and explained that participation would be voluntary.

On the day of the interview the participants signed the consent form and confidentiality agreement. Before each interview, we discussed the purpose of the study and I answered any questions as the need arose. I explained how the data would be used in the report and future publications and academic proceedings, and I answered any questions (Smith et al., 2009:par. 1732).

The content of the information leaflet, the consent form and confidentiality agreement were adapted for this specific study. Participants had the right to refuse to participate and they understood that participation was voluntary. Participants were not coerced to participate in the study. I informed each participant that verbatim content of the interviews and other data collected could form part of future presentations and publications.

3.8.3.2 *Privacy and namelessness*

I was familiar with the participants and therefore they were not anonymous to the researcher. Consequently, privacy and namelessness were maintained throughout all phases of the study. I ensured namelessness and safety of raw data management (Stake, 2010). Only the research team had access to the raw data. The research team, including the promoter, co-promoter, transcriber and examiners, had access to the electronic version of the raw and identifiable data (Creswell, 2014:99).

I replaced participants' names with random pseudonyms on both the paper and electronic documents (Smith et al., 2009:par. 1126). Information divulged during the interviews that could possibly harm an individual or institution was not included in the data set (Lavrakas, 2008:111, 157). For assessment of the study, institutions' names were blacked out on letterheads to avoid a connection between the names and the data (Burton & Bartlett, 2009:32; Smith et al., 2009:par. 1732).

3.8.3.3 *Confidentiality during data collection and analysis*

Confidentiality was maintained by protecting collected data from being accessed by anyone not directly involved in the study. I locked the digital recorder, background information and academic data, copies of the reflective journals, summaries of the learning experiences of participants and the transcripts, in a safe at my house. The administrative documents, such as the ethical clearance, approval documents and researcher reflective notes were also locked in the safe. Most of the work on the study took place at home and no unauthorised person could access data. Electronic data of the study was stored on an offline computer that was password protected and which was only accessible to the researcher (Lavrakas, 2008:131).

3.8.3.4 *Autonomy, right to self-determination and full disclosure*

Autonomy, right to self-determination and full disclosure were upheld by providing each participant with transparent and sufficient information to make an informed decision about participating and continuing in the research (Hewitt, 2007:1152; Mauthner et al., 2002:43). The researcher provided potential participants with the interview schedule before consent was given and the participants could prepare themselves for the interview and make a decision regarding their willingness to participate or not.

Participants had the right to withdraw at any time during the study (except after final reports had been compiled) (Smith et al., 2009:par. 1138). I committed myself to avoid coercing anyone to participate in the study and I guarded against providing misleading information that could influence participants (Willig, 2013:96). Participants understood that they could be contacted after the interview to clarify data through member-checking.

3.8.3.5 *Beneficence*

Beneficence was not applicable in the traditional sense of intervention or treatment, as this study did not involve an intervention (Royal College of Nursing, 2009:4). The participants voiced their willingness and excitement about contributing by sharing their perspectives and experiences for the benefit of others involved in HFPS. Participants themselves could benefit from the findings by improving their simulation practices (Willig, 2013:166).

3.8.3.6 *Non-maleficence*

Non-maleficence in this study did not relate to interventions, as no intervention, as is periodically the case in quantitative research, was undertaken (Schutt, 2012:72). I took all necessary steps to prevent unintentional harm by paying close attention to the participants' physical and facial responses, which could indicate possible distress during the interview. I formulated questions in a sensitive and tactful way (Lavrakas, 2008:157). I was mindful of the sensitive nature of disclosed personal experiences. I avoided sensitive topics and direct questions, such as, "What mistakes did you make during simulations?" I provided the participants the opportunity to describe their personal failures only when they initiated the topic themselves. During the interview, my aim was to be respectful, supportive and non-judgmental by focusing on what they had learned and how they evaluated their own performances.

3.8.3.7 *Justice*

Justice requires equal treatment of all participants. As participant selection is purposeful, favouritism does not apply. Nevertheless, I treated all participants in an equal and respectful manner (Polit & Beck, 2017: 141; Mauthner et al., 2002:20). I was fair towards all participants and respected their positions as nurse educators, colleagues and leaders in their own right.

3.8.3.8 Values

There is a fair amount of debate amongst qualitative researchers regarding the importance of and differences between ethics, values, virtues and trustworthiness (Yin, 2011:270; Stake, 2010:200; Macfarlane, 2010:23). My understanding of the debate is that values are the lenses we use to investigate a topic. Everybody has values and no situation is without values. Qualitative research is viewed through different lenses and therefore awareness of what one's values are during research plays important roles in interpretations (Creswell, 2014:187).

The values I was committed to directed the manner in which I gathered and organised data. My values were to be accurate, sensitive and respectful towards the data and participants. Values affected each phase of the research process. Adhering to these values supported systematic and rigorous data collection, analysis and interpretation and presentation of the findings. While I interpreted data, I attempted to be creative, to reflect critically and to explore deep conceptual contemplations (Macfarlane, 2010:26). I valued adhering to the methodology of IPA, trustworthiness, and the values and ethics of this study, and I adhered to the various requirements set out in the literature.

3.9 TRUSTWORTHINESS OR RIGOUR

Qualitative methodologies are expanding, as different topics for research are viewed from different epistemological points of view. The focus of qualitative research is developing a deeper understanding of a phenomenon. In contrast to quantitative research methods, which aim to achieve a broader understanding of a topic, the focus of qualitative research is on quality of data collection (Pietkiewicz & Smith, 2014:7). The term for rigour most often used in qualitative research is trustworthiness and this word reflects the accuracy and appropriateness of the data collection and analysis processes (Rodham et al., 2015:60; Flick, 2009:361; Smith et al., 2009:par. 3509). According to Smith et al. (2009:par. 361) there is growing dissatisfaction about the application of quantitative research's principles of validity and reliability to qualitative research. The traditional ways of establishing the quality of qualitative research comprise a broad range of criteria – these criteria are presented in Table 3.2. The table is not comprehensive, as the criteria were adapted as new methodologies were developed and discussed from the context of this study.

Good qualitative studies are referred to as trustworthy research. Credibility, dependability, conformability, transferability and authenticity are qualities of trustworthiness and the general

terms referred to in qualitative research. These traditional requirements are a tight fit for new methodologies, such as IPA. Table 3.2 depicts these traditional concerns to ensure quality in qualitative research. The table defines and specifies how steps were taken to assure adherence to trustworthiness in this study.

Table 3.2: Traditional description of trustworthiness

Criteria	Description in this study
Credibility	In this study credibility of data and interpretations represent confidence that truth is being portrayed. Credibility leads to authentic findings Polit & Beck 2017:724; Henn, Weinstein, & Foard, 2006:58). Comprehensiveness and transparency described in the study contribute to credibility. To accomplish credibility, a deep understanding is required and the researcher gained it through prolonged engagement with the data. Direct access to the digital files of the interviews and a step-by-step description of the data analysis and interpretation ensure the credibility of data in this study. Other credibility strategies incorporated in the study were purposeful sampling, including investigating both negative cases and disconfirming evidence, member-checking and auditing. Various data-collection strategies were used to support major findings in the study. Comprehensive and transparent reports ensured credibility. A good rapport with participants and openness during interviews further enhanced credibility
Dependability	Dependability is confidence in the stability of data over time and conditions. Accurate recording of interviews, participant reflective journals, and descriptions of experiences ensure dependability (Polit & Beck, 2017: 217; Law, Harper, & Marcus, 2003:459). I prepared myself with regard to the skills required for interviewing in order to collect in-depth data for the study. The study offered a clear and explicit audit trail of raw data, the coding, themes and categories derived, conclusions made, interpretations of data and the resulting model/theory developed. Categories and themes derived are traceable for auditing purposes. The analysis and interpretation of data were transparent and were audited by the promoter. Measures were taken to safeguard electronic data and the coding of interviews. The software was ideal to provide an audit trail. I stored all records securely in a locked safe.

Confirmability	Confirmability (neutrality) is established when participants and experts agree with the researcher's interpretation and conclusions (Mustafa, 2011:27). Confirmability refers to the degree of agreement between two or more people about the accuracy, meaning and relevance of data. Interviews were done by means of a semi-structured schedule and data collection focused on the research questions of the study. Vignettes from interviews provide a good description of the content of the interviews. Codes, comments, memos and networks of Atlas.Ti 7.5 record the way I made deductions. The unedited digital audio recordings of the interviews are directly accessible in Atlas.Ti 7.5 and attached to the study in DVD format. In addition, I clarified unclear comments through member-checking with the participants.
Transferability	Transferability is similar to generalisability. The findings of this study may be different if performed in another simulation or setting, for which the context and procedures maybe different. Therefore, the research methodology is described clearly for replication purposes (Polit & Beck, 2010:1452). In the study, transferability or generalisability are not claimed, as the findings are strongly influenced by the context of the study.
Authenticity	Authenticity relates to the extent to which the researcher is able to show a range of realities through interpretations (White, 2011:140). During the interpretation of the data, I consciously sought out unique features that could contribute to the construction of concepts, and frames of reference that could benefit HFPS practices and future research in HFPS.

(Compiled from Mustafa, 2011:27; White, 2011:140; Polit & Beck, 2010:1452; Henn, Weinstein, & Foard, 2006:58)

Mason (2012, cited by Rodham et al., 2015:60), after a long debate among scholars in qualitative research as to what trustworthiness involves, concluded as follows:

Data generation and analysis cannot only be appropriate to the research questions, but also thorough, careful, honest and accurate (as distinct from true or correct – terms which many qualitative researchers would, of course, wish to reject). At the very least this means that you must satisfy yourself and others that you have not invented or misrepresented your data or been careless and slipshod in your recoding and analysis of data.

A number of attempts were made to establish a comprehensive set of criteria, but Smith and his colleagues recommend the use of Yardley's criteria (Rodham et al., 2015:60; Smith et al., 2009:par. 3613; Yardley, 2000: 219-224). I list the application of Yardley's criteria to this study in Table 3.3. Her foci are *sensitivity to context*, *commitment and rigour*, *transparency and coherence* and *impact and importance*. In this section, I explained the intertwined nature of values, ethics and good honest research. No one set of criteria can ensure a "one size fits all approach". The table is not exhaustive – these issues have been discussed in the text and the table only presents a condensed version of the whole study in one view.

Table 3.3: Yardley’s criteria for good qualitative research applied to this study

Phase of research	Description of quality	Strategies
Research design	Impact and importance	The study applied the established methodology of IPA.
	Characteristics of good qualitative research	Purposeful sampling of participants provided a deep and rich description of experiences and the implementation of HFPS. Participants are sources of data, but also nurse educators developing their skills in simulation. Data-collection strategies selected (as described in Section 3.6) to ensure dependability of the data: • Semi-structured interviews; • Participants’ reflective journals; • Researcher reflective notes; and • Data.
	The degree to which the findings enriched the theoretical and practical field of this study, and simulation community	Member-checking to ensure accurate interpretations. Data reached saturation (theoretical sampling). The research question is significant in the field of HFPS, providing understanding of learning experiences of nurse educators who implemented simulation successfully for the first time. Can complement or contribute to other qualitative and quantitative studies. Different methodology used like (IPA) may widen perspectives in the field of simulation research. Use of a number of relatively new software programs, Atlas.Ti 7.5, Mendeley, and Scrivener. HFPS is a learning strategy new in South Africa and findings of this study may promote its implementation. Future preparation of nurse educators using HFPS may be enhanced. The application of TLT to HFPS is new to simulation and this study indicated the importance of this perspective in learning through simulation.

Phase of research	Description of quality	Strategies
Data collection	Sensitivity to context	Thorough literature of the TLT and learning of nurse educators.
	Context considers the theory and previous investigators	A thorough literature review of the underpinning philosophy of IPA research was performed and applied, guidelines applied required by the design. In-depth literature review of transformative learning and applied in study.
	Sensitivity to data	Did not discriminate against data if it did not match rest of data set, but acknowledged it instead. Respect for participants' contribution to the study, even if it contradicts my personal view. Participants are at different levels of a learning process. Therefore, the researcher was careful not to make
	Sensitivity regarding participants	Establish a rapport with participants by being friendly and interested in what they were saying. Kept the power balance neutral between researcher and participant.

Phase of research	Description of quality	Strategies
Data analysis	Commitment and rigour	A deep understanding was gained through prolonged engagement with the data. I spent four years developing fellow nurse educators and myself in simulation. I spent a year full time collecting, analysing and writing up the study.
	In-depth engagement with the topic being researched	I took great care in recruiting participants who would contribute to the aim of the study. I aimed to describe the experiences of participants comprehensively and to be transparent regarding the research processes (Rodham et al., 2015:61). Conformability was ensured by taking researcher reflective notes and audio recording interviews.
	Methodological skills	A clear and explicit electronic audit trail of raw data, the coding, themes and categories derived at, conclusions made, interpretations of data and resulting findings.
	Thorough data collection	I used a number of data-collection strategies to support or contradict the major findings of the study. Categories and themes derived at are traceable. I used electronic software to manage the data, analyse data, and make notes, reminders and comments. Transferability is determined by providing rich, transparent and contextualised analysis of the accounts of participants. A language practitioner produced transcripts from original audio recordings. <i>Complete, fair, empirically accurate, value-added, credible.</i> Inductive and deductive interpretations were described in a clear and transparent manner to indicate variations and complexities. I ensured correct and complete interpretation of data through member- checking in cases where comments were not clear. I used prolonged contemplation to consider and theorise about the links and associations between data.

Phase of research	Description of quality	Strategies
		The credibility of the data and interpretations of this study represent confidence that the truth is portrayed. Credibility leads to authentic findings in the study. Triangulation of the different data-gathering strategies contributed to Credibility (Willig, 2013:494). However, idiographic variations have been presented too.
	Depth/breadth of analysis	Analysis and interpretation are transparent and were audited by two promoters. A data audit trail of interpretations can be traced in the software throughout the study. Random auditing ensured trustworthiness. The promoter of the researcher was the auditor. Ensured good understanding of methodology. Read the manual on IPA, article about IPA and studies using IPA as a methodology (articles and PhD dissertations).
Data protection	Safety and respect Participants and their contributions were protected and respected	Data was saved in electronic format so as not to lose important data. Daily backups were made. I found software ideal to assist with audit trail. I locked all paper records in a safe.
Data presentation	Transparency and coherence The clarity in description of the phases throughout the research processes	Data collection, coding and analysis are described clearly. Transparency was adhered to in such a way that other researchers maybe able to follow the same process and come to the same conclusions. Coherence refers to the connection between research questions, investigation and analysis methods and arguments presented. The report of a study should indicate the voice of the participant explaining the understanding of his/her experiences. Presentations of findings were done close to the data, supported by literature and clear arguments. I was reflexive in revealing my thoughts and arguments as recorded in my own journal. My purpose was to describe the experiences of participants comprehensively, and to be transparent regarding the research processes that were followed (Rodham et al. 2015).

The trustworthiness of each step in IPA methodology contributes to the quality and scientific integrity of this research. The process is a conscious and systematic approach towards

analysis and interpretation of data (Rodham et al., 2013:60). Having read the publications of a number of authors regarding trustworthiness, I found a variety of references to this matter. The terminology is not consistent and the issues that receive attention depend on the epistemological background of the authors. Yardley's criteria present a logical system to ensure trustworthiness that I consider important for this study.

IPA requires a researcher to use specific methods to collect and analyse data. Data-collection strategies must deliver a rich, naturalistic, detailed, first-person account of participants' experiences. Three methods of data-collection are recommended: semi-structured interviews, participants' reflective journals and field notes (Burton & Bartlett, 2009:199) – these three approaches were used in this study.

In this study, I was guided by these guidelines, but not limited to them (Smith & Firth, 2011: 50-56; Smith et al., 2009:par. 85-105). Making sense of data is a process of gaining familiarity with the data itself. I was careful not to stop short of deep interpretation of data. Therefore, I familiarised myself thoroughly with the data, which is an essential element of strong analysis.

I interpreted the findings as close as possible to the participants' descriptions, but as the research progressed, the TLT was considered as a possible framework. In IPA, the researcher considered theoretical transferability rather than empirical generalisability (Pringle et al., 2011a:21).

According to Smith et al. (2009:par. 1171) the IPA researcher requires the following qualities: "open mindedness; flexibility; patience; empathy; and the willingness to enter into, and respond to, the participant's world". Investigations beginning from an IPA perspective should follow these principles wherever possible.

3.10 SUMMARY

This chapter covered the research methodology of the study. The context of the study, research questions, research method, population and unit of analysis, data collection, data analysis, ethical considerations, participant protection and trustworthiness are described in full. Chapter 4 describes the research analysis and results.

CHAPTER 4: RESEARCH ANALYSIS AND FINDINGS

When I do it correctly; I gain experience. When I do it poorly; wisdom. Mistakes are the portals of discovery. (James Joyce)

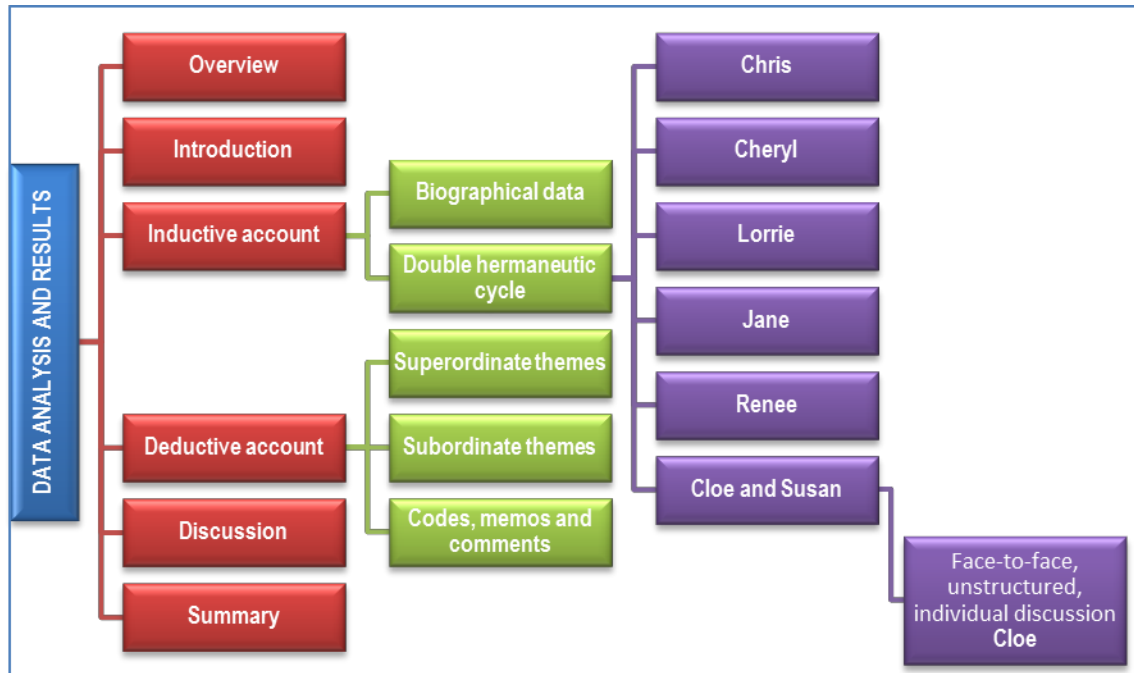


Figure 4.1: Overview of Chapter 4

4.1 INTRODUCTION

The IPA research methodology aims to provide a detailed description of a personal lived experience (Pietkiewicz & Smith, 2014:11; Cooper et al., 2012:5; Biggerstaff & Thompson, 2008:217). The research question about the personal lived experience under exploration is, “How do nurse educators, new at implementing HFPS, experience their learning, from a TLT perspective, at a school of nursing at a university in South Africa.”¹²

IPA researchers answer research questions through immersing themselves in the data. Through repeated exposure to data, the researcher makes sense of the participant making sense of the experience under investigation. The researcher then provides a transparent

¹² Nursing education in a developing country are less infused with the use of technology than in developed countries. HFPS is a brand new strategy in nursing education in South Africa and basic support system for implementation were not in place. Support systems include technological support, experienced leadership, and supplier with the knowhow of constructing and implementing HFPS environments, training and maintenance.

account of how he or she made sense of the participant making sense (Smith & Osborn, 2015:41). The purpose of this chapter is to lay the foundation for answering the research question of the study. An inductive account describes a participant's meaning-making of his/her experiences. The deductive account represents the researcher making meaning of the participants' meaning-making of their experiences.

Chapter 5 will discuss the deep deductive interpretation in the light of the TLT and findings of various primary studies reporting on the learning experiences of nurse educators implementing HFPS.

4.2 DATA ANALYSIS AND INTERPRETATION

IPA is not dogmatic about data analysis and interpretation, but provides a flexible framework for the analytical process (Pietkiewicz & Smith, 2014:11; Cooper et al., 2012:5; Biggerstaff & Thompson, 2008:217). The present study followed the general guidelines, processes and principles described in Chapter 3.

IPA is characterised by different levels of interpretation, moving from a micro- to a macro-analysis of data, presented in an iterative account (Pietkiewicz & Smith, 2014:13). Chapter 4 describes the inductive account (from a micro level upwards) of each participant, and includes biographical information, background experiences as clinical nurse and nurse educator, and a narrative of their experiences.

In contrast, the deductive account moves from the macro level downwards; themes are more researcher-driven and influenced by theoretical or analytical interests in a topic (Braun & Clarke, 2006:89). The deductive process is more analytical in nature. In IPA, the interpretations of data represent the interplay of inductive and deductive approaches (Callary et al., 2015:64).

4.3 INDUCTIVE ACCOUNT

The inductive account consists of themes derived from close to the data. Data and themes are closely analysed. In IPA, data is derived from a homogenous group of three to four participants who are able to provide an in-depth understanding of the phenomenon being represented (Smith et al., 2009:par. 1638). A variety of data-collection strategies were used to obtain data from participants: semi-structured and face-to-face interviews, reflective journals of participants, summaries of the learning experiences of seven participants and the researcher's reflective notes written after interviews.

The IPA research approach is based on three theoretical foundations. The phenomenological perspective uncovers experiences of participants. The hermeneutic perspective refers to the meaning-making of individuals and is therefore interpretive in nature. *Hermeneutics* is therefore the interpretation of the whole while one studies the parts, and to interpret the parts one has to study the whole (Smith et al., 2009:par. 570). The hermeneutic cycle requires tentative reflection regarding preconceptions and new understandings that develop from reflection on experiences.

Two hermeneutic cycles describe the inductive interpretation of the data: first, the participants making sense of their experiences, and second, the way I (the researcher) made sense of the participants making sense (Callary et al., 2015:64). In order to ensure clarity, I aimed to present an honest representation of the sense-making process to a reader interpreting the experiences of both the participant and the researcher. The inductive description is a result of repeated close listening to interviews, supplemented by member-checking when needed, reflective journals and summaries of experiences of learning about HFPS. Transcripts of the interview were scrutinised alongside the electronic audio files. Mainly through repeatedly listening to the interviews I gained an understanding of each participant's claims and concerns.

Participants' different educational and clinical backgrounds, personalities and the different modules they present, reflect the idiographic understandings of each individual's experiences. In order to preserve the participants' *idiographic* understanding, I will present an inductive summary of their backgrounds, the interviews and the researcher's reflective notes on the interview. The audio and full verbatim transcripts of each participant were linked into AtlasTi 7.5 software as primary documents (called AtlasTi copy bundle). The participants' sense-making of experiences (first hermeneutic cycle) are printed in black and **the blue sections represent the researcher making sense** of the participant's sense-making (second hermeneutic cycle). As required by the methodology, the presentation of data starts with individual parts of data, moving on to the whole (Smith et al., 2009:par. 2038). The inductive accounts include the demographic information provided before the interviews (Appendix 4.1) or during individual and dyadic interviews, participants' reflective journal entries, the researcher's reflection notes made after interviews and the summaries of experiences.

4.4 BACKGROUND INFORMATION OF PARTICIPANTS

Pseudonyms replaced participants' names to protect their identities; however, someone acquainted with the research site might deduce who participated in the study. In the description

that follows in [Sections 4.4.2 and 4.4.3](#), I committed to a truthful report on data and refrained from portraying participants in a negative manner, while presenting a true representation of the data. Participants' pseudonyms and summaries of their professional backgrounds are listed in Table 4.1.

Table 4.1: Background information of participants

Name	Age (years)	Gender	Highest degree	Additional diplomas	Attended workshop	Number of simulations	Years of clinical experience	Years of educational experience	Clinical background
Chris	20-29	M	B.Soc.Sc (Nursing)	Nursing education	√	100+	1-5	1-5	Part-time critical care nursing
Cheryl	30-39	F	Advanced Baccalaureus (Nursing)	Nursing education	X	6-10	6-10	1-5	Critical care nursing Project manager
Lorrie	40-49	F	B.Soc.Sc (Nursing)	Critical care nursing Nursing education	√	11-15	15+	1-5	Critical care nursing
Jane	60-69	F	B.Soc.Sc (Nursing)	Nursing education	X	11-15	15+	15+	Orthopaedic care nursing
Renee	40-49	F	B.Soc.Sc (Nursing)	Nursing education	X	1-5	11-15	1-5	Critical care nursing
Cloe	40-49	F	M.Soc.Sc (Nursing)	Nursing education Paediatric nursing care	√	100+	6-10	10-15	Paediatric care nursing
Susan	30-39	F	M.Soc.Sc (Nursing)	Nursing education	√	15+	6-10	1-5	Neonatal care nursing

From the onset, participants were keen to adopt HFPS for the modules they presented. Their clinical and educational experience was related to the adoption of HFPS as a learning strategy.

The more simulation sessions a participant had experienced, the more comfortable he/she seemed be about implementing HFPS. Section 5.3.1 captures a deeper discussion of the participants' biographical information. Collectively, the participants had a number of academic and professional qualifications among them and their commitment to nursing education was clear.

4.4.1 DATA CONTRIBUTIONS OF THE PARTICIPANTS

Participation was voluntary and participants only divulged the information they felt comfortable providing. Some participants did not contribute to all the data-collection strategies, but most contributed to most strategies (refer to Table 4.2). Two participants did not submit their reflection journals and three did not write summaries about their learning experiences of HFPS. Some participants reasoned that they did not have anything to add to what they contributed during the interviews. Some also mentioned a heavy workload as a reason. The interviews were the main source of data to which all the participants contributed. My reflective notes on the interviews were added to the data pool of the interviews as it was closely related.

Table 4.2: Data contributed by participants

	Demographic Information	Semi structured Interview	Reflective Journal	Summary of HFPS Experiences
Chris	√	√	√	√
Cheryl	√	√	√	√
Lorrie	√	√	X	X
Jane	√	√	√	√
Renee	√	√	X	X
Cloe	√	√ Dyadic √ Unstructured individual discussion	√	√
Susan	√	√ Dyadic	X	√

The initial purpose of the reflective journals and summaries was to capture understanding not mentioned during the interviews, or deeper understanding generated after the interview. The purpose of the reflective journals I provided to all nurse educators when we started implementing HFPS was to record a personal record of learning experiences and thoughts. There was no prescribed structure for the reflective journals, so that nurse educators were free to determine the content and nature of reflection journal entries. The journals were therefore a private self- conversation and participants might have felt that it was too private to share with others.

The participants' summaries comprised a one-page objective overview of experiences, which was used to establish stability of data over time and for triangulation purposes. The participants who provided journals and summaries did not contribute data about their understanding that was significantly different from that revealed during the interviews. Therefore, I did not consider the inconsistency of journals, and summaries did not significantly influence the quality of data.

The in-depth, face-to-face, unstructured, individual discussion with Cloe (one of the most experienced HFPS nurse educators), added to the richness of my understanding of the experience of both Cloe and myself; thereby I made meaning of the need to support nurse educators during the implementation of HFPS.

4.4.2 PARTICIPANT INTERVIEW SUMMARIES

The following is a narrative description summarises the participants' interviews and member-checking. The participants' sense-making of their experiences is summarised by and through the subjective views of the researcher. The narrative portions printed in blue represent the researcher making sense of the participant making sense. These portions involve deductive reasoning that contributes to the narrative flow and guides understanding of making sense of an experience. The participants in this study were Chris, Cheryl, Lorrie, Jane, Renee, Cloe and Susan.

4.4.2.1 Chris

4.4.2.1.1 *Summary of Chris's interview*

When he first experienced simulation, Chris was impressed with what was required of students. Chris saw simulation as a holistic approach to learning [1.1].¹³ He enjoyed the freedom provided by simulation, as well as the “non-structured work environment” of the simulation laboratory. The freedom to experiment was possibly the catalyst for him in his learning process [1.4].

Simulation developed both academic and practical skills, which the clinical setting could not provide for him [1.2]. He considered simulation ideal for identifying gaps in students' learning, for filling in theory-practice gaps and for improving students' noticing skills. He provided a radical argument that students should be exposed to simulation at the beginning of an academic year to identify learning needs and, based on their needs, students should be exposed to particular simulations [1.7].

Chris did not like lectures at all. He is brilliant, and though he “slept” during lectures he still obtained distinctions for both his undergraduate and post-registration programmes. Chris considered traditional education to be flawed. He was of the opinion that “knowing does not mean able to do”. He believed that a lecture is not sufficient to enable students to do what is required in various circumstances. It is not enough [1.8]. So, are nurse educators doing enough in nursing education? Is simulation the key to meeting the learning needs of students? Higher education institutions prepare students only for the ideal clinical situation, but the clinical setting in South Africa is not ideal and students are ill prepared for reality. The clinical setting is not conducive for students to apply what they have learned, or to practise their skills.

Even during Chris's undergraduate studies, he considered nurse educators' knowledge and experiences to be outdated. He hoped that exposing nurse educators to simulation might update their knowledge and skills to the benefit of student learning [1.9]. Nurse educators may be aware that their knowledge and skills are not up to date, and therefore feel insecure. He noticed that nurse educators were initially apprehensive about and afraid of simulation. Over time, their skills and knowledge improved and nurse educators were willing to use simulation.

¹³ The number between square brackets indicates the quotation number in the interview as assigned in Atlas.Ti 7.5 software.

Nurse educators who were more involved in simulation updated themselves more rapidly regarding current practices than those who played it safe [1.9].

Chris experienced his learning as a journey of discovery. He learned the most from observing the simulations of the third-year undergraduate and post-registration critical care students. Learning results from private reflection on and analysis of the simulations. He expressed that he was not very fond of reflecting, but that he now reflects more than he used to. A dislike of reflection could be the result of overuse of reflective journaling as part of an assessment strategy. Students dislike writing reflective journals. Renee also mentioned that students are occupied with deducing what nurse educators will reward with marks, and producing content that they believe will be rewarded. Students will do anything to get higher marks. Chris would often identify manipulative behaviour by students, and carefully considered the factors that influence students' behaviour and learning during simulation, always giving the student the benefit of the experience [1.12]. Chris remained objective about students' performances. He found the large number of drug errors by students during simulations, common in most programmes, the most "shocking" aspect.

Simulation is a very important learning strategy, but it is not a quick solution for all learning needs. Too little emphasis is placed on the benefits of HFPS in a traditional learning environment. According to Chris, all nurse educators must be knowledgeable about simulation practices, if available. Nurse educators should be aware of how they should apply HFPS safely. However, simulation cannot replace theory or clinical experience [1.9].

Chris was concerned about the limited number of nurse educators willing to implement simulation, and ascribed it to nurse educators' need for an environment where they are in control, like in class. Nurse educators must let go of their control and the idea that they can be in charge of student learning. It is possible that nurse educators feel powerless when they can merely observe student learning. Nurse educators have to let go of control and students must take up responsibility for their own learning. The way nurse educators can develop their own simulation skills is to become involved as a student within a simulation and experience it for themselves [1.13].

Chris did not like to lead students in debriefing, because he had not spent enough time developing the skill. However, in my opinion, his introverted personality played a role in his affinity for the technological side of simulation, and he might have felt uncomfortable during debriefings.

4.4.2.1.2 *Post-interview reflection of researcher*

As the youngest of the participants, Chris's interview revealed the dichotomy between nurse educators' valuation of students' learning needs and the reality of what is required by students of the education system. Nurse educators approach education from a theoretical and structural point of view, but neglect to ask students about their goals and expectations. According to Chris, HFPS is one of the keys to closing the breach between the way students are prepared for their professions and the realities of what is demanded when registered nurses step into their profession.

4.4.2.2 *Cheryl*

4.4.2.2.1 *Summary of Cheryl's interview*

Cheryl's initial insights about simulation and her interest in developing students convinced me that she would contribute valuable information as a participant. She mastered the skills of simulation very quickly, but due to her perfectionistic personality traits, she criticised her abilities [2.2]. [Her comments indicate the complex nature of the skills a simulation nurse educator has to develop.](#)

Cheryl experienced a number of emotions during her first simulations. The first HFPS was exhilarating, but also scary. She felt "overwhelmed", and "out of her depth", but, over time, her confidence grew [2.1]. Cheryl's first few simulation experiences did not only reveal students' leaning needs, but also her own knowledge gaps [2.17]. She ascribed these feelings of insecurity to the long break she had taken from practicing as a critical care nurse specialist [2.2]. In addition, her critical care background cultivated a need to feel in control, but students' actions during simulation are unpredictable, making her feel that she lacked control [2.13]. To reduce her discomfort, she prepared the same content that students had to master in preparation for the simulation [2.2]. Preparing for simulations clarified her role during simulation [2.3]. [Preparing for simulation experiences is essential for both students and nurse educators if they are to expand their skills during HFPS.](#)

Cheryl's main learning needs were training in the skills to operate the newer hospital equipment and to revise her theoretical knowledge, and she required training in non-traditional educational practices. Attending the local preceptor course provided several benefits, as it raised her awareness of a holistic style of facilitating the learning of students [2.9]. [She realised that an](#)

nurse educator cannot focus only on attaining knowledge – there are more aspects of the holistic learning process. She realised that her way is not the only way to learn, besides, individual students learn in various ways [2.10]. This realisation generated her interest in new learning strategies in nursing education and HFPS satisfied that need for her. Cheryl's commitment to simulation completed the shift in her educational paradigm, from "the teacher being the source of knowledge" to a more learner-centred approach [2.9]. She realised the importance of engaging students in learning [2.7].

Cheryl ascribed the students' learning during simulation to the authenticity of the environment and the development of students' skills and confidence to their repeated exposure to HFPS. Cheryl believed that simulation provided a free way of thinking – quite a new concept for her. Cheryl believed that all facets of simulation contributed to her learning HFPS skills and developing her reflection skills [2.7]. Observing students succeed during simulations gave her positive feedback on her actions, and this caused personal growth [2.7]. Debriefing students after simulation was a good learning opportunity for her.

Cheryl emphasised the importance of preparing for simulation. Meetings to plan scenarios played an important role to ensure the quality of scenario, but also to prepare the facilitators. Nurse educators also get together for a few minutes before the simulation commences. These two meetings were essential to prepare her mind and focus for HFPS [2.6]. This indicated to me that she believed that those nurse educators who are not able to attend the preparatory meetings, are likely to encounter problems during the simulation.. Cheryl considered all aspects of simulation key for her development, especially preparing, managing the technology and debriefing students [2.9]. She also expressed a need for further training to manage the simulators. Her willingness to set goals and work at learning simulation for herself indicated to me that she functions at the level of an andragogy (constructing new knowledge, building on previous experiences) [2.8].

Debriefing sessions were a particular challenge (as for any novice) [2.5]. All the participants mentioned that debriefing students was the most challenging aspect of simulation. Cheryl was uneasy about debriefing students together with a colleague, but she also knew that, in the future, she would have to do it by herself [2.7]. Both these debriefing options seemed intimidating to her as an advanced beginner at implementing HFPS. Nonetheless, she expressed the desire to debrief students on her own. She also required more training in debriefing, but she considered her involvement with counselling in the church context to be a good starting point. She envisioned that she would be able to advance her own debriefing style

[2.8]. Best practices published by reputable authorities form the basis of simulation and debriefing practices at the research site. As the coordinator, I encourage nurse educators to experiment with different strategies of debriefing and to learn from one another's experiences. Nurse educators adapt and adjust their debriefing styles according to literature and as a result of their own practices. Observing other nurse educators' debriefing assisted in developing debriefing skills [2.14].

Cheryl finds it difficult to talk less during debriefing to allow students to have the opportunity to reflect, learn from other students and voice their opinions [2.14]. However, she knows that silent students does not mean students are not learning (this comment indicated a paradigm shift). She suggested that nurse educators practise their simulation skills and debriefing on one another [2.18]. I indicated that an opportunity is available during the yearly simulation workshop for nurse educators to practise their debriefing skills. However, we might need to pay more attention to it in the near future, even before the next simulation workshop. The opportunity can also expand to a yearly opportunity for those who regularly practice simulation. Nurse educators still tend to teach, rather than listen to, students during debriefing. The teaching in itself might not be the main problem, but it indicates poor listening skills, which may be a result of a habit of mind: "I know better and I will teach you my way."

Cheryl noticed that students have gaps in their understanding of theory and practice. Students' understanding of theory is often fragmented and they do not see the linkages between anatomy, physiology, pharmacology and diseases. She believes that some nurse educators exhibit similar knowledge gaps as students, which results in high levels of stress during simulation. Being unaware of the importance of preparing for simulations may be a contributory factor to the anxiety some nurse educators experienced [2.11]. Cheryl believes that nurse educators' knowledge must exceed that of students (theoretical content). Students are keen to identify gaps in nurse educators' knowledge. Cheryl described how she experienced an event where students noticed a nurse educator's insecurities. She said insecurities led to defensiveness when the students posed questions. Defensiveness will put students at a distance, reversing HFPS's values of empathy, respect and an open and supportive approach to learning.

Cheryl suggested the following for training nurse educators in the use of simulation [2.19]. First, teach the technology and allow time to become familiar with "your patient and the environment". Secondly, nurse educators must participate in developing the scenario and running the scenario, and everyone has to prepare the theory appropriate for the simulation. She was not

aware of the debriefing of the nurse educators after a day of simulation, as she only works mornings . She was unaware of the debriefing and reflection session of nurse educators after a day of simulation. Thirdly, she suggested that more nurse educators should be appointed to simulation to assist students who would like to or need to repeat a particular simulation.

4.4.2.2 *Post-interview reflection of researcher*

Cheryl had, at the time of the interview, not attended a simulation workshop, nor had she undergone any other formal training in HFPS. However, she experienced on-the-job, informal training in simulation. She had not read any articles at this stage – although articles had been provided – but I had allocated specific tasks, all adding up to a complete simulation together with some support. The interview demonstrates that Cheryl had made a paradigm shift to a new learning strategy and her role had adapted accordingly. She did not exhibit an attitude of, “I will do it my way”, instead, her attitude was “I am willing to learn to do it better”.

This raises the question: What is the best way to prepare nurse educators to use simulation from a TLT perspective? Different individuals may require different ways or combinations of ways of preparation. From this interview, one can deduce that personality types and clinical and educational experience may contribute to transformative learning in nurse educators.

4.4.2.3 Lorrie

4.4.2.3.1 *Summary of Lorrie’s interview*

Her first experience of simulation was as an *assessor* in a practical examination of critical care students [3.1]. Her experiences of using simulation for high-stakes evaluation of students introduced her to the innovativeness of HFPS in education. She called it a *new world* [3.2]. Her experience emphasises that nurse educators’ perceptions, practices and assessment of students will, in the future, change drastically, which will transform nursing education. From her perspective, students don’t perform in accordance with future expectations of them. HFPS can improve the preparation of students for their future nursing profession, but success will depend on students’ level of engagement with their own learning. Initially, she was frustrated with students telling her what they would do, rather than doing what they are saying.

Her experiences of her first simulation – as a *learning strategy* – were disorganised and uncomfortable; the debriefing, especially, was difficult [3.3]. After her first simulation

experience, she attended a simulation workshop. The workshop clarified her role and expectations of herself as a simulation nurse educator.

Lorrie considered simulation to be a beneficial learning strategy and a flexible tool for identifying the gaps in students' learning [3.4]. Observing students' during a simulation provides nurse educators with feedback regarding the effectiveness their own teaching strategies in the theory module, and highlights gaps in students' understanding.¹⁴ After a number of exposures to simulation, she changed her teaching strategies from a lecture-based to a case-blended approach to complement students' learning during HFPS.

She undertook a new teaching strategy to help her students. This indicates to me a move away from a teacher- to a student-centred approach [3.7]. Students learn through actions, risk-taking and dealing with consequences, which makes simulation a unique learning strategy. Simulation influenced the nature of modules, by moving content away from a disease-centred focus (medical model) to a more patient-centred approach [3.8]. Simulation enriches the education of students [3.9].

Students learn more during simulations than they realise [3.5]. Student learning includes self-learning and learning about others, taking up the role of professional nurse, planning actions and managing patients with specific health needs. Students are not allowed to make decisions about patient care in a clinical setting. For example, students are rarely required to inform a physician of a change in a patient's condition, but after registration as a professional nurse, the former student, now a qualified professional, becomes responsible for informing physicians about a variety of matters. The challenge for students once they qualify as professional nurses is that they have to perform tasks they never had the opportunity to practise. Simulation provides a safe learning opportunity for students to practise decision-making skills before they have to implement these skills without putting the patient at risk due to inexperience. Students have the opportunity to practise their future professional roles in a setting similar to the clinical setting. Thereby nurse educators ensure that future professional nurses are ready and prepared for their future roles and responsibilities.

Lorrie explained that, during simulation, learning takes place through trial and error for both nurse educators and students. Both nurse educators and students should take risks as they learn [3.6]. Risks are stressful, but are essential for growth. Her definition of risk is, "not knowing what to do, not saving a patient or, in the case of nurse educators, harming students."

¹⁴ She teaches general nursing theory for third-year students.

She also sees risks more as challenges. Risk involves learning about technology, solving problems, and addressing specific learning needs during debriefing, because each group of students is unique.

Nurse educators and students take risks during simulations. The risks nurse educators and students experience differ in nature, but are similar in cause.

The design of the simulation scenarios has specific intentions, but students' actions should determine how the scenario unfolds as an authentic learning experience. Therefore, the scenarios should not be rigid, but flexible and adaptable to students' needs. Nurse educators must be flexible enough to accommodate specific learning needs during a simulation, and able to adjust the scenario accordingly. However, this flexibility may cause discomfort to some nurse educators during simulation and they often revert to previous, rigid strategies.

Lorrie experienced that students do not always know what they are saying.

Member checking: During the analysis, it was not clear to me what she meant by “students do not know what they are saying”. She meant that students may use either the right or wrong terminology, but do not realise the true meaning within the context. She listens carefully for these kinds of slips or misunderstandings in students' words.

For Lorrie, the significance of simulation is to determine whether students “get it or not” (got it right or not) [3.10]. Simulation can be a positive or a negative feedback mechanism for both students and nurse educators. She ascribed the improvement in students' performances in simulation to the improvements in her educational practices. It might be difficult for research to determine or distinguish whether the improvement in students' learning results from improved class practices, or from the nurse educator having learned from implementing HFPS, or whether it is the result of nurse educators' effective use of simulation. In this matter, I am of the opinion that these factors are interlinked and all play a role in the improvement of student learning. The use of quantitative measures is unlikely to distinguish between causes and results of simulation learning.

For Lorrie the day students made a fatal medication error was her most significant simulation experience [3.10]. Students were shocked to realise that a patient had died because of their actions. Debriefing students after they made a fatal mistake was difficult, but she saw the value of the experience for students' learning. Students felt defeated and disappointed in themselves, because in real life the mistake could have caused the death of a patient. Guiding the

debriefing was a challenge, and Lorrie created a safe debriefing atmosphere. She said she drew on her clinical experiences of dealing with family members of critical ill patients who suffered from emotional shock. She helped the students to talk through their “shock” to help them realise the magnitude of their mistake, and they indicated their commitment to safe practices. Conversely, this learning experience had the potential to cause harm to students’ learning. The experience left Lorrie with a lasting constructive impression. Students were positive when they left the debriefing despite previously feeling defeated.

Simulation taught her about deeper reflection [3.11]. Reflection is not “cut-and-dried” or easy. Reflection means focusing on students’ learning needs. Nurse educators can acquire a deeper understanding of students’ learning experiences when they are not self-centered, but centred on the students’ learning needs. Although Lorrie did not mention how she conducted the specific debriefing, I sense that she experienced significant learning that particular day, enabling her to be successful in future debriefings. She developed a unique perspective on debriefing. I remember that day too. After debriefing the students, Lorrie seemed to “walk on air”. She seemed to be reflecting deeply and I did not interrupt her with questions regarding her experience. Just as during student learning, silence does not mean no learning is taking place. This experience taught me how to identify nurse educators deeply involved in reflection. Her success in a difficult debriefing triggered significant learning for students, herself and myself. As simulation coordinator, I could have interfered with the significant learning of a number of people had I doubted her ability to cope with a difficult debriefing by taking over. Nurse educators also learn through trial and error, and learn from experience. I cannot provide a clear description of the experiences that followed after the students made the fatal mistake – I lack the vocabulary to explain this phenomenon.

Generally, participants found it difficult verbalise the content of their reflections. Reflecting at a metacognitive level changes perspectives and leads to personal growth and understanding. Participants might be unfamiliar with deep reflection and find it hard to verbalise, or the metacognitive reflection might, in these cases, be too complex to express.

Thinking about reflection, I became concerned that the use of “reports on personal reflective activities” for assessment purposes, applied at the research site, might only be a different term for a basic assignment. The overuse of the words “reflection” may spoil learning opportunities for many students because of its use in assessment. I decided against investigating this aspect further, as the focus of this study was nurse educators’ experiences. The description above indicates that reflection is a learning opportunity and the impact of this kind of learning cannot

be measured. Requiring students to write reflection reports for assessment purposes does not make sense. One person cannot grade another person's depth of reflection. My concern is that reflection reports are used as an assessment strategy, while even nurse educators find it difficult to reflect on their own experiences. The overuse of reflective reports may lead to an aversion among students regarding reflective practices, which may have negative effects on reflective practices during simulation debriefing sessions. Nurse educators themselves experienced resistance to writing reports on reflections. Three participants (Cheryl, Chris and Renee) mentioned feeling frustrated about having to write reflective reports as part of various programmes and courses.

During some of the interviews I noticed participants struggling to provide descriptions of their deep learning experiences. According to cognitive learning theories, the rate at which thoughts pass through the mind is too fast and fleeting to put thoughts into words, or to even write them down. I noticed a pattern during the interviews: participants start a sentence and stop halfway through and, when they are ready to continue, express their thoughts in an insecure, fragmented and disorganised manner (Cheryl, Renee and Cloe). Participants took time to make sense of their fleeting thoughts. During the interview, I tried not to interfere with their sense-making processes. I just said that I understood what they meant, but left it at that, so as to avoid contaminating the learning process with my ideas. Any interruption or interjection of someone else's opinion at this time could limit or even stop the learning process. Sense-making is a subconscious process that takes time.

For Lorrie, debriefing students became easier over time. Debriefing of students may be harder if you do not know them, but it is not impossible [3.12]. Nurse educators can learn much from students' behaviour. The nurse educator who knows his/her students well can change a scenario "on-the-fly" to address specific learning needs. However, the prerequisite is a skilled nurse educator, competent clinician, and nurse educator who knows the content of the module well. For Lorrie, knowing students' personalities and circumstances may contribute to her ability to facilitate deep learning experiences. Lorrie also takes care in preparing the theory of the condition of the simulation.

Lorrie suggested that students should participate in more simulations, because limited learning opportunities are available in the clinical area [3.13]. According to Lorrie, the workload pressures of professional nurses mean student nurses are rarely educated in the hospital. When students receive training in the clinical setting, it often confuses students; sometimes incorrect information is even provided. She was also concerned that students do not witness

consistently best practices in clinical settings. Therefore, in her view, simulation provides quality learning experiences in a safe learning environment.

She suggested increasing the number of learning opportunities for students in the future by increasing the number of nurse educators and simulators. The simulation facility should be available for students to practise under the supervision of a facilitator to close the gaps they identified during simulation [3.14]. She also suggested that students be given the opportunity to repeat simulations if they identify a need to do so.

Lorrie noticed that her peers also benefitted from collaborative exposure to simulation, which expanded the simulation skills of the colleagues as a group. Each nurse educator had an equal opportunity to develop in all aspects of simulation [3.17]. Examples of responsibilities are briefing students for a scenario, observing the students during the simulation and ensuring authenticity of the scenario, managing the technology of the scenario, debriefing students, and resetting the simulation environment between simulations. At the same time, one nurse educator acts as a doctor or provides a voice for the manikin. Each aspect of simulation provides a learning opportunity for nurse educators.

She suggests that simulation can be utilised in nurse educator development in mentor and preceptor training [3.18]. Some of the other participants mentioned the similarities between the role of the simulation nurse educator and the preceptor trainer (Cheryl and Renee). Lorrie is of the opinion that teachable moments at the bedside of a patient could also be used in simulation, which will not interfere with patient care or cause emotional distress to the patient or the student (and possibly to the nurse educator).

4.4.2.3.2 Post-interview reflection of researcher

In retrospect, introducing nurse educators to simulation for the first time during an assessment is not ideal. At the time I was also inexperienced regarding best practices for simulation. Lorrie coped well with the challenge, but she highlighted some of the considerations that should be taken during high-stakes assessment using HFPS. Simulation skills need time to develop, and over time nurse educators and students benefit from the exposure.

4.4.2.4 Jane

4.4.2.4.1 *Summary of Jane's interview*

Jane's first experience of HFPS was as a spectator in the SPACE [4.1]. She had been excited, even though the strategy was new to her. She was convinced that it was appropriate for the third-year general nursing module. *Jane did not require a complete understanding of the learning strategy to adopt simulation into the module.* All the nurse educators (including mentors and preceptors) involved with the third-year general nursing modules watched the first and following simulations.

Doyle, Garrett, and Currie (2014:780) state that, when implementing a new technology (according to the theory of implementation of innovation), the importance of positive first experiences cannot be overstated. Usually, first impressions are lasting and, in this case, nurse educators' first impressions will determine their point of view about simulation in the future. For this reason, I wanted nurse educators to merely observe, and not experience extreme stress due to their responsibilities during their first exposure to simulation. My opinion at the time was that, if observers experienced less stress and a positive impression of HFPS ensued, it caused a positive impression and a better buy-in to the learning strategy.

Jane experienced the preparation for HFPS as a labour-intensive activity. She emphasised the logistical limitations in the SPACE. The storeroom for equipment and stock were quite a distance from the SPACE, because the initial design of the environment did not include storerooms for equipment and stock. This required nurse educators to plan and collect everything needed for simulation beforehand. This led to delays and nurse educator frustration. *Simulation, therefore, added to the workload of nurse educators whose schedules were already full.* Consequently, she did not experience the environment as authentic. A specific issue for her was that there no washbasins for hand-hygiene practices.

After six months the simulation moved to new, authentic environments, as described in Section 3.2. The new environments helped Jane to understand HFPS as a learning strategy better. *The authenticity of the simulation environment, in this study, contributed to the learning processes of students and nurse educators alike. I could not find literature describing the effect of an authentic environment on nurse educator learning (this could be a topic for future research).* Jane's comfort levels varied between the ward area and the ICU area. As an orthopaedic specialist, it is understandable that she would be less comfortable in an ICU environment,

though, over time, she became more relaxed. The clinical background of a nurse educator matched his/her initial comfort levels within different authentic environments, but comfort can increase over time despite the nurse educator's background. Nurse educators' comfort with authentic simulation environments is related to their previous clinical experience [4.3]. Although Jane had initially experienced discomfort in the ICU area, she had time to overcome this discomfort, as most of her students' simulations occurred in the authentic ICU area. Jane developed most of her simulation skills through informal learning experiences, as she did not desire to nor attended formal simulation workshops.

A suggestion for future research may focus on the relationship between authentic environments and nurse educator comfort levels. Authenticity can contribute or detract from nurse educator learning and comfort levels. Different authentic environments may influence different effects on the comfort and learning of nurse educators. A number of variables may influence nurse educators' comfort levels with reference to past clinical experiences, such as the number of years of specific clinical practice experience, expertise developed in clinical practice and academic clinical qualifications.

Simulation captured Jane's attention, as the learning strategy exposed students to a variety of learning opportunities. Jane's opinion is that student learning resulting from simulation is more durable than learning from traditional strategies [4.4].

As expected, Jane experienced challenges with the simulation technologies [4.5]. She felt hesitant to use the tablet – which controls simulators' functions – and other simulation technology. The screen of the tablet was too small for her to see well. She suffered from cataracts that impaired her vision. She also had a problem with her hearing during simulation, in spite of excellent quality of microphones and speakers. Fellow nurse educators assisted her when she could not hear or see during simulations. I personally experienced a similar problem with the tablet screen because I am far-sighted. Looking at screens from close-up and then focusing on a point further away, and continuously putting on and taking off reading glasses, is one of the challenges that may cause frustration for simulation nurse educators. Frustrations may play a negative role in the learning process of nurse educators. Jane ascribed her commitment, despite frustrations, to the idea that, "We were not alone". The aims of having a simulation coordinator include reducing nurse educator frustrations as far as possible. We solved this problem by assigning one person to the tablet and one observing the students, and these two guided one another in simulation. Consequently, nurse educators also learned to work in teams irrespective of background or previous experiences.

Jane received sufficient support from the coordinators to manage the basics by herself [4.5]. Supporting nurse educators with technology during simulations is essential for continuous expansion of HFPS. She was willing to learn more about the technology, though it will require more time, according to her feedback.

Nurse educators need to know how to prepare for simulation as part of their own learning process. In the research setting, the simulation coordinators are responsible for logistical preparations for simulation because nurse educators have limited time available. In our experience, not all nurse educators are interested in preparing for simulation. Reasons for their lack of interest were not part of the scope of the study.

Jane's exposure to HFPS made her aware of newer technologies that were used in the clinical setting, such as infusion pumps, electronic beds, blood warmers and intracranial pressure monitoring tools. Participants were concerned that they were not proficient enough to use new technology and that they required practise with the technology. Training nurse educators about new technology required a psychologically safe, non-judgmental or private and supportive environment. The authenticity of the simulation laboratory, as for students, contributes to nurse educators' learning, as no student or patients are at risk when nurse educators develop the knowledge and skills for using technology.

Before each simulation Jane prepares herself in relation to content matter. She expects other nurse educators to prepare themselves for HFPS too. According to her, nurse educators should have a deeper understanding of the content and practical implications than students do.

Even having gained experience, Jane still experienced facilitating students' learning during simulations as a challenge [4.6]. She would prefer entering and leaving during the simulation and assisting students only when they are stuck. She did not like hovering over students in the simulation environment. The problem is that one cannot always see when students are stuck. A contrasting experience is that the presence of a facilitator in the simulation environment causes students to look to the nurse educator to lead their team. Relying too much on the nurse educator may turn a simulation into a bedside lecture, which we tried to avoid, as nurse educators can easily fall into such a model.

When students are stuck, they indicate it by calling for a time-out to regroup and rethink their next strategy. When they are unable to reach a solution, they may ask assistance from a nurse educator. Jane seems afraid that students may ask her questions she is unable to answer. She is willing to assist students, but is unsure of her ability to help with technical

problems. Facilitating students' reflection in action without giving the answer to the problem, was a new skill for nurse educators to develop (Lynam, 2009:56). Most nurse educators' first intention was to solve the students' problems for them during a simulation, which defies the purpose of simulation.

Jane sees herself as an advocate for her students; she wants to protect students from negative learning experiences. Advocacy for students might be one of the areas requiring more research. The nurse educator's role as an advocate for the students' learning is to ensure the best learning outcome for students – not to prevent discomfort. The nurse educator should also be an advocate in the class setting, thereby preventing confusion among students. Jane desired the best for her students during the simulation experience and debriefing. She used words like protect and caring for students a few times. Her personal aim was to practice best strategies during debriefing.

Jane does not refer back to past simulations, because she feels she already clarified and concluded issues during debriefing. She said that, in the next class session, she only addresses theoretical gaps noticed in students during simulation. She is uncertain if students do refer to their learning materials after simulation to correct their own misperceptions. However, students may still request clarification on topics they were not clear about during simulation.

Jane feels no need to attend a simulation workshop herself [4.8]. She considers her own development process to be sufficient. She considered her experiential learning and informal development in both simulation and debriefing to be sufficient for her purposes. Her learning came from observing, through exposure and then by doing debriefing herself. She developed her own way of debriefing, and became skilled in following the students' lead during the discussion. She wants students to do the talking. Allowing students to take the lead in their own learning process is not difficult for her. Her experience of problem -based learning exposed her to similar principles of student-centred learning. Regular, short, hands-on programmes will be beneficial for nurse educators who did not attend the weeklong simulation workshop.

Jane experienced the structured scheduling of each nurse educator's specific tasks during the simulation as especially helpful (Appendix 4.2). The schedule prevented conflicting interests amongst nurse educators. I was truly intrigued to find that nurse educators only became at ease with their roles when they worked according to a schedule. I thought teamwork would develop during simulations over time, but nurse educators needed more guidance to know what

to do next. Breaking the whole up into smaller pieces was a more successful way of introducing nurse educators to HFPS. Again, I realised nurse educators expected students to collaborate in teams, even though doing so is challenging for nurse educators themselves. Scheduling tasks during simulations gave equal opportunities for all nurse educators to experience all aspects of simulation. Each nurse educator's existing skills, those not yet in place at the time of the simulation, special interests and preferences must be considered. The novices in simulation mostly helped a skilled colleague with practical preparation and corrections. Nurse educators feel more comfortable handling complex tasks under the supervision of a skilled nurse educator. Colleagues supported novices until the latter verbalised their need for independence. The forerunners trained in HFPS were Chris, Lorrie, Jane, Cloe and Susan. These forerunners supported Cheryl and Renee (and other nurse educators not part of the unit of analysis). At the time of the interviews, Cheryl and Renee still received support from their colleagues.

Jane also mentioned that reflection by nurse educators after a day's simulation prevented conflicting interests and it provided an opportunity to talk about their experiences [4.9]. Nurse educators shared what they had learned and discussed one another's opinions. During these debriefings, discussions focused on discharging emotions, nurse educators' learning experiences, suggestions for improvements to the scenario for the next time, and identifying students' learning gaps that required more formal or informal attention.

The implementation of simulation deepened students' learning, although it required extra work from nurse educators and students. Jane emphasised that the scenarios should receive sufficient planning and preparation. As coordinator of the third-year module, she is satisfied with her team of nurse educators' commitment to HFPS. It was not that difficult to integrate simulation as a learning strategy into the modules and schedules. She believed the implementation process was supportive, and this is what led to the successful implementation of simulation in the module she presents [4.10].

Jane said HFPS makes student learning visible to nurse educators [4.11]. Nurse educators can detect students' quality of learning or the lack thereof. According to her, the clinical setting is the best environment for student learning, but both public and private hospitals have physical and logistical limitations that prevent students from developing essential skills, and simulation is a good tool to fill the gap. Jane is of the opinion that simulation has a variety of applications, but she did not explain this further [4.12].

Jane can improve her skills and knowledge regarding simulation technology, including the theoretical preparation for simulation. Contact with new equipment used together with simulation helped Jane to update her knowledge and skills. She understands that nurse educators can rely on one another for the management of different technologies. She is not required to be able to do everything [4.13].

Jane believes that, if possible, simulation facilities should be open at all times for students to practise or repeat previous scenarios. Students should be exposed to new scenarios that differ from the initial experience. Jane suggests that these practise sessions should be scaled down versions of the 20-minute-long simulations. Here, again, we can see how a larger learning experience is broken up into smaller elements – this may also be reminiscent of deliberate practise. Jane believes that HFPS is ideal for practising skills in a safe environment, even for nurse educators. Nurse educators can rehearse preceptor skills in simulation and then move on to students when sufficient skills and confidence have been developed [4.14].

4.4.2.4.2 *Post-interview reflection of researcher*

Nurse educators do learn through implementing HFPS. They learn more about nursing education, HFPS and about themselves. Jane's interview demonstrates a parallel between student and nurse educator learning. Jane had a reoccurring theme throughout her interview, namely, the stress that the technology causes, and that it will take time to master. Over time, nurse educators become familiar with their role and stress levels diminish. The same is true for students. Jane's learning involved the update of her knowledge regarding technology and software, new learning strategies and practising new skills with the new equipment students already use in the hospitals. Nurse educators have an inherent need for a safe learning environment. Nurse educators find it difficult if their weaknesses are exposed to colleagues and students. At lower levels of stress, the learning process is more effective and even becomes enjoyable.

4.4.2.5 *Renee*

4.4.2.5.1 *Summary of Renee's interview*

Renee's first experience of a simulation was as an observer [5.1]. Her experience included observing other nurse educators involved in simulation, as well as the effect of the simulation on students. The HFPS reminded her of previous critical care experiences and reinvigorated

her clinical knowledge. She said she felt as if she was back working in a hospital again. Her first impression was that HFPS is a great learning strategy, as she had only experienced a traditional learning strategy during her training to become a registered nurse. Her problem with the traditional learning strategies was the limited use of students' multiple senses. *I believe she became more aware of the role that senses play in learning when she took up painting as a hobby as an adult.*

She liked the fresh dynamics in the simulation experiences [5.2]. Simulation does not reduce the importance of theory, but made learning more practical. HFPS incorporates clinical skills as part of the learning process. She said, "it brought the hospital to the student". She appreciated her initial lack of knowledge and experience of HFPS. The absence of a preconceived mindset helped Renee to develop a student-centred mindset towards HFPS. Observing the effects of the simulation without any preconceived ideas opened her mind to perceive and notice the effects of HFPS on student learning. Preconceived ideas about HFPS may have caused her to force her way on students, and that may have hindered student learning. If she had done this, she would have forced her perceptions on students, which does not reflect a student-centred strategy.

During the first number of simulations, she only focused on the students' behaviour and their performance of skills, without thinking of the cognitive processes of students [5.3]. *She changed her perspectives on how students learn when she shadowed an expert in simulation* [5.4]. For her, the most significant learning opportunity took place when I (in my role as HFPS coordinator) explained to her the neurophysiological changes that take place in a student's brain during learning. Only after hearing this she mulled over the importance of the appropriateness of students' learning experiences, and saw the whole simulation environment as an instrument to improve student learning. *This highlights that nurse educators might have the cognitive knowledge about learning, but the relevance is more visible during an HFPS. Her perspective is that students' learning can be equated to the development of clinical judgment. The learning process must be broken into smaller parts by means of a scenario. Eventually, all the parts are added together. Problem-solving should also form part of the learning process.*

Designing the scenarios in cooperation with other nurse educators clarified the flow of the scenario for her and set out expectations of her contribution during simulation [5.10]. Working together with other nurse educators on scenarios helped her to adapt to new ways of learning. Renee believes that she had to adapt, and she takes responsibility for her own adaptation. The process of adapting is uncomfortable, but she wants it to be successful. She does reflect on her

own and during peer debriefing of nurse educators. She now thinks differently about education – she even treats her children differently, giving them opportunities to raise their opinions about important matters.

Students are often satisfied to merely pass a module. The practical implications of knowledge are seldom their focus. Students lack an understanding of the high standards required of a professional nurse. Application of knowledge in the real world is complex. Renee noticed that students struggle to work in a team. Students' communication with one another and others during the simulation is inadequate and ineffective [5.5].

Each student and nurse educator is unique, and each person has a different background, and therefore different opinions and thoughts. Nurse educators must be realistic about the challenges students face in the hospitals and clinics. In some clinical settings, students are taught incorrectly. Medical stock is scarce and students cannot do what they know they should. Therefore, Renee believes that simulation can replace clinical experiences that are potentially detrimental to students' learning.

Renee rates her simulation skills at the level of a novice [5.10]. Although she considers herself as to be a novice, and believes attending a simulation workshop can be beneficial, she doubts a workshop will provide all the skills needed for simulation. She has a need to implement what she has learnt about simulation. Renee received training in developing clinical judgment in students during a preceptorship-training programme. This background provided a good foundation for developing students' clinical judgment in both the clinical setting and simulation. She needs opportunities to practise her skills. She enjoyed her initial learning about simulation. Not having any knowledge helped her a great deal in learning about simulation. She believes that if she had started off with preconceived ideas influenced by, for example, simulation articles, or any other source, it would have been a hindrance to her learning process [5.15].

Renee found it difficult to describe how to involve students actively in their own learning. She knows that nurse educators should make use of questions and silence, rather than lecturing [5.6]. However, she is concerned that students will think that she does not know the answer herself. She referred to an incident during a simulation when students asked me (as the HFPS coordinator) what to do about the patient's problem. However, the answer to the question was the solution to the scenario. Apparently, my only reaction was to instruct the students to continue with the HFPS, and I walked out. She thought I was rude, but then observed students turning to one another for the solution. She still finds it difficult to facilitate student learning and

to avoid providing the answer to students' questions. Renee knows that she is growing in her skills to facilitate student learning [5.7].

When she thought back to her initial experiences, she concluded that she had had tunnel vision at the time [5.8]. She understood the importance of allowing the students to talk about their experiences, but it was still difficult for her to remain quiet. She witnessed students learning while reflecting. She also experienced that allowing students to discuss, contributes to learning. Developing listening skills is a challenge for nurse educators in HFPS. Silence is intimidating. The preparation of nurse educators' listening and questioning skills not might not receive sufficient attention during the formal and informal development of nurse educators.

Renee thinks simulation paints the whole picture for the student (the artist comes through) [5.8 and 5.9]. Her perspective changed, from a focus on her own knowledge, to students' learning and learning needs. One has to guide the students' thinking processes. Guiding the student with questions takes them back to existing knowledge and leads them into new knowledge to establish long-term learning. Just giving them an answer stops the learning process.

Renee is of the opinion that the way nurse educators new at using HFPS can learn about leading students in debriefing and reflection is observing a skilled nurse educator in action. Asking questions of students during a reflection session about their thoughts whilst looking at the footage of their actions during a simulation will develop clinical judgment skills. "You must give students time."

She reflects by herself after the simulation and develops more insights over time [5.11]. Learning to debrief and developing reflective skills comes with experience. Debriefing skills can also work for preceptors, but it is not easy to acquire these skills.

Renee observed the debriefing of students by a skilled nurse educator. The explanation of the how and why of the features of the specific debriefing helped her to understand the approach of a student-centred strategy in simulation. She also benefited from the nurse educators' group reflections after a day of simulation, and found it beneficial for developing her skills. Smaller groups – two or three nurse educators – reflecting together may benefit novice nurse educators more than reflection involving all the nurse educators together. This may provide more time for each nurse educator to discuss his or her learning and experiences.

The future development of nurse educators should focus on student-centred learning. Renee is of the opinion that it is possible for teachers to remain in a teacher-centred paradigm, even

using simulation [5.16]. *Failing to transform to a student-centred approach may prevent quality learning during HFPS.* HFPS is a learning strategy suitable for the future, HFPS helps students to integrate knowledge and skills simultaneously in real time.

Renee gave an example that demonstrates the result of a teacher-centred approach that involved a first-year student during a skill assessment of urine testing. The student said that the urine should be stored in a cool, dry place, not in direct sunlight, and in its original container. The student had clearly memorised the learning material, but confused the urine and the urine test sticks. The student clearly did not make sense of her own learning. Renee emphasised that, if she had not been exposed to HFPS, she might have continued with a teacher-centred approach and would not have mastered a student-centred approach. Renee's suggestion for improving HFPS is to increase the number of simulation experiences for students [5.16].

4.4.2.5.2 Post-interview reflection of researcher

Renee's perspective on how students learn changed drastically. The changes in her perspective had practical implications for her educational practices. Her practices had to adapt to the changes in her perspectives. How that played out is not clear from the interview, but during a staff development session Renee did a presentation on how learning should be facilitated and not taught. Nurse educators exposed to traditional learning strategies and who practiced education in the same manner may find it difficult to change their perspectives, as the repetition solidifies the teaching strategies.

In my experience of nurse educators at the start of the implementation of HFPS, nurse educators became impatient with students and wanted to halt a scenario because the learning process appeared too messy for them. They found it difficult to tolerate the students trying to solve the problem for themselves. Learning is messy, especially the first time students are exposed to a new problem. The reflective session after the simulation provides an opportunity to correct mistakes. The consequences of interrupting students, according to the cognitive learning theories, results in halting students' thinking and the connections of neurons that are forming new neuron pathways (Kokkos, 2010:160; Redish, 2004:23).

4.4.2.6 Cloe and Susan dyadic interview

4.4.2.6.1 Summary of Cloe's interview

Cloe's first experience was the first simulation scenario presented at the school of nursing in the SPACE [6.1]. She was very excited and intrigued by the experience. She was impressed with the interactivity (meaning collaboration) and potential of HFPS simulation, and even more excited about simulation than about her role as preceptor [6.2]. She learned her skills for HFPS in four ways, namely, observing simulations, implementing simulation, attending a simulation workshop and through reading articles [6.3]. The HFPS was new, not boring and it was something that nurse educators could work on. It seems that, even though she did not know the principles of implementing HFPS at the time, she believed HFPS is "do-able".

The simulation workshop she attended was one of the best workshops she had ever attended, due to the interactivity. She experienced what a student experiences, including feelings of exposure, being under a microscope, and nervousness, but that something is working. Therefore, she wanted to commit to implementing HFPS into her module.

As the first HFPS and the simulation workshop was close together I am grouping Cloe's experiences of these two events together. She thoroughly enjoyed the workshop. The expertise of the presenters of the simulation workshop and the practical application of the skills that were developed made attending the workshop enjoyable. Simulation works. She did not clarify why she said simulation works, but I experienced that she was deeply convinced that simulation would make a huge contribution to students' learning. She experienced the principles of simulation herself during the workshop. This matched her way of thinking and doing and she could see the results personally. The process of actively experiencing the simulation, reflecting during the experience and being asked to reflect on the experience are what make it such an efficient learning strategy. The experiences during the simulation workshop caused deep learning, as she had direct contact with the learning material, in contrast to reading a book. You know exactly what is going on during simulation and there is no guessing involved.

She explained that she benefited from assisting with and attending the second simulation workshop, as it provided her with more structure the second time around. She did not implement all the recommendations, but the workshop provided a good foundation for her further learning regarding simulation. Cloe does not emphasise the influence of published

literature on her simulation practices, although she did mention it; I assume she read a great deal of literature during her PhD study.

Cloe mentioned two factors contributing to nurse educators' learning being different from the descriptions in learning theories describing student learning. Reflection and passion are main features of the learning of nurse educators, in her opinion. In order to prevent harm to students, she believes that we, as nurse educators, should "get simulation right". This requirement was related to passion is required to assist students in their learning processes. Cloe takes care to avoid causing harm to her students. She wants to be the best nurse educator she can be, and HFPS helps her with her own personal growth during the process. HFPS teaches her to see each student individually and to learn from and with students. Cloe believes she has learned more from her students than from anything else. The essence, for her, is that if students get to an "aha" moment, all the work will be worthwhile. She emphasises the transformative power of simulation [6.5]. She shows passion when she explains how simulation changed her, her way of educating and transforming her students. In her mind the TLT is a critical, political approach to learning. [Transformative experiences \(during HFPS\) challenged her perspectives about learning](#). As an nurse educator, she changed, and her practices changed, as did the way she perceives her students, the way she moved forward with them, saying, "I have changed, I have changed". She experienced the effect of constructivism in her own learning about simulation and, as Renee said, she did not know anything about simulation herself either. [As she started using TLT her frame of reference grew, although she did not acknowledge it at the time of the interview. She started by mentioning the foundation, and then she continued, talking about growing \(synonymous with building\) and about a structure. She experienced a process of building from the foundations of a lecturer to a structure that can facilitator of learning. Cloe has been a nurse educator at the school of nursing for the past 15 years, and it is only now that she is becoming proficient in a student-centred approach, and that is a result of the implementation of HFPS. Now she can sit back and just facilitate learning, which used to be the most difficult thing for her. She values the HFPS above presenting lectures, or any other learning strategy.](#)

Simulation, for Cloe, is a very powerful learning strategy [6.6]. [By powerful she means that it changes people over time](#). Cloe presents each student with 10 simulations experiences per year. According to her, students have to experience as many simulations as possible, as limited exposure to HFPS does not benefit student learning sufficiently. Cloe exposed her students to HFPS every second week. According to the statistics of the laboratory, she presents between 40 and 60 simulation sessions per year, depending on the number of students registered for

paediatric nursing care. If students' and nurse educators' have similar patterns of learning during simulation, one may assume the more nurse educators are exposed to simulations, the more their skills will grow accordingly. For the same reason, attending one simulation workshop will not ensure sufficient skills to implement simulation successfully. Transformation of nurse educator perspectives develops over time, leading nurse educators to truly embrace student learning. Cloe also emphasised the importance of providing students with time to change, which is also true for change in nurse educators. She realises that she needs to create time to permit students to grow during her module (growth = emancipation).

4.4.2.6.2 *Post-interview reflection of researcher*

Cloe had come to realise a number of things before her transformation took effect. Firstly, she recommends that students be provided with structured time for reflection. Secondly, the use of HFPS as a learning strategy results in change in students and, eventually, in transformative learning. Thirdly, direct personal interaction with the nurse educator during the reflection during and after simulation is significant for the learning of students. Using simulation as a teaching or assessment strategy might not lead to transformative learning, instead, remaining deliberate practice, which might also be true for nurse educators. Nurse educators may experience transformative learning through direct exposure to HFPS and cannot be taught or learn through reading a book or an article. Fourthly, it is important to pay attention to the way you approach students. Judging and criticising students will influence students negatively. During this deep discussion about how to facilitate significant learning experiences, Cloe tried, during the interview, to determine what kind of an answer I (researcher) would prefer – similar to what students tend to do. The mindset of providing the expected answer to a question runs deeply in both nurse educator and student. Seemingly, nurse educators do the same when they are being authentic about their experiences and feelings. I indicated to her that I would like to hear her opinion. When I did not give her a clue about what my expectations were, she continued to answer it in her own way. In the fifth place, she helped her students to become independent from her for their learning and treated them as adult learners. For Cloe, an nurse educator should be very skilful in leading the reflection after the simulation.

You can learn reflection skills through being committed to improving your skills for leading repeated reflection sessions. She had presented 60 simulations the previous year and does not consider herself to be an expert yet. However, people differ and do things differently. Nurse educators develop unique debriefing and reflection skills. Debriefing and reflection skills can be

developed, but it takes time. She is very aware of the fact that a lack of skills can cause harm to students, but she does not know the best way that an nurse educator can develop these skills [6.8]. For her it is important to see the results of her skills in leading the reflection session by herself. She is of the opinion that it is helpful to know your students, as it will assist nurse educators with reflection, but it is not essential. It helps to know their personality types and to see them develop during the year. Needs and gaps in learning can be noted and receive attention [6.12].

Cloe did not experience implementing HFPS as taking a big risk, due to support from the staff in the simulation laboratory [6.9]. She did not experience the pressure of being in the driver's seat. An authentic environment already existed when she became involved and the excitement was contagious [6.11]. Authenticity of the learning environment is very important and everything must be in working order. An authentic scenario contributes to a meaningful experience. The equipment that students may need during the simulation must be available, as students get frustrated and confused if equipment is not at hand. When students do not know how to handle the challenges during an HFPS, they start searching in the cupboards and drawers for something, as if things are hidden from them and they do not see the equipment available to them. This emphasises the importance of a well-planned scenario, which is an indication of collaboration between nurse educator and simulation coordinators, including the technical and managerial staff involved with the simulation facilities. Amongst many other skills, the nurse educator implementing simulation must understand the importance of detailed planning of a scenario and realise the consequences of ignoring these important steps. Changing a scenario at short notice may cause problems during the simulation and equipment might not be available to the students. HFPS scenarios are designed according to a template that has been tested and adapted over three years at the facility of the research. Cloe is convinced that simulation is a science supported by theory, and requires specific skills. Nurse educators who use HFPS must have a wider knowledge base and understanding than that generally required by traditional education. The nurse educator should break the learning process down during debriefing to achieve student learning. Cooperative debriefing of students may also be a strategy that should be investigated, as nurse educators have different strengths. Cooperative debriefing of students may also be a good mentoring strategy for student learning. When nurse educators debrief students cooperatively, the two can reflect together about their experiences and may develop a personal approach to mentoring one another.

We must develop a value system for nurse educators and for students [6.12]. Students experience how we feel about them. The HFPS laboratory had various guidelines for simulation nurse educators and students who will participate in HFPS. However, guidelines are not practical to use when busy with a simulation.

Learning about HFPS has a dichotomous nature [6.13]. One would like to expose and encourage all nurse educators to use HFPS in order to decide if they would like to be involved in simulation, but you cannot incorporate those who may cause harm in the process. We hope that all nurse educators are eager to assist their students by developing themselves through the process of engagement, but it also may be true that it is not a strategy for all. Forcing someone to get involved in HFPS can cause harm to students if they are not truly committed and excited about it.

4.4.2.6.3 Post-interview reflection of researcher

Cloe started out not knowing how to be involved in simulation, but acquired debriefing skills over time. Sometimes it is hard to achieve one's objectives during simulation, as students have deep-seated habits of wrong learning due to their previous education experiences and clinical practice. She had to work hard to break the mould of thinking in her students through repeated exposure to simulation. The debriefing and reflection sessions following simulations result in emancipation for both students and nurse educators. Nurse educators may also become stuck and set in their minds and the mould of thinking must be broken.

4.4.2.6.4 Summary of Susan's interview

In her mind Susan's first experience of HFPS occurred when she attended the simulation workshop. In fact, she was also an observer of the first HFPS presented, but she was not practically involved with the simulation [6.1].¹⁵ the students involved in the first simulation were participants in a focus group for Susan's Master's studies. As she remembers, the workshop was her first experience, so I will continue to refer to it as her first experience. Following the workshop, she thought about her behaviour during the workshop, as a participant in a scenario that she felt unprepared for [6.2].

¹⁵ Quotation numbers repeat dyadic interview data because two participants discussed the same discussion points. The two participants' data are presented separately to maintain the idiographic nature of each person's contributions.

Her focus on an experience that lasted for less than half an hour, and her disregard of the benefits of the weeklong workshop, is an example of how people judge themselves negatively. After mulling over her experience, she said to herself to stop and carry on. The experience must have been uncomfortable for her, but despite the discomfort, she kept on developing herself in HFPS. As a nurse educator, she was truly excited about HFPS. She liked the “interactiveness” (word she used to explain her experience) and how it could contribute to learning. She could see the value of it as a learning strategy. She thought that her relative youth in relation to her colleagues predisposed her to be more interested in the technology and the functionality of the manikins.

She had enjoyed the simulation workshop, as the presenters made a point of building good relationships. She experienced that they considered the attendees as their equals. The presenters of the workshop explained how to do something and then she had the opportunity to do it. However, the next year she had the same opportunity, but this time around, it did not really contribute more to her learning. She did not attend all the sessions either. Attending sessions the second time around was not compulsory – those who assisted in the workshop could decide whether they wanted to attend.

The main contribution to the learning of nurse educators is by reflexivity, rather than by reading about it. She learned more about how to lead the reflective sessions by doing it, and also identified gaps in her own debriefing skills. Nurse educators have to keep on developing their skills, as each group of students is different [6.4].

Susan does not want to control students’ learning and it was easy for her to allow students to do as they chose. She values student independence, though she is focused on outcomes. She does not believe that she controls the scenario; but she changes the scenario according to the students’ management of the patient. Learning does not depend on the specifics of the scenario. No matter what happens during the simulation, the students can learn from it. She learns by observing what helps the students to learn [6.6]. However, she states that, “I am outcome focused”. This is contradictory, as the outcomes refer to objective actions identified by nurse educators that indicate that students are competent. Learning is not always visible and students can come to incorrect conclusions during simulation. Nurse educators probe the conclusions students came to during simulations. The debriefing and reflective session is a difficult process to guide as learning of students can be either subjective or objective. Nevertheless, with the use of simulation and specifically reflection after simulation nurse

educators cannot direct *what* a student learns, but *how* they learn. Previous experiences also play an important role and may influence a student's learning positively or negatively.

Negative learning experiences during simulation can cause damage and emphasise the importance of correct practices. Susan says she is a "to-do-list person". She prefers that students know exactly what they must do. *There is obviously nothing wrong with giving clear instructions to students, but "to-do lists" may be an obstacle to the way students think creatively to solve problems in their unique manner.*

As to how the learning of an nurse educator differs from that of a student, that is not clear, though Susan she believes that she can learn from someone else's way of doing. She just wants the empirical evidence that a strategy works, and then she will do it that way. *Cloe's opinion differed from Susan's, as the former believed that a strategy must work for her and she will develop her skills to be successful.*

Although Susan indicated that she could sometimes be very directive, she mentioned that she saw a student's discomfort during a reflection session. The student had made a "fatal mistake" during the simulation. She had to learn to allow the student to experience the discomfort to learn from the situation [6.8], and she had to keep herself from discounting the discomfort for the student at that moment. *This indicated that Susan has developed her skills and is seeing the world from a wider perspective, which indicates changes in her perspective of how to do things.*

Knowing the students is helpful, especially during reflective sessions, as nurse educators know the level of the students' development and lead them into deeper understanding of theory and the clinical application of knowledge, but may not a guarantee it. Susan also indicated that strategies for reflection sessions are dependent on the endurance of nurse educators and the number of students [6.12]. The effects of assigning the same nurse educators to the same group of students still need further investigation. *I agree with Susan that nurse educators must be protected from doing one reflection session after the other, as it can be emotionally draining.*

In terms of her learning, she feels that her experiences as an nurse educator are limited. She does not get enough exposure to HFPS, and she still has much to learn. *This is a general feeling among most participants – they believe they need more exposure to simulation.* She does not like the lack of structure, and found the schedule that indicates the responsibilities of nurse educators during simulation very helpful.

Susan needs to be taught more about debriefing, because it is a skill that an nurse educator must feel comfortable with and, if only one specific technique is prescribed, it may interfere with the development of nurse educator debriefing skills. Experimenting with different strategies is a learning school for students and nurse educators. We can see a “letting go” as she makes peace with the things that she cannot determine, and she does try her best when she presents the lectures and the simulation. She always wants to do better and she recognises that she is still learning. Benevolently, she recognises that she is not so strict with the students anymore. Her approach will benefit herself and her students.

Nurse educators must have a good theoretical background to be successful in simulation. According to Susan, simulation is an advanced education skill. The environment plays a key role in student learning, and every measure should be taken to ensure authenticity. Authenticity does not only mean the physical, but includes emotional authenticity too. Susan defines emotional authenticity as the enthusiasm of students about simulation. Establishing an authentic environment involves thorough planning for the scenario. Having a non-judgmental environment will support authenticity. Students feel exposed. The authenticity of the nurse educators and their roles should be supported so that it remains authentic [6.13].

Susan sees a bright future for simulation and she believes that the use of simulation can be expanded even further in the undergraduate module. She found it a scary experience in the beginning, and it is difficult to get nurse educators involved in simulation, but we should have a bigger dream for simulation. Susan says that she is thinking differently about even the clinical sessions, and she has high expectations of her students [6.15].

4.4.2.6.5 Post-interview reflection by researcher

Susan presented a dual approach to learning: that of a student and that of an nurse educator. She expressed that student learning should be active, on the other hand, she says that nurse educators should be taught to debrief. She also enjoyed the “interactiveness” of the simulation workshop that contributed to most of her learning about simulation. I experience that she reflects deeply about her simulation experiences. Sometimes her conclusions are straightforward and very direct, but then she will realise that what works for one person, does not necessarily work for another. When I ponder her process of transformative learning it is difficult to identify where she might fit on the scale (not that I think there is such a thing). My opinion is that she moves back and forth, examining her internal processes carefully. If

something does not fit into her process at the time, it might be difficult for her to recognise that someone else may have a different way of doing it.

In conclusion, I want to acknowledge that every person is different and that one should be open for that which everyone brings to the table for consideration. There is no “cut and dry” when it comes to the learning processes of individuals.

4.4.3 DEDUCTIVE ACCOUNT

Deductive reasoning is the result of abstraction, subsumption and polarisation (Smith et al., 2009:96). Throughout the deductive interpretation, I considered contextual factors and the frequency of similar or contrasting comments.

The deductive account or the interpretive process of the researcher starts with coding of data. Simultaneously, memos and comments form part of interpretation of data. Connections or groupings emerge between and from the codes (Smith et al., 2009:92). From each participant's data, patterns emerged to preserve the idiographic nature of each participant. Patterns also emerged from the collective data of the participants, which reflected similarities and contrasts. Deductive reasoning represents a back and forth, moving from the specific to the whole and then back to the specific. Over time, three main levels of interpretations developed: superordinate (parent level) themes, subordinate (child level) themes, and categories. The process resulted in a deeper understanding of the way participants made meaning of their learning experiences when using HFPS.

Having established an overview of the background and content of the interviews we now move into the deductive phase of the interpretation of data. The deductive phase carries on into Chapter 5. In Chapter 5, I will provide an in-depth discussion of the findings, integrated data, and interpretations by means of the TLT.

Each interview was studied case by case for emerging patterns and eventually superordinate themes (O'Hagan, Manias, Elder, Pill, Woodward-Kron, Namara, Webb, & McColl, 2014:1353; Roberts, 2013, 217; Smith et al., 2009:par 1683). Commonalities, contrasts and nuances provided clues to emerging themes and comparisons between participants. Superordinate and subordinate themes emerged from the data.

Figure 4.2 summarises the respective superordinate and subordinate themes that emerged from the data from a TLT perspective. In the rest of Chapter 4, I present an overview of the

themes in graphs to establish the legitimacy of the choice of each superordinate and subordinate theme from the original data described above.

4.4.4 SUPERORDINATE THEMES WITH SUBORDINATE THEMES

The superordinate themes identified were frames of reference before HFPS, discovering a new world, critical reflection on HFPS experiences, critical self-reflection, and actions following transformative learning. Figure 4.2 demonstrates the superordinate themes with their respective subordinate themes that emerged from the data analysis.

Frames of reference before HFPS exposure	Discovering a new world	Critical reflection on HFPS experiences	Critical self-reflection	Actions following transformative learning
• Participants' backgrounds • Habits of mind • Points of view	• First HFPS exposure • Recognising the effectiveness of HFPS • Reconsidering previous learning experiences	• Motivations for HFPS • HFPS as an andragogy • Lessons learned from HFPS • Willingness to conduct critical self-reflection	• Developing confidence from reflective practices • Transforming ineffective perspectives on learning • Relinquishing control • Commitment to self-development	• Key elements for successful use of HFPS • Participants learning about HFPS • Consequences of implementing HFPS for participants • Skills learned • Results of implementing HFPS

Figure 4.2: Superordinate (top) and subordinate themes (bottom)

Each superordinate theme is matched with subordinate themes in Figure 4.2. Each participant's contributed during their interview to the superordinate themes, as indicated in Figure 4.3.

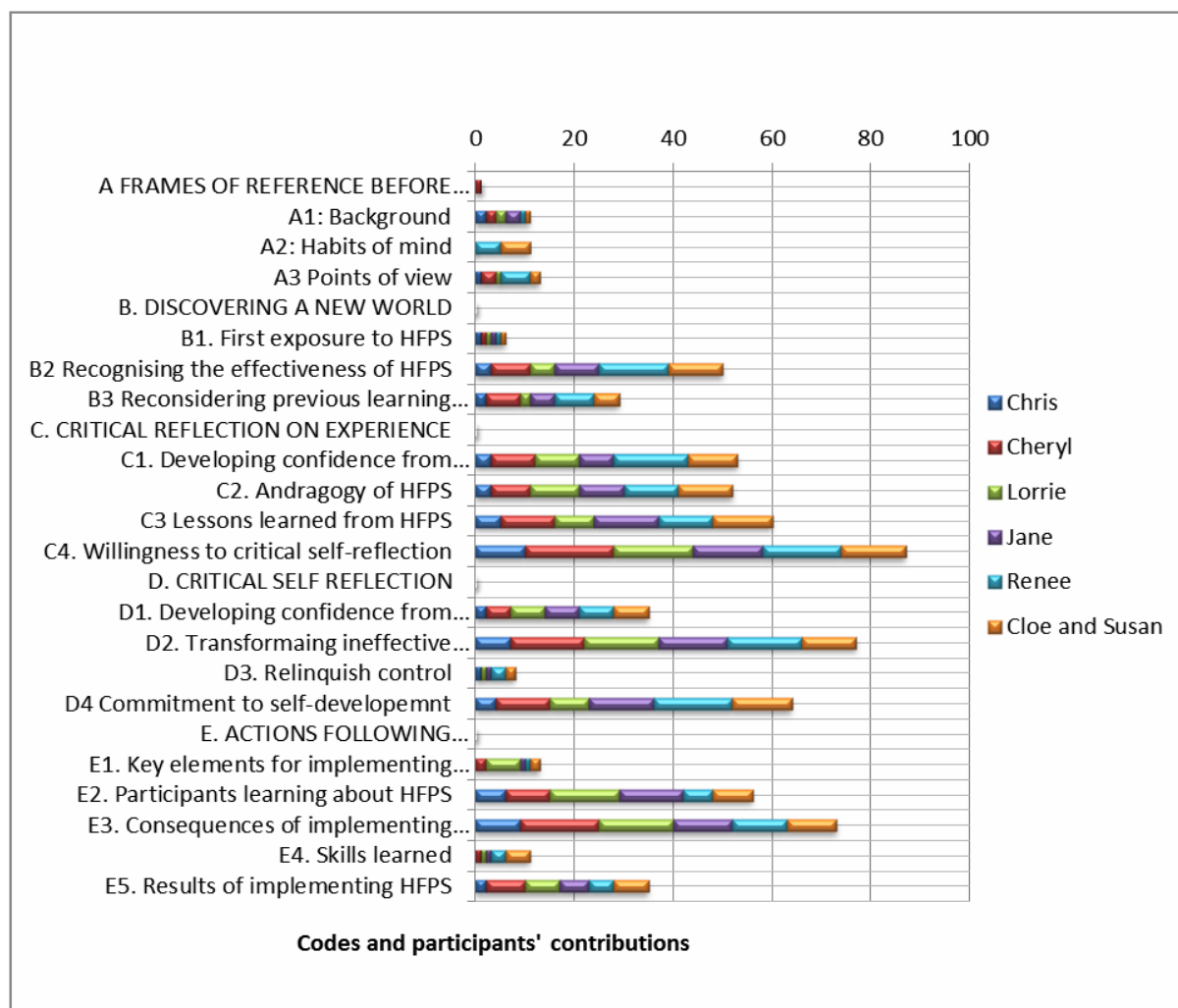


Figure 4.3: Participants' contributions to superordinate and subordinate themes

The purpose of numbering codes related to the superordinate and subordinate themes in Figure 4.3 does not represent the strength of the theme, but shows that most of the participants contributed to each theme at different levels.

4.4.4.1 Frames of reference before HFPS exposure

The first superordinate theme is the frame of reference before simulation exposure. The frame of reference is a phase that describes the participants' existing perspectives before exposure to HFPS. The main subordinate themes that transpired were:

- Participants' backgrounds,
- Habits of mind, and
- Point of view.

Figure 4.4 indicates that, in the beginning, each participant came to the simulation with unique and specific frames of reference regarding learning that were the result of previous lived experiences. None of the participants had any previous contact with HFPS, either as students or nurse educators. Each participant brought a unique perspective to the learning experience.

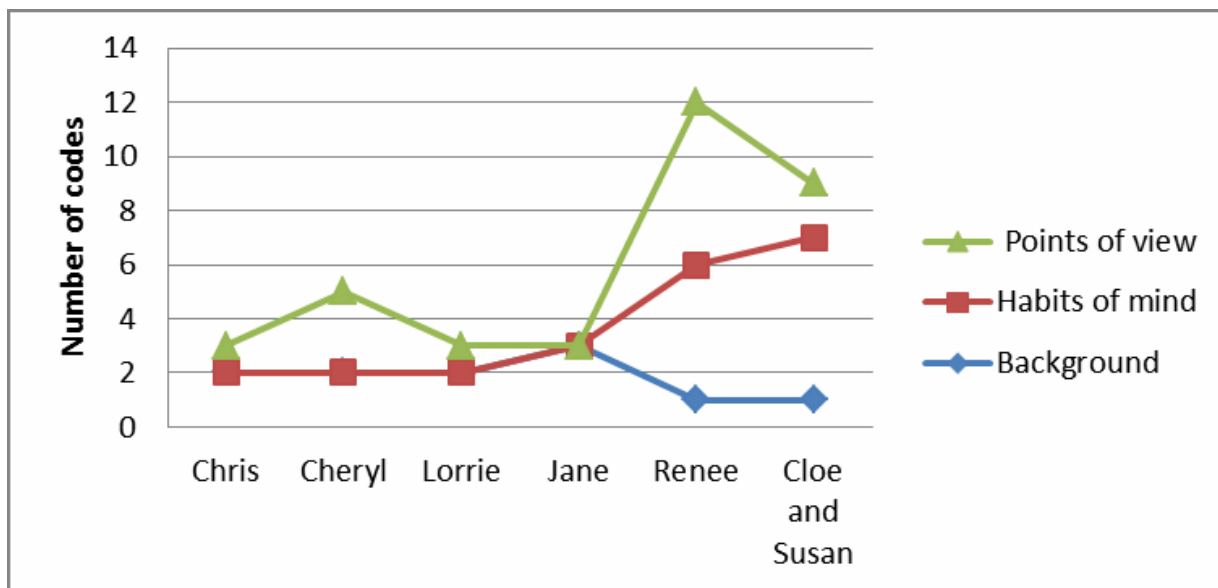


Figure 4.4: Subordinate themes of frame of reference codes

The analysis and interpretation of this superordinate theme was difficult, as it was not a specific question in the interview schedule. Background influences, habits of mind and points of view are often not conscious experiences. For this theme, I listened for participants mentioning background influences that determined their views of education. Table 4.2 lists more information regarding the participants' background influences.

Habits of mind feature at a low level, because, according to the TLT, people are unaware of their habits of mind and points of view (refer Section 2.4.2). Habits of mind are seldom expressed, because of the different dimensions playing a role, such as sociolinguistic, moral-ethical, epistemic, philosophical, psychological, and aesthetic dimensions, which each influences specific points of view that can transpire during a conversation (Kitchenham, 2008:118). This correlates with the low values of habits of mind seen in Figure 4.2.

4.4.4.2 *Discovering a new world*

The second superordinate theme is discovering a new world, which refers to a phase describing the participants' first experiences of HFPS and what their first impressions were (refer to Figure 4.5). Each subordinate theme is discussed below.

The main subordinate themes that transpired from discovering a new world involve:

- Descriptions of their first HFPS exposure,
- Recognising the effectiveness of HFPS, and
- Re-examining previous learning experiences.

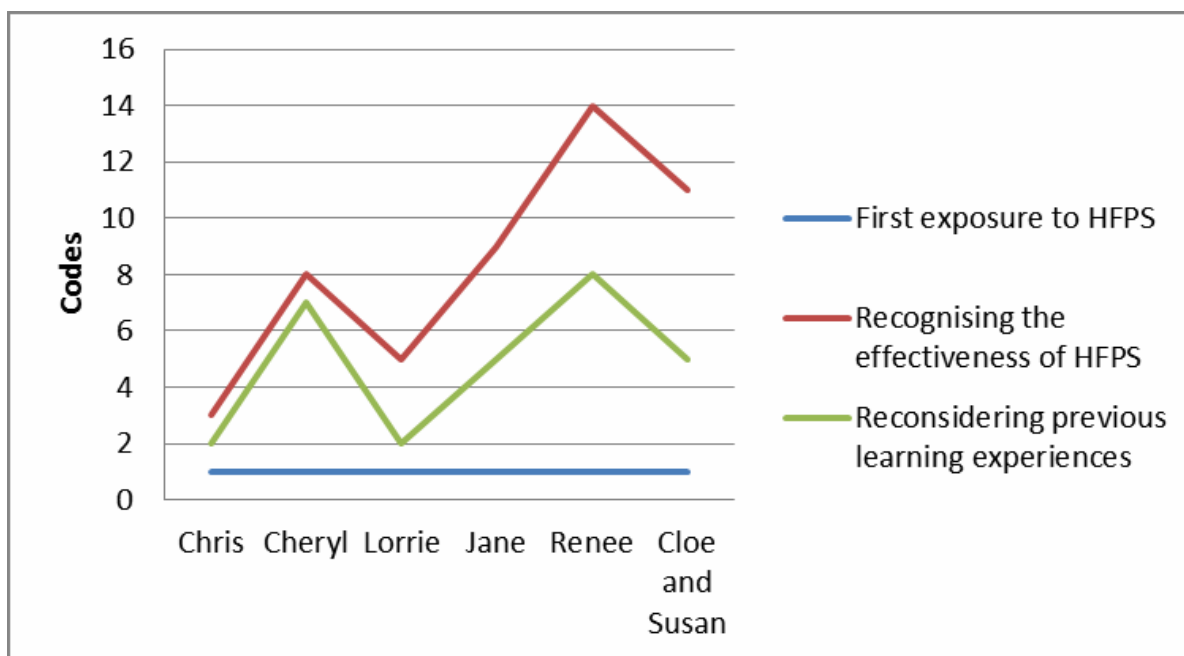


Figure 4.5: Subordinate themes of discovering a new world

The nature of nurse educators' first experiences seems to be very important for future commitment to the learning strategy. Most of the participants called HFPS a "new world". The graph in Figure 4.5 indicates a high number of codes for recognising the effectiveness of HFPS.

4.4.4.3 *Critical reflection on HFPS experiences*

The third superordinate theme is critical reflection on HFPS experiences, which refers to a phase describing participants' consideration of the benefits of simulation, its suitability, possible

implications for themselves and whether they are willing to use it as a strategy (refer to Figure 4.6). The main subordinate themes that transpired were:

- Motivations for HFPS,
- HFPS as an andragogy,
- Lessons learned from HFPS, and
- A willingness to change.

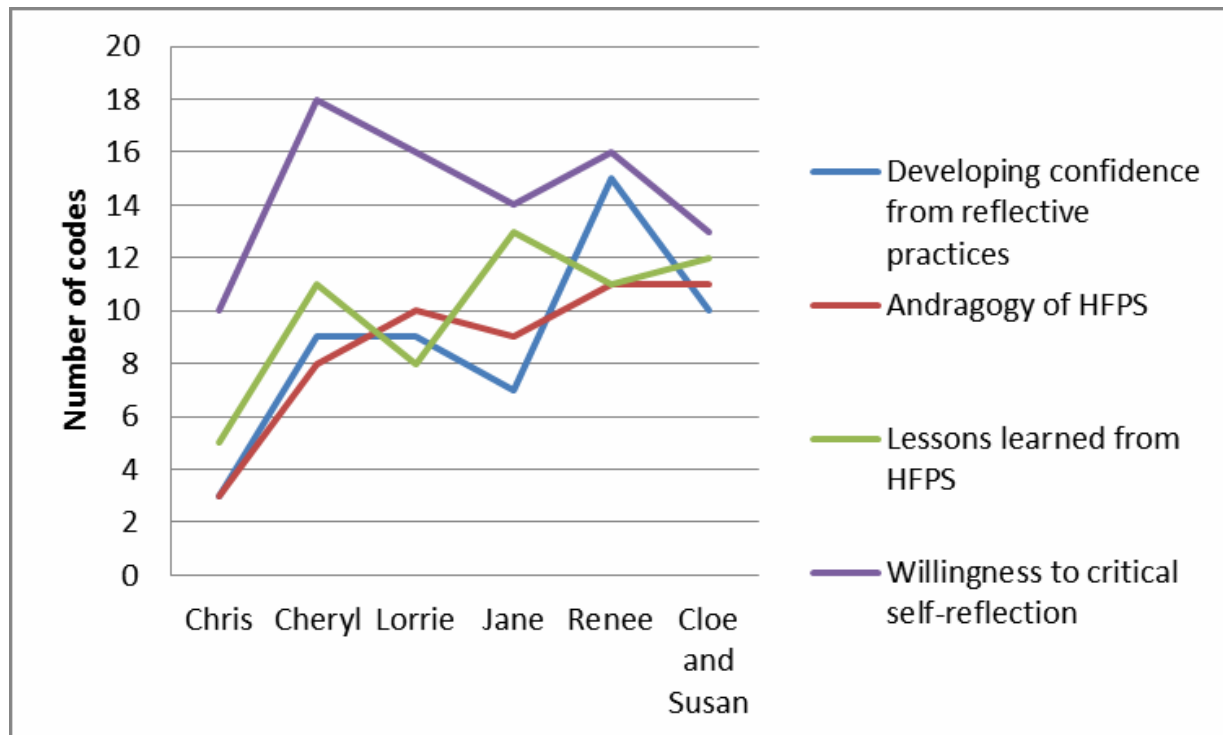


Figure 4.6: Subordinate themes of critical reflection on HFPS experiences

It is a clear feature that participants are willing to consider the effectiveness of HFPS. This willingness is based on the suitability and effectiveness of HFPS as a learning strategy for adults, its role in developing skills and confidence, and that participants could apply their learning to other aspects of their lives.

4.4.4.4 Critical self-reflection

The fourth superordinate theme is critical self-reflection. Critical self-reflection is a phase that occurred when the participant experienced a number of HFPS events and had developed the willingness to use HFPS. The following subordinate themes of critical self-reflection on HFPS transpired:

- Developing confidence from reflective practices,
- Transforming ineffective perspectives on learning,
- Relinquishing control, and
- Commitment to self-development.

Critical self-reflection is similar to looking in a mirror. A number of factors contribute to the response to looking at oneself in a mirror (refer to Figure 4.7).

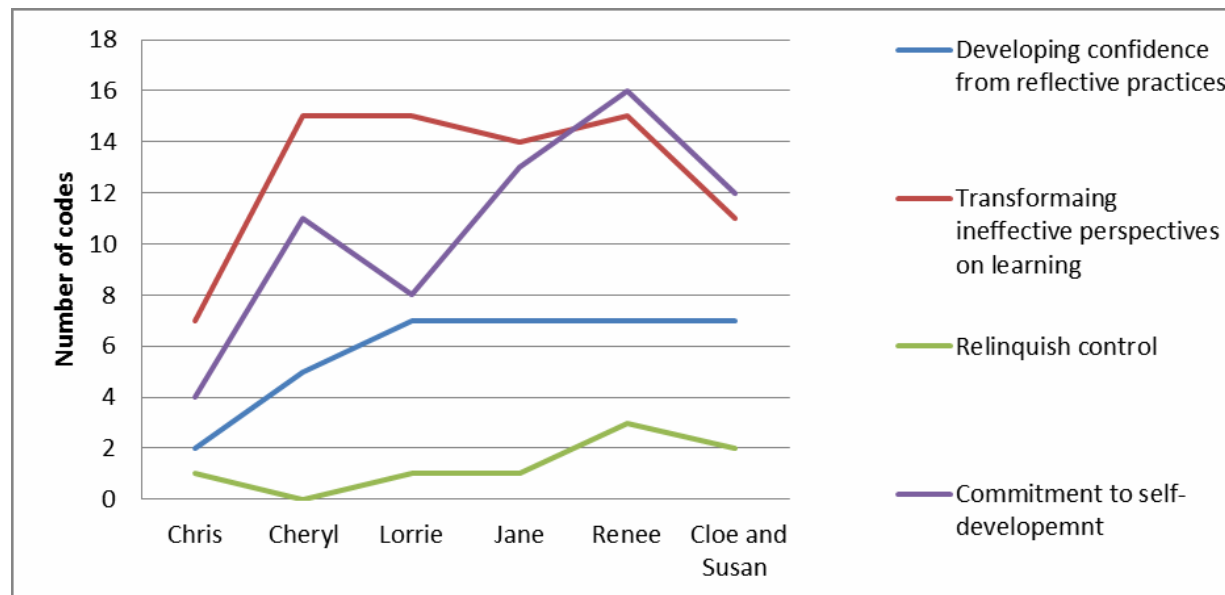


Figure 4.7: Subordinate themes under critical self-reflection

The pattern of the abovementioned metaphor is reminiscent of the subordinate themes in Figure 4.7. Critical self-reflection is more difficult than dressing in the morning. Self-reflection is not a sole analysis of yourself, it is affected by feedback we receive from others through verbal and non-verbal communication.

4.4.4.5 Actions following transformative learning

The fifth superordinate phase involves the actions following transformative learning, which represent the learning of participants at the time of the interview. Transformative learning is a continuing process and the data collection is only a dot on the continuum of time. The idiographic nature of each participant will reflect different points on a timeline. Although the data might be different for each participant, they all have in common the newness of a learning strategy that transforms participants' education practices. The actions following the transformative learning are supported by the subordinate themes that transpired:

- Key elements for implementing successful HFPS,
- Participants learning about HFPS,
- Consequences for participants of implementing HFPS,
- Skills learned, and
- Results of implementing HFPS.

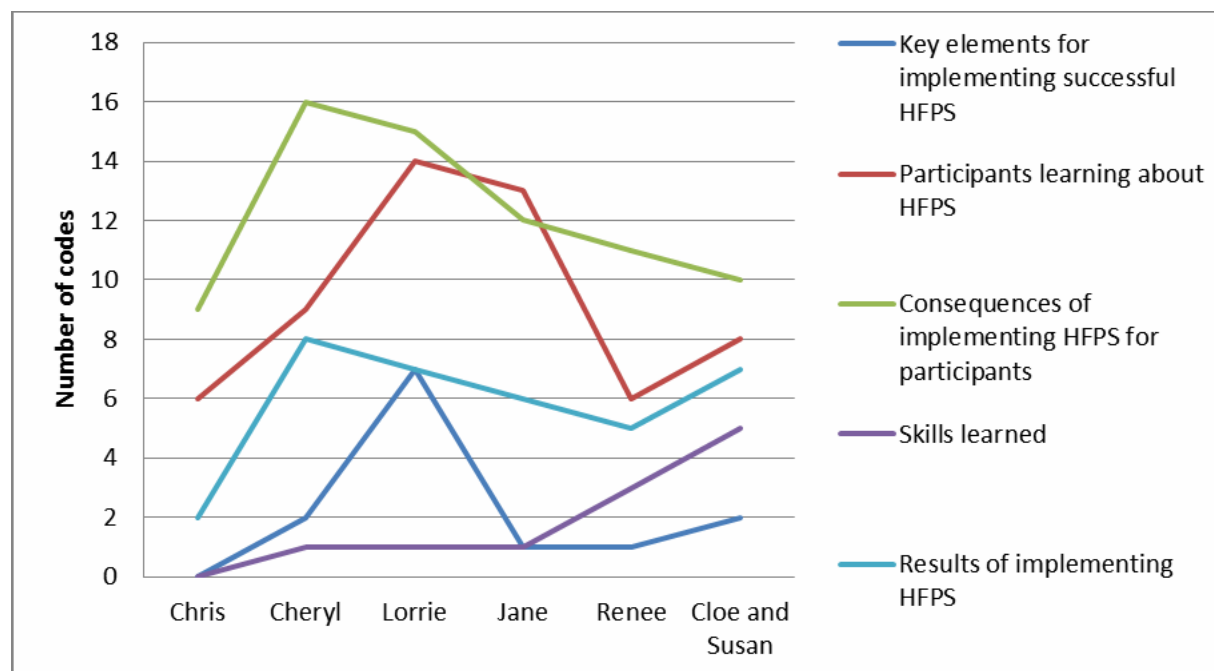


Figure 4.8: Actions following transformative learning

The graph lines indicate that the key contributions HFPS made to participants were the learning and changes that resulted from implementing the learning strategy.

In Chapter 5, I will elaborate more on and indicate the importance of this basic framework for the implementation of HFPS.

4.4.5 CODES, MEMOS AND COMMENTS

The building blocks of the superordinate and subordinate themes are the code lists given on the DVD included on the front page of the study. Filtering and sorting codes was a process that continued throughout the study as new patterns emerged from the data and as more insights were gained. The transcripts of the interviews and the literature relating to learning experiences of other researchers and reported in publications are contained in the code lists. The codes

derived from publications are indicated by either a ^ or # in front of the code, and those of the interviews are indicated by prefaces and colours. I merged and grouped similar codes together. I used the memo function in the software for literature supporting or contradicting the findings. I used the comments functions as reminders of thoughts about and meanings of specific codes. Both memos and comments were incorporated in the data analysis described in Chapter 5. The reflective journals and learning summaries of participants were used for triangulation and in support of findings reported in Chapter 5.

4.5 SUMMARY

Chapter 4 provides biographical information and the inductive and deductive presentation of the interviews with the seven participants in the study. In Chapter 4, I preserved the idiographic nature of the interviews with Chris, Cheryl, Jane, Lorrie, Cloe and Susan, that represents the etic and emic perspectives of the researcher on the data.

Five superordinate themes, namely, 1) frames of reference before HFPS, 2) discovering a new world, 3) critical reflection on HFPS experiences, 4) critical self-reflection, and 5) actions following transformative learning, were identified. With the superordinate and subordinate themes Chapter 4 laid the foundation for developing a theoretical foundation for the learning experiences of nurse nurse educators implementing HFPS through the perspective of the TLT. Chapter 5 will incorporate the TLT and the empirical data of this study and other published studies that relate to the learning experiences of nurse nurse educators involved in implementing HFPS.

CHAPTER 5: DISCUSSION: INTERPRETATION OF FINDINGS

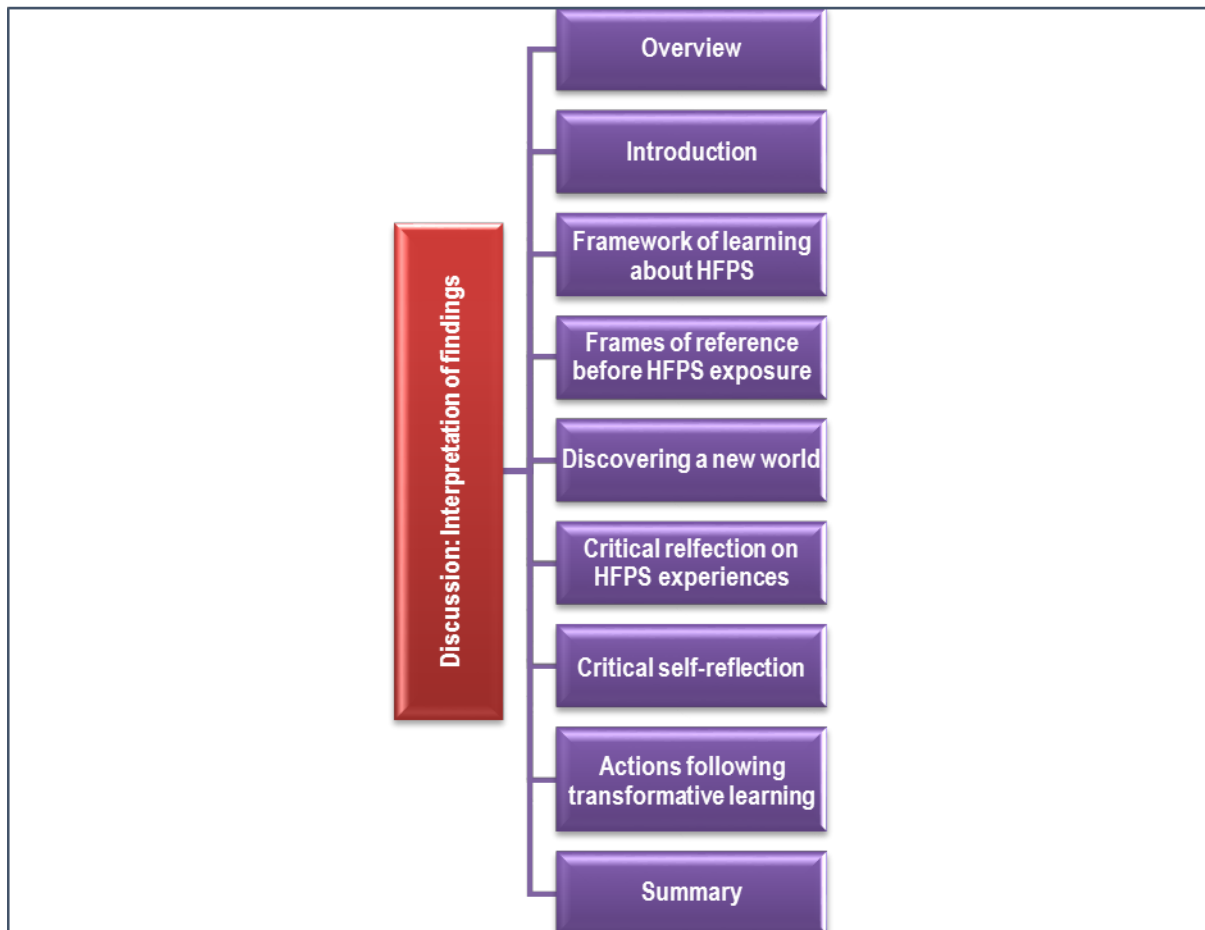


Figure 5.1: Overview of Chapter 5

5.1 INTRODUCTION

The purpose of this chapter is to answer the main research question and indicate how the sub-questions steered the findings of the study. The TLT, as described in Chapter 2, guided the analysis and interpretation of data collected in the study. Chapter 5 discusses the interpretation of transformative learning experiences of nurse educators implementing HFPS simulation at a school of nursing at a university in South Africa.

Participants' descriptions of their learning experiences and changes in perspectives about nursing education were reminiscent of the life cycle of a butterfly. The life cycle of the butterfly is characterised by stages of metamorphosis. The life cycle of a butterfly involves five stages, namely, the egg, caterpillar, chrysalis, emerging butterfly and the adult butterfly, and it is illustrated in Figure 5.2

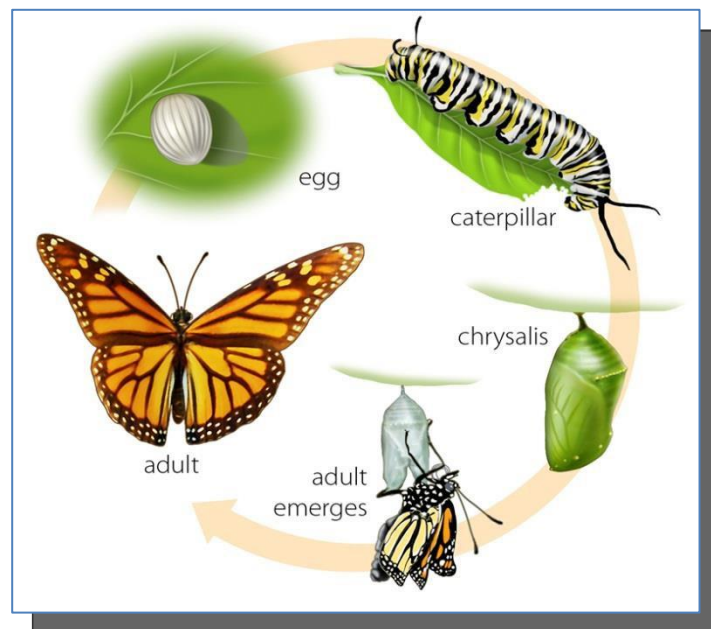


Figure 5.2: Life cycle of a butterfly (Primary St Mary's International College, n.d.)

The first stage of transformation involves the egg changing into a caterpillar. During the second stage, the caterpillar eats leaves – resulting in an increase in size – causing the caterpillar to shed its skin several times before it reaches adulthood. During the third phase, the caterpillar shapes a chrysalis for protection and camouflage. Inside the chrysalis, the outer appearance of the worm changes into a pupa. From the outside, the chrysalis seems to be dead, but major changes in appearance and function are taking place. In stage four, a young butterfly emerges from the chrysalis with its wings wrapped around its body. The butterfly is vulnerable to its environment until the wings dry. The butterfly's circulation pumps fluid into the wings as the butterfly matures. The fifth stage is characterised by the butterfly flying around, looking for a mate. The mature butterfly can duplicate itself by laying eggs and the process starts over again. From an outside perspective, the stages seem illogical and without promise. A deeper understanding of the cyclical process generates awe about what, in fact, happened. An in-depth discussion of the way the life cycle of the butterfly can be applied to the transformative learning experiences of nurse educators implementing HFPS follows.

5.2 FRAMEWORK FOR LEARNING ABOUT HFPS

The imagery of the life cycle of a butterfly provides a framework for the description of the participants' transformative learning while they implemented HFPS. Figure 5.3 illustrates the cyclical nature of participants' learning process.

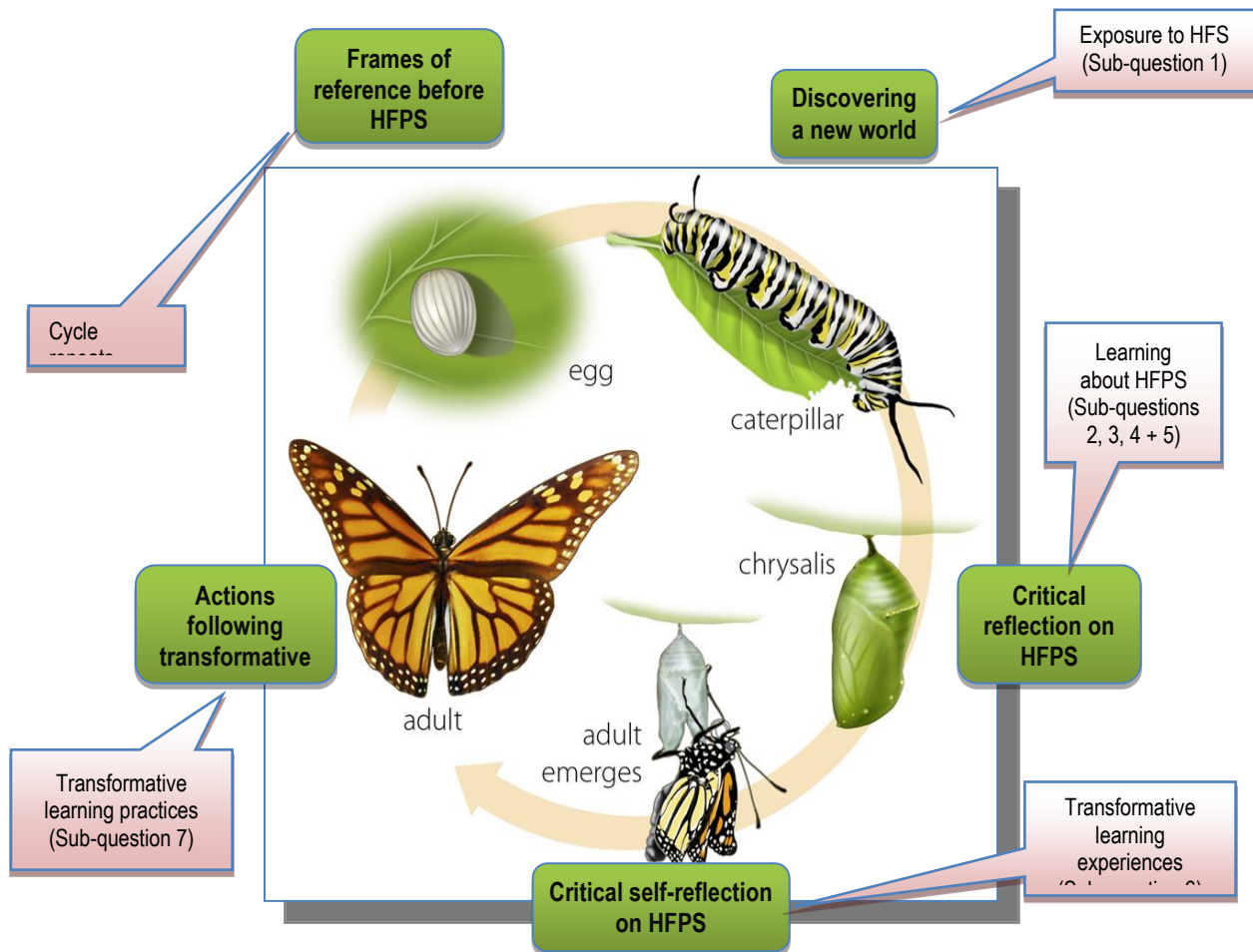


Figure 5.3: Illustration of the framework of the study findings (Adapted from Primary St Mary's International College, n.d.)

The framework is the product of data gathered from interviews, reflective journals, summaries and the researcher's reflective notes, and analysis of this data. The framework emerged from an inductive and then deductive qualitative interpretation of the data.

Five superordinate themes emerged from the data; these themes describe the learning experiences of the participants. Figure 5.3 also indicates the relationships between the research sub-questions and the five superordinate themes. The five superordinate themes are

frames of reference before HFPS takes place; learning in a new world of experiences; critical reflection on HFPS experiences, critical self-reflection on HFPS and actions that followed transformative learning. The description of the framework includes appropriate features of the TLT according to Mezirow and similarities and differences identified by findings of published studies concerned with the experiences of nurse educators implementing HFPS.

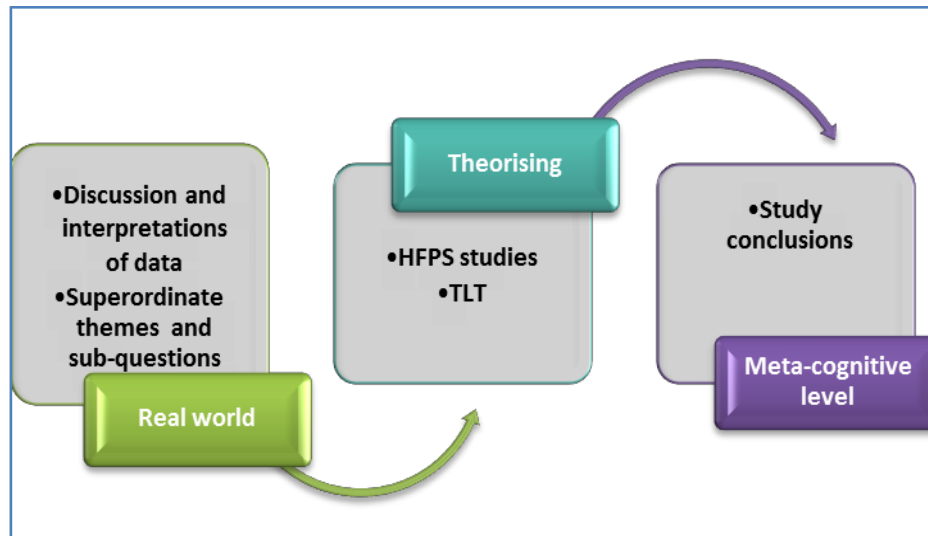


Figure 5.4: Flow of interpretations of findings

In this chapter, the description of each superordinate theme follows a similar pattern. Firstly, the research sub-question is posed and, secondly, the superordinate themes that emerged from the sub-questions are described and interpreted. Thirdly, the findings relating to the superordinate themes are discussed in the light of current HFPS studies and the TLT. Lastly, I draw conclusions about the study (refer to Figures 5.3 and 5.4).

5.3 FRAMES OF REFERENCE OF PARTICIPANTS BEFORE HFPS EXPOSURE

The first superordinate theme is the frame of reference of participants before HFPS exposure. This frame of reference forms the foundations of our values; affective dispositions; moral and aesthetic preferences; paradigms; learning preferences and sense of self (Illeris, 2014:149; Mälikki, 2010:48). Each person develops his/her frames of reference from culture, language and domestic backgrounds (Taylor, 2008:6). Mezirow (2003:58-59) identified two dimensions of a frame of reference, namely, a) generating beliefs and opinions, which he called habits of mind that are expressed as b) points of view. Points of view are flexible beliefs, memories, value judgments, attitudes and feelings that shape a particular interpretation (Mezirow, 2009:94).

Changes in points of view can cause changes in habits of mind. The educational backgrounds of the participants played an important role in the formation of frames of reference. Educational and clinical experiences contributed to the participants' habits of mind and points of view, which are, theoretically, an inherent part of the subordinate themes.

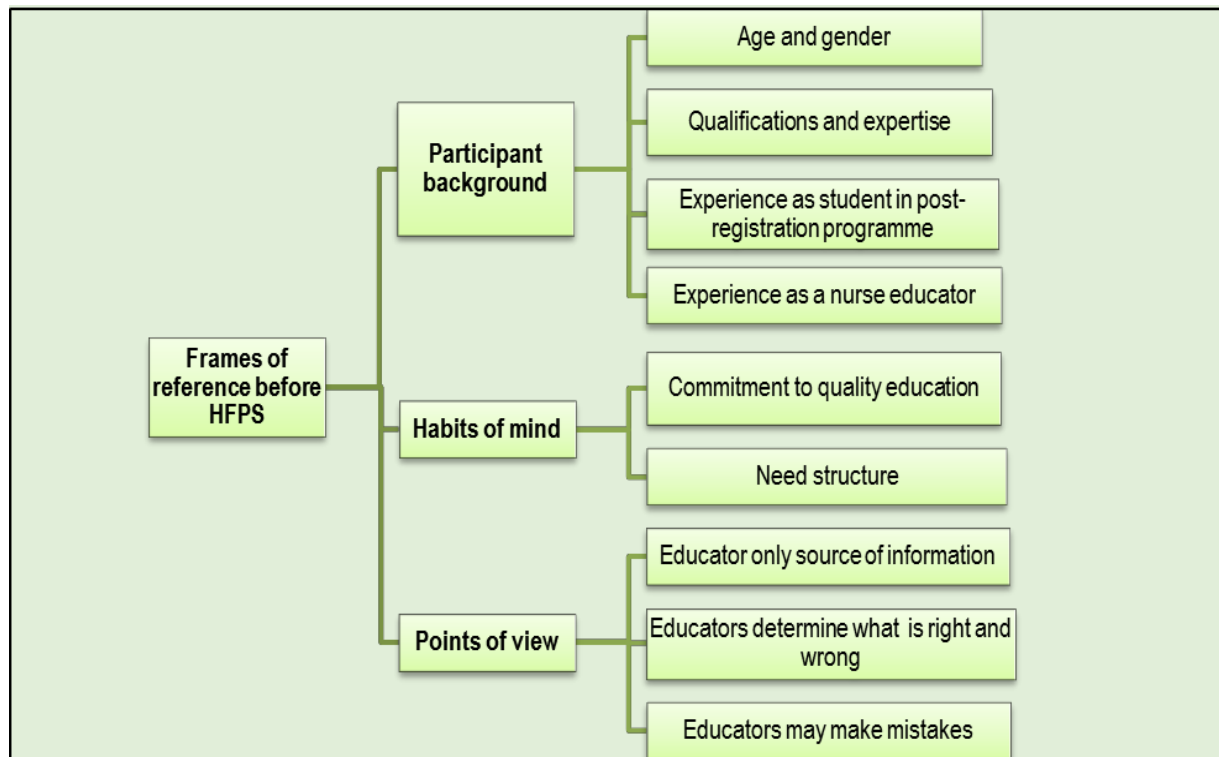


Figure 5.5: Frames of reference before HFPS

Figure 5.5 provides a summary of the contributory factors to frames of reference of participants; their educational background, habits of mind and points of view. The identified frames of reference before HFPS exposure may assist with identification of the traits of nurse educators that may aid successful implementation of simulation.

The frame of reference before HFPS is the baseline for comparing a new frame of reference resulting from a transformation learning process. New frames of reference take time to develop (Mälkki, 2010:45). I noticed during the interviews that the participants were not aware of the personal shifts in frames of reference they were undergoing. In addition, participants may be unaware of adjustments they make due to exposure to HFPS. Comments made by participants regarding their experiences before and after exposure to HFPS provided some information about their previous frames of reference. Peoples' frames of reference are complex. Participants were unaware of their own frames of reference. For this reason, a participant who

is questioned about his or her frames of reference may be unable to describe his/her personal perspectives, its origins and effects on other aspects of life. Transformative learning is a gradual and cyclical process. Therefore, transformations may go unnoticed.

The discussion of frames of reference below does not necessarily represent a total picture of the participants' frames of reference, as it contains subjective deductions by the researcher. The description represents only the experiences of a moment in a full range of personal development. Determining an nurse educators' perspective was not a cut and dried issue. At the school of nursing involved in this study, the concepts of constructivism and experiential learning are professed, but traditional teaching strategies still play a significant role in some modules.

5.3.1 PARTICIPANTS' BACKGROUNDS

Participant information that may play a role in frames of reference is that relating to age and gender, qualifications and clinical expertise, and experiences as an nurse educator, as presented in Table 4.1. Other lived experiences may contribute to individual frames of reference too.

5.3.1.1 *Age and gender*

Six women and one man between the ages of 29 to 64 years participated in the study. Most of the participants were in their middle years. Women traditionally dominate nursing, consequently also in nursing education and this study. Gender did not seem to play a major role in the participants' perspectives. The age and gender of the participants in this study represent the general population of professional nurses and nurse educators.

A comparison of age of nurse educators and use of and comfort levels with HFPS in Canada, indicate a similar age as stated in this study – those participants were also older than 40 years (gender of participants not indicated) (Harder et al., 2013:1243). One may conclude that nurse educators interested in the implementation of HFPS may be of an older generation and not only the Net Generation (Harder et al., 2013:1243). The age of nurse educators interested to implement HFPS requires further investigation.

5.3.1.2 Qualifications and expertise

Each participant had more than one academic qualification: a basic degree and another qualification(s) as a clinical nurse specialist(s) and/or a qualification as a nurse educator (both are post-registration advanced-diploma qualifications).

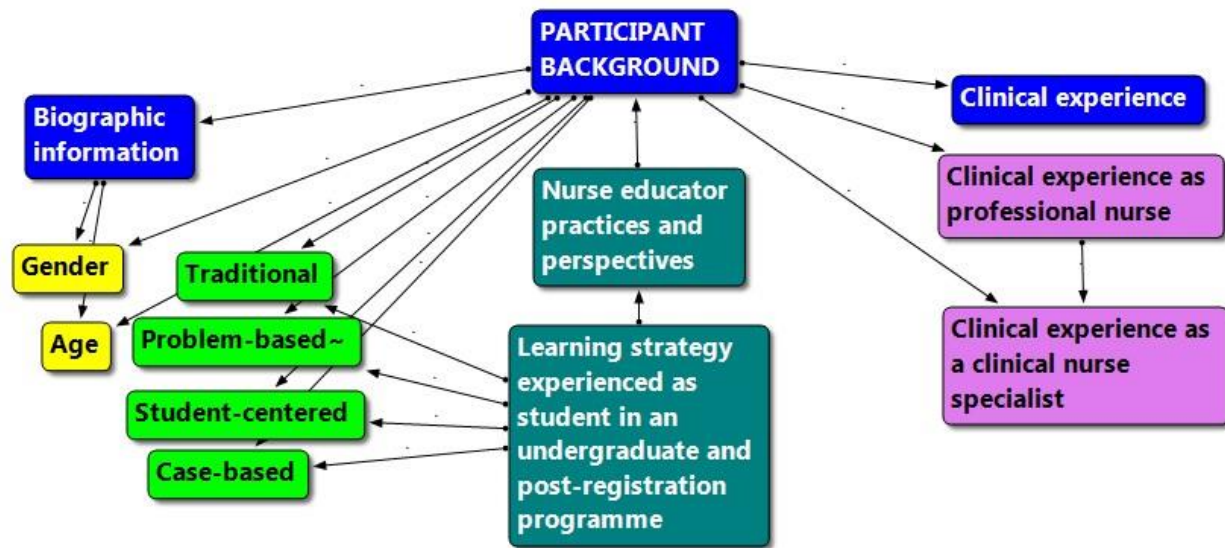


Figure 5.6: Participant information

Figure 5.6 presents a network derived from the coded data relating to participants' backgrounds, as given in AtlasTi 7.5 (refer to Section 4.4). Figure 5.6 indicates two main premises that influence the participants' educational perspectives: their educational and clinical backgrounds. The participants' undergraduate learning varied from traditional to problem-based learning. Most participants mentioned how they experienced their previous educational experiences without any prompting. We can deduce that previous learning experiences served as an anchor for perspectives on new learning. Table 5.1 summarises the participants' comments about past educational experiences, together with the associated feelings they voiced during the interviews.

Table 5.1: Participants' teaching/learning experiences as undergraduate students

Participant	Past teaching/learning strategies experienced as students	Attitudes to past learning experiences
Chris	Case-based	Very negative
Cheryl	Traditional lecture-based	Limitations of strategy is considered negatively
Jane	Traditional lecture-based	Positive
Lorrie	Traditional lecture-based	Limitations of strategy is considered negatively
Renee	Traditional lecture-based	Very negative
Cloe	Traditional lecture-based	Neutral
Susan	Problem based/student-centred	Very positive

Most of the participants had experienced a traditional lecture-based education and realised that their education had some limitations. The participants' first qualifications were Bachelor or equivalent degrees, followed by clinical experience as professional nurses for a number of years (for participants' detailed biographical information, refer to Table 4.1).

The attitudes participants expressed about their undergraduate learning varied from very negative to very positive, regardless of the kind of educational strategy they had experienced. There was little correlation between undergraduate learning strategies and the nature of the attitudes expressed and participants' decisions to become simulation nurse educators. In the study of Harder et al. (2013:1243) the majority of participants had more than 10 years clinical experience and in this study more than six years was the norm.

After gaining experience as professional nurses, participants sought qualifications as clinical nurse specialists. After their qualification as nurse specialists in a clinical field, they gained significant expertise in their clinical fields. Cheryl, Lorrie and Renee completed the post-registration advanced diploma in critical care nursing and practiced extensively in this field of specialisation. None of them mentioned any positive or negative experiences about their post-registration experiences; however, they referred to how they could draw from their clinical experiences to support student interactions during simulation.

Participants' reasons for becoming nurse educators varied. Some obtained a nurse education qualification before, and some after becoming nurse educators. The only participant who did not have a nurse educator qualification is Cheryl, who attended a preceptor programme, which is a requirement for the accompaniment of students in the clinical setting. A combination of these learning experiences during undergraduate and post-registration studies had a considerable influence on their perspectives on education. The foremost attributes of participants were either extensive clinical experience (five to 10 years) or some educational experience before implementing HFPS. Some of the participants had extensive clinical and educational experience. The only exceptions to the general pattern were Chris, who had limited clinical experience, and Renee, who had limited experience as a nurse educator.

The participants in this study had at least five years experience as nurse educators, and some even had more than 15 years experience. In the study by Harder et al. (2013:1243) nurse educators with the highest comfort levels were assistant professors. In a study by Jones and Hegge (2007:e18) the clinical qualifications of nurse educators were not specified, but there is an indication that senior members of the group had more experience as nurse educators.

5.3.1.3 Experiences as students in a post-registration programme

Though Renee had traditional undergraduate and Chris case-based experience, they came to the same conclusions regarding their experiences of the post-registration programme in nursing education. Chris and Renee were *less positive* about the limited skills they had obtained during the nursing education programme. Both participants experienced a gap between their theoretical training as nurse educators and the learning they experienced from implementing simulation. They both mentioned that they had observed their own nurse educators closely, and had given the kind of answers they thought the nurse educators would like to hear.

Jane, Lorrie, Susan and Cloe did not mention how their nursing education qualifications helped them to implement HFPS. Cheryl mentioned that some of the articles she had read during the preceptor course only started making sense after exposure to HFPS.

5.3.1.4 Experiences as nurse educators

Six of the participants are nurse educators in theoretical modules in nursing care and are qualified as nurse educators (refer to Table 4.2 for details). The participants' tasks as nurse educators varied. Some were involved in undergraduate programmes, other in postgraduate

programmes and some in both. One participant had a part-time appointment in simulation and was therefore responsible for both undergraduate and post-registration students.

Literature does not provide a clear indication of the demographic profile of simulation nurse educators. Consequently, there is no indication of who would be the ideal simulation nurse educator (Hallmark et al., 2014:345; Jones et al., 2014:356). Nehring et al. (2013:26) indicate that surprisingly little research has been performed thus far regarding nurse educators managing the technology themselves; even fewer studies were conducted outside the United States.

The participants in this study were of an older generation. However, this may be a result of career development, involving, firstly, building clinical proficiency, and becoming a clinical nurse specialist through academic and experiential engagement before entering an academic career. This progression may imply that future nurse educators who will use simulation need some update if their clinical skills are out of date. The higher ages in this study may be a result of a particular career pathway.

Jones et al. (2014:356) set out to describe the demographic profile of nurse educators using simulation (teacher construct in the NJSF). The review of 10 dissertations and 18 journal articles reported on the following variables: age, gender, culture/ethnicity, language, type of learner (skilled/unskilled), traditional/non-traditional, and type of programme they present. The study findings were inconsistent, and a profile, including age of the teacher construct, was not constructed.

Frames of reference also refer to the skills already in place. A similar study by Miller and Bull (2013:241) reports that their participants were clinical nurse specialists with two to 16 years academic experience. Nehring et al. (2013:3) indicate that nurse educators should be proficient about the knowledge of conditions, physiology and pharmacology, in addition to the education skills and technological skills required by HFPS practices.

The findings of this thesis expounds on the complex nature of describing the profile of a nurse educator using simulation. This study adds a description of the habits of mind and points of view that result from previous education and clinical experiences. Exposure to simulation resulted in participants revisiting and revising previously held frames of reference through a process of critical reflection.

5.3.2 HABITS OF MIND

As described in Chapter 2 (Section 2.4.2), habits of mind are broad sets of assumptions acting as filters for interpreting the meaning of our experiences (Baumgartner 2012:109; Mezirow 2012:82-83). Past lived experiences and the interpretations of these experiences shape a person's habits of mind. Habits of mind are stable and only change after extraordinary lived experiences. Furthermore, nurse educators' habits of mind are significantly influenced by previous interpersonal relationships and occupational lived experiences.

In order to identify habits of minds in the data, I searched those presuppositions that participants indicated did not change from the time of the first HFPS until the time of data collection. Two main presuppositions seemed to remain stable. Firstly, participants set high expectations for themselves. Participants valued setting outcomes, and prescribed the content of learning for students' learning. Secondly, they expressed a need for structured support when learning about HFPS. For their own learning, they were more comfortable with structured support. Both these presuppositions indicated a habit of mind of structure when it came to students' and their own learning.

Participants voiced that their dedication to providing a quality educational service to students continually contributed to improving their educational practices (habits of mind). Each of the participants, in some way or another, voiced their appreciation of the student learning experiences during HFPS, and hence their commitment to HFPS.

Cheryl said,

for me... I love to teach people... someone didn't have a clue and now there's this connections... I love it to see people grow.

Lorrie said,

we evaluated them (students) no, not in the sense of wanting to test them but we could see whether what we are teaching them and the experience that they have in the practice, whether it work ed.

Lorrie found that she could improve on her educational practice through observing her students during HFPS. Observing her students gave her feedback about the effectiveness of her educational strategies in class. Her openness to critical self-reflection is also an indication of

her commitment to providing quality education to her students. Jane expressed her commitment to quality nursing education. HFPS causes some discomfort for her, but she committed herself to using HFPS as a learning strategy.

I am a bit nervous... but what was exciting for me is that what the student can learn. I think that is the outstanding thing, what we try to do. And to, to prepare them for the practice, I think... the best that we can learn (teach) them... in a safe environment that they can do... when they finished.

Although Jane is the oldest participant (referring to the issue of age again), we see her commitment to providing quality education to her students despite some discomfort to herself. In addition, she revealed a student-centred paradigm from the onset of employing HFPS. Surprisingly, as the oldest participant, Jane was the first to embrace simulation as a learning strategy. Previously, she was also willing to include other new learning strategies into the modules she presented. She was willing to implement HFPS when she was assured that she would receive training, guidance and technical support. The existing habit of mind of commitment to quality education practices was a key factor for her to implement HFPS in the third-year modules of general nursing care. Having witnessed its potential and results in students' learning, other nurse educators readily followed her example.

5.3.2.1 Expect structured support for learning about HFPS

Participants also indicated that they preferred an organised, controlled environment in education, compared to an unstructured, student-led approach. Some participants felt out of control during the first number of simulations, whilst others thought of themselves as “*control freaks*”. As a basic need for structure and control emerged, the participants indicated the significant support that the written timetable provided during simulations. Participants emphasised that the task allocation provided a structure to organise themselves (See Appendix 4.2). The initial intention of the timetable was to distribute the workload evenly and to provide fair and equal learning opportunities during HFPS.

Susan's opinion of her experiences was,

But I am a to-do-list type of person, so for me that is what my needs are.

Referring to the way the scheduling of tasks helped her, Cloe said,

I like structure.

Jane described the scheduling of tasks,

Now that we have a kind of a timetable that everyone knows what to do, it's easier for everyone to fulfil their role.

Cloe's wrote in her summary of learning experiences,

But its [referring to HFPS] use should be based on best evidence and not so much on intuition alone.

Jane also recorded in her journal how a structured approach helped them to be organised,

An important aspect of simulation is the meeting one week prior to the simulation. This is where the detail of the simulation is discussed and changes are made and/or additions are made. Each person received a simulation document beforehand to study and to comment on.

As a simulation coordinator, I underestimated the need of participants for structure during HFPS. I presumed that nurse educators would engage themselves with learning opportunities as they arose. The lesson I learned was that exposing nurse educators to HFPS for the first time should be a structured process, as a lack of structure could cause them to feel insecure. Even after participants attended a simulation workshop and received sufficient training in HFPS the timetable was a necessary part of simulation. Additional documents that structured nurse educators' thinking were the scenario development tool and simulation area checklist for the preparation and conclusion of simulations. Simulations were also scheduled and planned at the end of the previous academic year. This structured support assisted participants to adopt HFPS into their modules.

5.3.3 POINTS OF VIEW

The points of view in the frame of reference are tacit perspectives that include a collection of beliefs, memories, values, judgments and attitudes through which people interpret the world (Mezirow, 2009:102). The following section demonstrates how previous learning of participants sets them up to absorb teacher-centred approaches before they implement HFPS. The participants' teacher-centred points of view featured in the descriptions of both their

undergraduate and in one or more post-registration programmes. Participants came from diverse backgrounds, resulting in diverse points of view regarding their roles as nurse educators. The participants believed, in general, that nurse educators are the source of information, they determine the criteria for successful learning and they must “be perfect” in what they do. The results of these points of view are contrary to the perspectives that find application in HFPS.

5.3.3.1 Nurse educator is the source of information

Participants considered themselves to be central in determining the content of students’ learning, thus indicating an nurse educator-centred point of view. A teacher-centred approach emphasises the role of the nurse educator as source and interpreter of knowledge. Participants might have taken on their role models’ perspectives, because their educational practices were presented or perceived as the only correct way.

Chris examined his experiences as a student, during which he felt underestimated; he had the following opinion of his nurse educators:

because they like to be in charge, in control.... we’re dictating the class and little sponges need to absorb.

Renee expressed her initial thoughts as an nurse educator honestly:

Right at the beginning when I was appointed as a preceptor, I didn’t even know what a preceptor is, so I was like, what am I supposed to do? And you said you must just ask questions and ask questions, you can ask them seven times, and I thought, never, I will never do that and you said, just keep quiet, be silent. I said, no, it’s my worst nightmare, coming here, you’re supposed to be now teaching, and you had to be silent?! They will think I don’t know my stuff, they will see that I don’t know, so I said, that’s not gonna happen [5.3].

Later in the interview I made a statement to Renee about my student years:

And, I can’t remember that I was asked... what are you thinking?

Renee responded:

*Ja [yes], it's so true. No, it's my opinion, study it and give it back to me [sarcasm].
Never about your knowledge, your thinking, or your interpretation of the situation.*

She was also amazed about the responses of students after HFPS, that “*students actually have thoughts*”. Before her exposure to HFPS, Renee did not perceive that students could have any original thoughts.

Cheryl followed her nurse educators as role models when she said:

when I was an ICU-trained nurse... I just wanted to bombard the poor students in the ICU with all the knowledge and how you must do things and I'm a bit of a control-freak so I'd like them to do it this way and this way.

Participants had experienced their own nurse educators in the past as less concerned with students' thinking and learning processes, but more with their own knowledge and application of teaching strategies.

5.3.3.2 Nurse educators determine criteria for successful learning

Even the participants indicated that, as students, they had negotiated the traditional education system by “*giving nurse educators their own words back as an answer*” (Chris and Renee). As a result, students do not develop critical thinking skills that go with the student-centred learning process, i.e. communication, solving problems systematically or gaining the ability to work in a group. Students should be exposed to learning experiences to realise the ways in which they can learn effectively, rather than adopting the nurse educator's ways.

Renee mimics her nurse educators by saying that,

it's my opinion, study it and give it back to me. [It is] never about your knowledge, your thinking, your interpretation of the situation.

During her studies as an nurse educator she had a similar experience,

I know from studying that you give the lecturer what they need, you know this one want the emotional stuff and the reflection and you know this one wants factual so you study your lecturers and you give them exactly what they want, because that's how you get your marks. And you know some of the lecturers, like in

[redacted] last year, I must give her own examples back to her. Then I get good marks.

Cheryl had some traumatic experiences during assessment,

because we only had OSCE's¹⁶ you know and we still don't know why we failed some things, because nobody told us, nobody talked to us about what we did wrong and how we should have done it.

In Cheryl's case, she left her programme doubting herself as a result of this experience and she still did not know what was right or wrong. Chris commented on his own experiences as a student, *Well, they have to let go of their authority and let the students be and the students are in control of their own learning, their own doing and so forth.*

Chris wanted more control over what is right or wrong in his view. One should consider Chris's statement in the light of an adult learner, because he had a different occupation before becoming a registered nurse.

When nurse educators determine what is right and wrong, students do not develop the ability to distinguish between "right" or "wrong", what is better, the best way or to reflect critically on experiences, because the decisions are made for them.

5.3.3.3 Nurse educators must be perfect

Generally, nurse educators seem to accept that students will make mistakes and that is acceptable for a student, because it serves as learning opportunities. From their descriptions of their first simulation experiences, nurse educators considered making mistakes themselves to be unacceptable. It was hard for them to see their mistakes as learning opportunities.

Cloe's comments show how nurse educators put pressure on themselves and aim for perfection. After her first experience, she reports,

and I just suddenly realised that if we are going to get this wrong as educators... We can damage [students] and that is still a... fear in me... we need to get this right... you know that I am very particular about and... we need to get this right for

¹⁶ Practical examinations.

the benefit of the student. And to get there I as an educator need to get myself right.

Renee expressed how nurse educators feel pressured to deposit their knowledge into students. She felt that, in some cases, nurse educators might come across as defensive, especially during debriefing of students, when students challenge their points of view. She speculated that, because a nurse educator's identity might be based in knowledge or expertise, it may lead them to squash the students' development of critical thinking.

Susan said about her first experience of simulation,

I was actually judging myself very negatively.

Some participants seem to replay (or reflect on) events, seeking better alternative actions. The results of the reflective practices may be constructive or destructive. The outcome depends on the decisions participants make as a result of their reflection. Most participants had to challenge their points of view as nurse educators and determine that they are not at the centre of learning. HFPS creates opportunities for nurse educators' own learning.

5.3.3 DISCUSSION OF FRAMES OF REFERENCE

This study provides clear background information about participants and the setting of the research site, with the aim of contributing to the international aim to provide a solid foundation for simulation programme development.

According to Larsen and Schultz (2014:626), studies in HFPS can contribute to best practice development in simulation if background information, such as clinical expertise, philosophy and attitudes about learning needs, competencies of participants and support services in the settings are clearly described. A clear background also provides an understanding of the transformative learning participants experienced. Mezirow (2003:58-59) indicates that *frames of reference* are influenced by a variety of background factors, such as interpersonal relationships, political orientations, cultural bias, ideologies, schemata, stereotyped attitudes and practices, occupational habits of mind, religious doctrine, and moral and ethical norms. In his original study, Mezirow (1978a:100-110) focused on the transformative learning of women, and adult learning (refer to Section 2.2). Considering the age and gender of research participants is essential. Both age and gender influence individuals' frames of reference

(English & Irving, 2012:246). The study's perspective does not include a feminist approach, but acknowledges that most nurses are women.

Nurse educators who use HFPS come from diverse clinical and educational backgrounds. The participants had not been exposed to HFPS as a students or nurse educators before. Dissimilarities in nurse educators' backgrounds led to different frames of references on cognitive, clinical, technological, social and professional aspects (Larsen & Schultz, 2014:626). The TLT acknowledges that people have different backgrounds and will therefore have differing perspectives and expectations. Examining HFPS research participants' backgrounds may provide more information about why some lean towards the use of HFPS and why some are successful and others not.

Only a few publications on HFPS research report the participants' backgrounds, which makes comparison of studies difficult. Nevertheless, studies reporting on the backgrounds of participants correlate with the findings regarding participants' backgrounds by this study.

A report of a study into the characteristics of nurse educators interested in the use of HFPS correlates with similar features found by this study. Nurse educators' levels of enthusiasm for using HFPS was categorised as being one of four by Akhtar-Danesh et al. (2009:324). These categories are:

- Positive;
- Enthusiastic;
- Supporting; and
- Help-seeking.

These four groups were most likely to make use of HFPS. However, another group opposed the use of HFPS – *traditionalists*, who would generally support a teacher-centred approach. In their publication, Akhtar-Danesh et al. (2009:324) only listed groups' characteristics and did not present their participants' educational and clinical backgrounds. The correlations between this study and the study of Aktar-Danesh et al. (2009) provide rich information regarding the relationship between backgrounds and frames of reference of the participants in both studies. The influence of nurse educators' backgrounds and resulting perspectives (habits of mind and points of view) on education needs further investigation; as also indicated by Larsen and Schultz (2014:626).

The TLT distinguishes between two *levels of frames of reference (meaning perspectives)*, i.e. *habits of mind* and *points of view* (Chapter 2). Kroth and Cranton (2014:4) describe habits of mind as being the deeply imbedded, automatic thoughts, actions and feelings we do not question or think about again, and they are therefore non-reflective habits. Consequently, habits of mind result from a multitude of past influences, which have been absorbed mostly uncritically into frames of reference and that therefore need deeper investigation.

Two subthemes of habits of mind emerged from the data: firstly, participants set high expectations for themselves in order to provide quality education to students, and secondly, they *expected structured support for learning about HFPS*. Setting high standards for oneself and others in the initial implementation of HFPS might be unrealistic. Literature indicates that HFPS elicits significant stress levels for nurse educators (Al-Ghareeb & Cooper, 2015:284; Nehring et al., 2013:4). As seen in the data, participants are perfectionistic by nature, and strict with themselves and others. Additional stress may cause harm to their relationships with themselves and with others. In response to stress, participants wanted to standardise the processes of HFPS. According to Moule (2011:645c) standardised learning experiences of students are part of best practices of HFPS. Nevertheless, inflexible scenarios may limit learning opportunities for students.

An alternative interpretation of the participants' habits of mind – commitment to quality education – may speak to the motivational factor that contributed to their interest in HFPS. The perfectionistic trait of participants might also merely be a habit of mind characteristic of a respectable simulation nurse educator. Nurse educators who value high expectations should reflect critically on the origin of their perspectives. Thorough examination of their definition of “high expectations” may be congruent with the latest best evidence practices in HFPS, or may be a negative trait that could cause harm to colleagues.

Higher education institutions may also “enforce” a “*habit of mind*” through rigid structures, policies, requirements and standards. For example, requirements such as lesson plans, module outcomes, assessment criteria and memoranda for papers are limiting factors that constrain student self-directed learning by leaving little room for learning from life experiences. Nurse educators with a traditional educational background are often unable to see the limiting effects of abovementioned factors on students' learning (Curran & Murray, 2008:107).

The second subtheme, *the need for structured support of their learning* about HFPS, overlaps the previous subtheme. Participants reported that having a structured task allocation while

learning about HFPS assisted them to know what is required of them while adapting to and adopting HFPS. Because of their habits of mind, subdividing tasks made participants more comfortable while they were learning HFPS skills. An individualised, unstructured orientation process was used to introduce participants to HFPS at the research site. However, as participants started to help during HFPS, they expected their tasks to be structured and defined. They indicated that they preferred a list that allocated each nurse educator's tasks, and stated where and when tasks should be performed. An organised approach to the development of nurse educators may play a key role in nurse educators adopting HFPS. However, due to diverse backgrounds the learning needs of nurse educators may be different, and this organisation of nurse educators may therefore be difficult to coordinate. Nurse educators require a degree of individualised development if they are to learn about HFPS. I am of the opinion that novice simulation nurse educators need a gradual, self-determined engagement with HFPS. During this phase they also need structured support and, as indicated by Blazeck (2011:e57), a low-risk environment, to reduce feelings of anxiety while learning about HFPS.

Points of view are more accessible to awareness, open to suggestions from others, and more fluid and adaptable in nature than habits of mind (Hodge, 2011:501). A person's point of view is the more reflective component of a frame of reference, which reflects what "truth" is. Nurse educators bring their existing points of view, based on previous experiences, into their first experience of HFPS. Not all previous learning solidifies as habits of mind, but new experiences may change a person's point of view (Yeboah, 2012:50). I identified existing points of view as attributes that resulted from previous learning but, as participants indicated, their points of view changed after exposure to HFPS.

Thus, nurse educators or facilitators can position themselves in a conservative or a creative paradigm. For example, nurse educators may consider themselves as pivotal to learning, as they determine the outcomes, teaching strategies and assessment strategies. As a result, the nurse educator, and not the learner, determines the outcome of learning. My view is that the andragogy of HFPS falls within a transformative learning paradigm instead. The point is that nurse educators can assist students to set their own outcomes, assist in mapping out the road to reaching their goals, and provide advice and support along the way within HFPS. Although I agree that the nurse educator cannot be eliminated from the learning process, but must rather move away from an imbedded traditional education, nurse educators' frames of reference should change, to become more flexible, more inclusive points of view.

Previous knowledge and experiences of nurse educators can aid and hinder the learning of students during HFPS. Nurse educators can foster, in students, a belief that there is a difference between theory and practice (Smith, Witt, Klaassen, Zimmerman, & Cheng, 2012:391). Chris mentioned that, in his opinion, the nature of education is flawed. He believed it was caused by nurse educators' *lack of understanding of present practices*, and that the theory does not match reality. This opinion indicates that nurse educators cannot be the only *source of information*, that the complexity of learning means the nurse educator is not the only determinant of what is *right or wrong*, and that nurse educators do *make mistakes*, of which they may not be aware. On the one hand, students can also learn in the absence of a nurse educator, on the other hand, the role of a nurse educator is only pertinent if the aid the nurse educator provides delivers an outcome greater than when a student is alone (Johnson-Farmer & Frenn, 2009:271).

When nurse educators avoid unfamiliar experiences, they may miss out on good learning opportunities. However, one must weigh opportunities for nurse educator learning and benefits for student learning, which does not imply exclusion of either. Mezirow (2012:84) emphasises that frames of reference are linked to self-image, and he calls this phenomenon an idealised self- image. The key matter is that transformation of a frame of reference takes place over time. This matter is confirmed by both simulation and TLT literature. From a simulation perspective, it takes time to master the new strategy, technologies and roles in simulation, and students require time to adapt to this new learning strategy (Ng & Ruppel, 2016:62; Hallmark et al., 2014:349). Time is therefore required to ensure comfort (Jones & Hegge, 2008:e8). In the TLT time is required to make shifts from old perspectives to new perspectives (Lundgren & Poell, 2016:22; Barclay-Goddard et al., 2012:214; Johnson-Farmer & Frenn, 2009:271).

5.4 DISCOVERING A NEW WORLD

This study set out to explore the learning experiences of nurse educators implementing HFPS as a new learning strategy. Seven sub-questions focused the aim of the study and guided the data collected from participants. From the first sub-questions of the research emerged the second superordinate theme, “new world experience of HFPS” (Figure 5.7). The first sub-question was:

Sub-question 1

How did participants experience their first HFPS?

Figure 5.7 offers an illustration of how participants described the different nature of HFPS as a learning strategy.

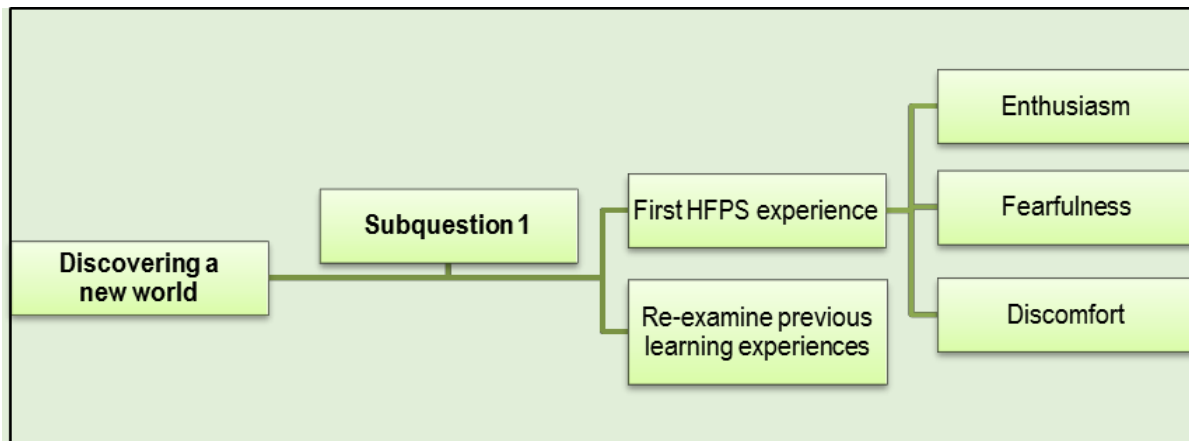


Figure 5.7: Discovering a new world

Participants repeatedly called HFPS a *new world*, in terms of both their own and their students' learning. In his TLT Mezirow calls this type of experience a *disorienting dilemma*. A disorienting dilemma is an experience that indicates to a person that previously held frames of reference are ineffective for solving a dilemma; the person then has to seek alternative strategies to solve the problem. This disorienting dilemma results in embarkation on a learning process that changes learners' perspectives drastically. Figuratively, in the analogy of this study, it refers to an egg becoming a larva, then developing into a caterpillar (Figure 5.3).

First adopters experience implementing HFPS as a daunting task (Nehring et al., 2013:1) and that is true for the participants in this study too. Positive consequences for nurse educators who are implementing HFPS are personal development, growth and feeling cherished (Ng & Ruppel, 2016:62). Few studies address the experiences of nurse educators using simulation in nursing education. The development of simulation nurse educators must be a done according to systematic process based on best evidence (Ng & Ruppel, 2016:63). Nurse educators should have a sophisticated understanding of HFPS if they are to implement an alternative learning experience such as simulation successfully (Jones & Hegge, 2007:e15).

5.4.1 FIRST HFPS EXPERIENCE

The participants' first experience of HFPS seemed influential for their future commitment to HFPS as learning strategy. A number of nurse educators visited simulation facilities in different countries. Participants' interest was stimulated. Demonstrations of the functions of the simulators followed. The nurse educators helped to prepare and clean up after simulation. In this way, participants paved the way to becoming involved in simulation.

During the first few simulations, nurse educators were merely observers and they were not required to assist. Most participants experienced a simulation involving third-year undergraduate students first. Implementing simulation in the undergraduate modules seems easier, and the aim was to provide positive learning experiences for both students and nurse educators.

The emotional components of the comments of the participants were an unexpected finding. Participants described their first exposure as exhilarating and exiting. The intensity of their descriptions suggests an adrenaline rush. Most participants experienced familiarity during their first experience, as the authenticity of the simulation jogged their memories about past clinical experiences.

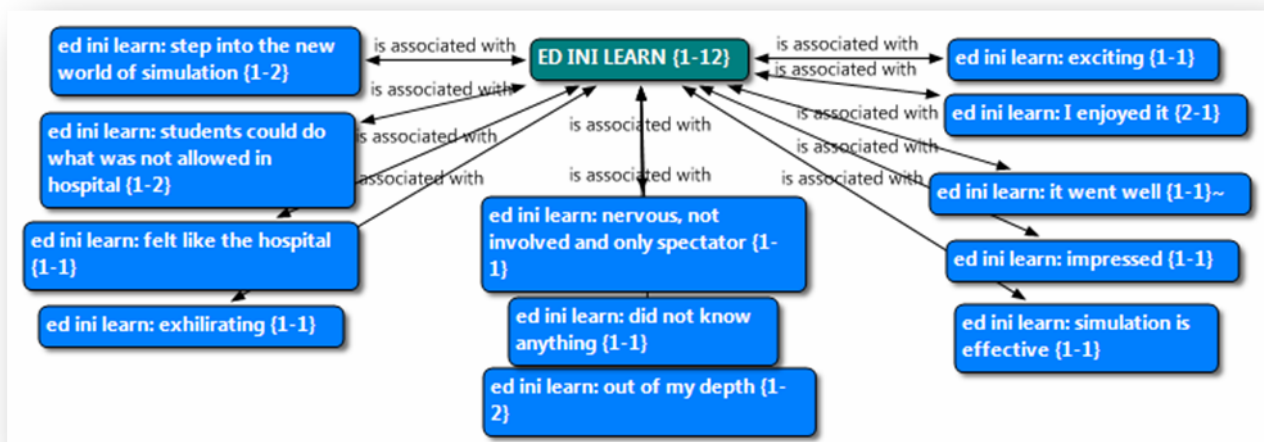


Figure 5.8: Original data of participants' initial experiences of HFPS¹⁷

Figure 5.8 displays some the participant comments regarding their first experience of simulation. Most of the participants called their first experience of HFPS a "new world". They soon realised

¹⁷ "ed ini learn" used in AtlasTi coding

they were dealing with a new learning strategy, unrelated to any previous educational experiences. Feelings of being out of control, discomfort or self-doubt followed the initial excitement.

Despite their discomfort, none of the participants indicated negative feelings about simulation. Over time, they realised that HFPS refreshed their clinical knowledge, as some did not have recent hands-on experience in the clinical setting. The realisation contributed to their commitment to implementing HFPS. Two subthemes were identified, enthusiasm and discomfort.

5.4.1.1 Enthusiasm

All the participants mentioned the intense excitement they experienced from discovering this new world. They reported that this new world activated both enjoyment and anxiety (see Figure 5.6). They expressed their positive experiences with words like “excited”, “exhilarating”, “enjoyable”, “fun” and “impressed”.

Although they mentioned feelings of stepping out of the old world into a new one, the new world was familiar. Renee explained her first experience of HFPS as a “familiar” experience:

Okay, the first simulations I was actually not educating at that stage, but I enjoyed it because it was like being in practice again. That's what I enjoyed; it's like being in hospital, real life. So it's not theo... less theory, more practical, that's what I enjoyed. That's why I enjoy simulation, back to the hospital setting.

Renee's thoughts returned to the familiarity of her clinical experiences and she experienced it as real. She felt that simulation was practical and not just a theoretical exercise. She used the word enjoy three times in this short extract, indicating the emotion of enjoyment.

Cheryl described it as very exciting:

I think I was out of my depth because it was something totally different. So, for me, it was exciting, very exciting but also I was quite scared... because I didn't know what to expect because I didn't see the full picture, I only saw the mannequins and the setup here, I did experience it with the students... it was quite exhilarating for me afterwards. I was quite tired but... I enjoyed it very much.

Cheryl also enjoyed her experience; she was mostly excited during the experience, although she also mentioned that she was out of her depth. Cloe's response was:

I can remember being very excited about what's happening here. I don't know that at that stage... what excited me, but I really was intrigued by, I think, the interactiveness and I was even more excited about this than going to the clinical area and doing the same thing at the patient's bedside. This... excited me more... I just somehow saw ab solute potential in this as a learning strategy. It was as if I just felt, this is something I want to pursue and I want to go on with this... It's something new, it's not boring, it's something that we can work on although at that stage I really didn't know much about this thing; I just knew this is something I want to explore more.

Cloe became very excited about the potential of simulation as a learning strategy. She believed it had even more potential than the nurse educator accompanying students at a patient bedside. Cheryl used the word love seven times when she described how she enjoys helping students to learn. While indicating that they were enthusiastic, they also experienced emotions of insecurity, fearfulness and discomfort. This might seem contradictory, but it was the reality of their experience.

5.4.1.2 Discomfort

Despite the participants' excitement, they simultaneously experienced emotions of tension, stress, nervousness and feeling out of their depth. The intense emotions of participants may seem unrealistic, as they did not have any responsibilities during the first simulation. One may argue that the nervousness was a result of the technology, but the participants did not have any understanding of the complexities of handling the technology of HFPS. The stress participants experienced might be related to the nature of this new world they discovered.

Participants recognised the benefits HFPS for the learning of students. For example, the nurse educators (participants) were only spectators, in contrast with the general role of a educator as the source of information. However, they did help with the preparation and clean-up, which helped to build their confidence.

Although Jane's first experience was positive, there were factors that contributed to discomfort.

So, uhm, and I was a bit nervous because I don't know what to expect, but M told me, told us that time, remember you are spectators and I don't want you here really, you must go out, but you can look. So, we were not really involved, that was what was good, perhaps for our nerves, and uhm, she was the only one running everything but we were so new and we don't know really what to do.

Lorrie highlights how she experienced the “disorienting dilemma” during her first experience.

I think I was nervous because I... like everything for the first time, you hope it works with the students and you don't know what to expect, what can happen, cause it's so flexible, the scenarios. The students can do anything and you have to respond in a way that can still be realistic... In the beginning I felt disorientated, disorganised, because it was something I needed to get used to, and be comfortable in, in the beginning I did not feel comfortable at all... because I had to look in a different way, listen and act myself and to debrief which I realised was so important was hard in the beginning.

Lorrie saw the positive side of the flexibility and realism of simulation for student learning. However, she experienced nervousness and discomfort. I think her discomfort occurred because she was already preparing herself to get involved in simulation as a learning strategy and she was considering if she could meet the demands.

In Cheryl's quote about enthusiasm, the discomfort she experienced during her first simulation is clear; she felt out of her depth and it was totally “different” and new for her. Her experience illustrates a “disorienting dilemma” encounter.

The one negative aspect Jane mentioned about the first experience was that the first environment was not authentic. In order to create authenticity, they had to collect equipment and stock from distant venues, which required many people to prepare and caused frustrations with logistics.

Notwithstanding their discomfort, the participants committed themselves to this new world of HFPS and realised the benefits for their students. Witnessing their students learning resulted in enjoyment and satisfaction.

5.4.1.3 Recognising the effectiveness of HFPS

The first exposure to HFPS resulted in participants committing to further exploration of simulation. All the participants said that they enjoyed their first simulation and that they were convinced that HFPS was an effective learning strategy. Their confidence was more intuitive than quantitative in nature. Participants were so convinced by the experience that they were willing to invest time and energy in the implementation of this strategy – this commitment still exists today.

HFPS was effective because students had to look, listen and act differently than in past experiences. HFPS became the missing link for participants in education. Participants were convinced that students learn even more than what they could actually see.

Susan added that the published research's empirical data convinced her of the effectiveness of HFPS [6.4], whereas Cloe said she preferred to experience the successes herself [6.2]. These statements indicate the idiographic nature of each participant's interpretation of learning and experiences. For example, from the beginning, Cloe was convinced that there was value in simulation, because the outcome is deep learning. She was also confident that she would be able to implement simulation successfully. These two factors convinced her to implement HFPS – not only in the third-year programme, but also in the post-registration module of paediatric nursing care, of which she was the only nurse educator. She saw “absolute potential” in HFPS [6.2]. Envisioned by the potential of HFPS, she opened a door for herself into this new world of HFPS.

Similarly, most participants said, using different words that they saw potential in HFPS that their existing educational terminology was insufficient to express. This implies that they had to learn the *new language* of this new world. The conventional way of persuading nurse educators by means of theory, quantitative data or knowledgeable speakers did sway participants' opinions, but it was their direct exposure to witnessing students' learning that opened the door to this new world.

Both nurse educators and students require positive feedback after simulations. In general, it is an exceptional occurrence when students give positive feedback to nurse educators, and if they do give feedback it is indicative of deep learning that the students experienced.

As participants experienced more simulation events, their simulation skills increased and a sense of accomplishment developed. The participants' growth in simulation skills reduced their

anxiety during subsequent simulations. As their anxiety decreased, excitement and enthusiasm increased. As their self-assurance grew, participants committed themselves more to simulation as an essential educational practice.

5.4.2 RECONSIDERING PREVIOUS LEARNING EXPERIENCES

Participants saw the benefits of HFPS for student learning. While observing students during HFPS they were able to identify learning gaps in their personal education; some even felt they had missed out by not being exposed to this learning strategy as students. Cheryl said:

I think if they (students) can realise the value of what they're having because we didn't have this. I say to my students often, "you don't realise what you have in having this", because we we only had OSCE's¹⁸ you know, and we still don't know why we failed some things because nobody told us, nobody talked to us about what we did wrong and how we should have done it so I think if the students knew more why they are doing it, I don't know if they do, I don't know if you a programme with them. [2:10]

In contrast, Susan expressed her satisfaction with a *problem-based learning* strategy during her undergraduate studies at the school of nursing involved in this study. Problem-based learning enabled her to develop herself when the need arose. Susan said:

I was a problem-based baby... And I really think that it helped me to become a lifelong learner. If I don't know something I go and google, I go onto Phibbs and I go and have a look. We need to get them (students) there so that they don't get stuck. [6.10]

According to Jane, the teaching strategy of the school of nursing changed later, from a problem-based learning strategy to a *case-based learning* strategy, due to the financial demands of a problem-based learning. A few years later, Chris experienced a *case-based learning strategy* during his undergraduate programme.

He mentioned a few times that nursing education is outdated and he had concerns regarding the strength of the foundations of the nursing education he had experienced. Chris expressed his opinion as follows:

¹⁸ Practical examinations.

When I was a student I had the distinct impression they were outdated... most of them, does n't know what happens in clinical setting at this moment. Their knowledge stems back from the times they were in practice and which is, for some of them quite a numerous years... and they still maintain that stance, but, ja [yes], so they were outdated [1.8] There's in my opinion a few gaps. There's a gap in what is taught in class and it was quote-unquote explained to us in the beginnings of the... academic engagements... at the school that "we are taught [is] the ideal world and we have to make it fit in the reality" which doesn't really work. Out there, in the reality, nothing is ideal, you don't... the environment doesn't really facilitate that you can function ideally as taught in the class [1.12].

Chris believed his *undergraduate programme* did not prepare him sufficiently for the realities he had to face as a professional nurse. Thinking about HFPS, he was convinced that if he had been exposed to simulation his experience would have been different. Some participants described the negative influences of the *post-registration programmes* they had attended on their perspectives on learning.

As the majority of the participants experienced a traditional education approach, one can assume that most would migrate towards a more traditional perspective if not exposed to another strategy. Renee, a newcomer to HFPS, showed how previous learning remains the point of reference if the nurse educator is not exposed to an alternative educational strategy. She seemed to be aware of her previous perspectives on how she thought students should learn,

In the beginning I had tunnel vision, now I do understand a little bit more... because right at the beginning when I was appointed as a preceptor, I didn't even know what a preceptor is... what am I supposed to do?... just keep quiet, be silent... it's my worst nightmare, coming here, you're supposed to... now teaching, and you had to be silent?! They (students) will think I don't know my stuff, they will see that I don't know, so I said, that's not gonna happen. Silence... worst nightmare for me. I thought the students will just think, you don't know [5.3].

Renee's comment indicates how previous learning experiences ingrained in nurse educators' perspectives and therefore it will take a *major event* to make perspectives more inclusive of other strategies.

5.4.2 DISCUSSION OF A NEW WORLD

In the analogy of the lifecycle of the butterfly, the egg is becoming a worm. The worm's function is only to eat. Similarly, the nurse educator in this phase takes in information regarding the new world. This phase is very different from the egg phase, which is more dormant. Mezirow calls this a "disorienting dilemma". An experience that illuminates and challenges invisible and unquestioned assumptions about ourselves and the world around us, is a disorienting dilemma (Taylor & Elias, 2012:150). A disorienting dilemma is typically an instant need or yearning to learn something different, which causes an uncomfortable sensation for the person (Snyder, 2008:164). The participants, not versed in the TLT, called it a new world. The new world participants experienced related to the contrast between a traditional and a transformative learning strategy. This new world had new ways of thinking, action and language for learning. From the *first experience of HFPS*, participants discovered a new frontier in education.

The participants' first experience of HFPS made them aware of the benefits of HFPS for students, and even for their own learning. Making meaning of this first experience, they experienced emotions of *enthusiasm* and *exhilaration*. The excitement about prospects for the future of HFPS is reflected in the literature too (Harder et al., 2013:1244; Larsen, 2013:e104; Poikela & Poikela, 2012:11; Akhtar-Danesh et al., 2009:315). Al-Ghareeb and Cooper (2016:285) confirm that positive emotions of excitement and enthusiasm are characteristic, because simulation has great potential for learning and enhanced clinical experiences. Learning is an emotional experience and I approve of nurse educators becoming excited about learning strategies, as this leads to excitement in students.

Discomfort, and especially stress, was also part of the dual disposition that participants experienced. The discomfort provided the energy to adapt to a new world. Discomfort is also part of the disorienting dilemma that opens the door for the possibility of transformative learning (Garrett et al., 2010:311). The discomfort of participants was part of migration to this new world of HFPS, as confirmed by Harder et al. (2013:1242). Jeffries (2005:98) describes this discomfort as similar to the discomfort students experience. The strong emotions participants experienced activated transformative learning about this new world. Everything about this world was new: terminology, the equipment, knowledge about learning, ways of dealing with education and the environment of teaching and learning. The nature of life is change and, in education, new technologies in learning, software and operating systems will demand that

nurse educators change their approach in the future. “Change is inevitable”, they say, but it is uncomfortable; however, discomfort is only a phase.

Blazeck (2011:e57) describes an extreme form of discomfort as a “simulation anxiety syndrome”. The cause of this syndrome is fear of failure. The fear in some of the statements is obvious: “we must get this thing right”, and “I was hard on myself”. Not all nurse educators’ will experience such severe stress, but awareness is important, as fear may be a barrier in the adoption of HFPS as a learning strategy (Harder et al., 2013:1244).

Despite the discomfort, participants already *recognised the potential of HFPS to be an effective learning strategy* at their first exposure. HFPS provided a real-life experience, in real time, in an authentic environment. The authenticity of the learning experience allows students to take actions seldom allowed in the clinical setting. For instance, a student is not permitted to inform a physician about a patient’s condition or to take leadership of a team. The high expectations set for students impressed the participants. The NJSF’s constructs relating to educational practices are based on the seven components Chickering and Gamson (1987:5) recommend, namely, feedback, faulty-student interaction, diverse learning, active learning, collaboration, high expectations and time on task (Hallmark, Thomas, & Gantt, 2016:2; Jeffries, 2005:97). The participants experienced the seven effective strategies in their own learning process. The major difference between the learning of nurse educators and students regarding HFPS is that nurse educators learn in real-life educational practice, while the learning environment for students is simulated.

The learning during simulation is a social event, in contrast to traditional learning strategies. Students work in a team during simulation and the reflective process. The nurse educator then guides the reflection session after the simulation, encouraging students to express their perspectives. Nurse educators also benefit from the reflection, as they start to understand how students make meaning of their experiences. After all the simulations have been presented and all students experience the debriefing and reflection session, nurse educators get together for their own debriefing and reflection session with peers. These unique features of simulation caused participants to shift their perspectives to a different way of making meaning of education, and to investigate and ultimately implement HFPS in the modules they present. Nevertheless, to be open to new perspectives, participants had to revisit their previous perspectives to determine what should transform.

The participants *reconsidered their previous learning experiences*. Participants *compared their personal undergraduate experiences* with their students' learning during simulation. The introspective process revealed some shortcomings in participants' own undergraduate learning. Unfortunately, at that time, the technology of HFPS did not exist, and could not benefit their learning. Even the authentic environment of HFPS provided the participants with a reminder of past clinical learning, which provided some equilibrium in their discomfort and convinced them of the need for change. Participants thought back to how inadequate they had experienced their nurse educators and lectures. They concluded that there had been a mismatch between theory and the reality of practice. Assessment strategies seemed to be more destructive and sometimes a farce. Some mentioned how inadequate traditional assessment had made them feel and that it left them with unidentified insecurities about their competence. Some indicated that the simulation environment reminded them of the hospital, or they felt as if they were back in the clinical setting again.

Some previous learning still seemed to be effective, but participants also identified previous ineffective learning which was not suitable in this new paradigm. Reconsidering old thought patterns resulted in experimentation with new and innovative educational practices and strategies in subsequent HFPS.

Capturing the elements of a transformative learning process in the making is not obvious, especially not at the start of the process. According to Willis (2012:212) transformation is not a structured process as such, but a change of "being". He refers to the excitement and enjoyment that comes with radical change, which is much more than progressive thinking and enrichment through a learning experience. Mezirow identifies nine phases that may follow the disorienting dilemma. However, research findings should not be forced into the TLT, but should rather describe similarities and dissimilarities. This is why the disorienting dilemma in this chapter is not similar to that described for the TLT in Chapter 2. There is, however, the undertone of similar experiences in transformative learning. When the theory is forced upon data, it is no longer transformative (Taylor & Laros, 2014:136).

5.5 CRITICAL REFLECTIONS ON HFPS EXPERIENCES

This phase followed participants' initial exposures to HFPS. Their subsequent experiences of HFPS led participants into a deep reflection process, which involved comparing, contrasting and expanding their perspectives on learning. The features of participants' critical reflection on HFPS experiences are similar to the chrysalis phase in the life cycle of the butterfly. During this

period, few outward changes are visible but, inwardly, the pupa is transforming into a young butterfly. The chrysalis phase represents the second to fourth research sub-questions. In short, the sub-questions focus on the following: What did they learn, should they implement HFPS, and why and, if yes, what needs to change in order to implement HFPS?

Sub-question 2

What learning experiences did educators experience during HFPS?

Sub-question 3

Why did participants implement HFPS in modules?

Sub-question 4

How did implementing HFPS influence participants' attitudes, knowledge and skills?

During this phase of critical reflection on HFPS experiences, outward changes did not manifest, therefore, those outside the simulation environment could not observe the changes. However, inwardly, major changes were taking place. Participants experienced high levels of self-doubt and insecurity regarding previously held perspectives as they become aware of their failing points of view during the critical reflection on experiences during HFPS, which had been held for many years. As participants critically reflected on their learning experiences, they examined their personal points of view. Frequently they found the perspectives ineffective. All the participants referred to a threshold experience of stepping into a new world.

Managers should be patient and supportive during the phase of self-examination. Generally, managers rely on statistical analyses to determine whether they are getting a return on investment, however, the additional pressure of these measures to force success could cause nurse educators to become discouraged and nurse educators may lose their enthusiasm for implementing HFPS.

Subordinate themes that emerged from the data are motivation to use HFPS (why), ways of learning about HFPS (how), lessons learned from HFPS (what), and, eventually, questions about willingness to submit to critical self-reflection about existing perspectives (result). These four subordinate themes are illustrated by Figure: 5.9.

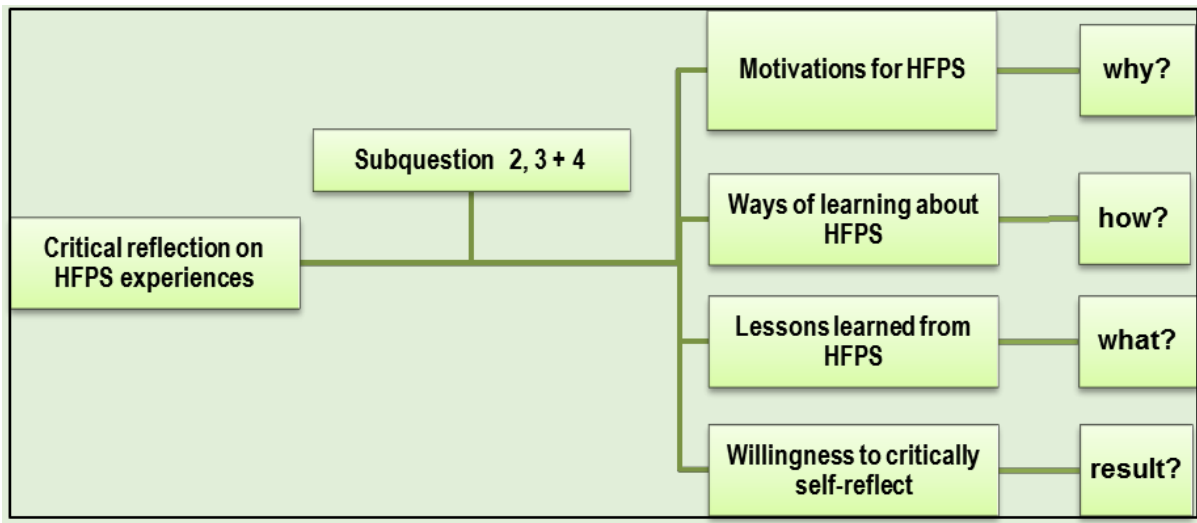


Figure 5.9: Critical reflections on HFPS

After re-examining the points of view and having made the needed changes, participants were more motivated than before, as they witnessed the benefits students experienced during HFPS, to find the best ways to implement HFPS and to see what results they could expect. This phase determined whether participants committed themselves to using HFPS.

5.5.1 MOTIVATIONS FOR USING HFPS

Participants' ultimate decisions to implement HFPS were based on two main benefits that they valued: 1) the effects of simulation on student learning; and 2) the academic and clinical advantages students gained (refer to Figure 5.10).

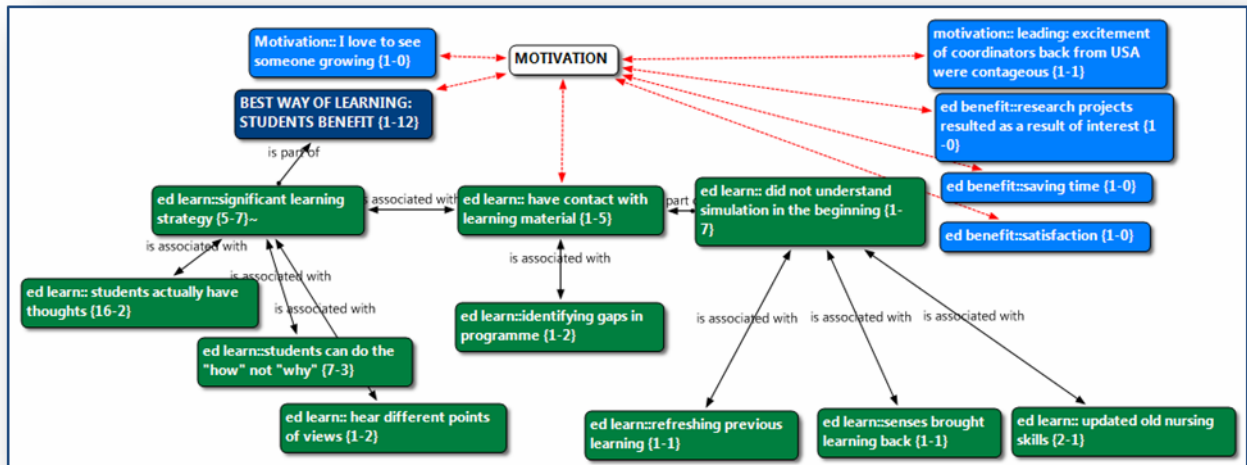


Figure 5.10: Motivations for implementing HFPS¹⁹

Most of the participants considered HFPS to be a high-quality learning opportunity for students. Cheryl revealed an internal motivation for her involvement in HFPS: she enjoyed seeing students learn and develop. Participants were immensely satisfied when they witnessed students succeed in simulation. Jane appreciated that students can learn in a safe and supportive environment without causing any harm to a patient. Cloe was not so clear about her reasons for implementing HFPS, but she intuitively saw the potential for quality learning in HFPS.

Some of the participants also saw benefits in HFPS for themselves. Chris was motivated by the academic and professional freedom and flexibility of working as part of the HFPS team, compared to working in a clinical setting [11.02].²⁰

Well here I have more freedom, I have more freedom to choose what I want to do. In a clinical setting you're... it's more rigid. Here it's a bit more flexible.

He explained how his learning during simulation influences his professional practice when he is working part-time in a hospital:

Well, I think I've developed academically and professionally as well; my professional, mechanical practice in the hospital settings has altered... I'm more

¹⁹ The raw data in Figure 5.10 represents verbatim quotes of the participants that have not been language edited.

²⁰ The way AtlasTi identifies quotations and can be accessed in the AtlasTi boxy on the DVD.

focused on best evidence and... I'm doing more... what you're supposed to do, not necessarily what's quick and easy, as I think as I was prone to do before.

Renee also benefited from simulation, as she updated her clinical skills in a safe learning environment. According to Susan, her younger age meant she had an interest in the technology of HFPS. However, HFPS also provided her with an academic platform for her Master's degree.

Participants also reported that the fact that students benefitted from simulation motivated them to adapt to HFPS. Benefits for students include a safe learning environment, quality learning and a tangible feedback process. From the data, it seems that participants benefited from implementing HFPS even more than students did (Figure 5.8). Participants' benefits include personal satisfaction, developing their clinical and technological skills, and opportunities for academic and research expansion. The participants in this study did not receive additional incentives for their involvement in HFPS. Other studies indicate that the participants did receive incentives for taking on HFPS, like additional time off, relief from some academic workload, conference attendance (Adamson & Prion, 2015:324; Nehring et al., 2013:24), but opportunities for academic development abound for participants in this study. I conclude that the participants in this present study did not have ulterior motives to be involved; their only motives were those they stated, making the data reliable.

5.5.2 HFPS AS AN ANDRAGOGY FOR NURSE EDUCATORS

When they were students, most participants experienced a teacher-centred approach to learning. Their exposure to traditional educational strategies still influenced their frames of reference as nurse educators (see Section 5.3). The disorienting dilemmas HFPS brought into frames of reference made them reconsider how to adapt to the new world of HFPS. Participants deliberated that the main opportunities for learning about HFPS included observing simulations, receiving demonstrations involving hands-on learning (from the simulation environment, experimenting with features of technology and equipment, and making mistakes and experiencing success), learning from students, attending simulation workshops, webinars and group discussions, and reading academic literature. The participants' number of exposures to HFPS sessions varied due to the number of simulations planned for a module. The manner in which participants implemented HFPS was a result of their informal, experiential learning. Participants indicated that their most significant learning experiences were observations, demonstrations with hands-on learning and exposure to simulation.

5.5.2.1 Observation

Participants' induction into HFPS started with them observing students during simulation from outside the simulation area (from the control room). Some participants mentioned that they had felt out of control and this could be because they were not in direct contact with the students (face-to-face) in the class setting. At the same time, participants observed two new features of HFPS.

They observed, simultaneously, student activities in the authentic environment, and activities in the control room. The process of observation helped participants to prepare for their future practices [1.11; 5.8; 6.2]. Participants described that, every time they observed, they became more relaxed and open to learning. Participants only became involved in presenting simulation activities when they deemed themselves ready. Initially, they shadowed a colleague and their responsibilities increased gradually. This gradual process helped participants to get used to the strategies and skills required in simulation.

5.5.2.2 Demonstrations and hands-on learning

Informal, hands-on learning opportunities with the technologies were presented parallel with the initial observations of simulation [4.14]. Whenever new nurse educators joined the simulation team, they were oriented regarding the physical arrangement of the simulation environment, the principles applied in simulation and handling of the technology. They also shadowed an experienced simulation nurse educator. Twice a year suppliers of the equipment demonstrated hands-on how to handle equipment. Nurse educators attended refresher sessions at the onset of each academic year on new features and equipment in simulation. Susan enjoyed the hands-on experiences with the technology [6.14].

5.5.2.3 Simulation environment

The SPACE was the first environment used for HFPS. Some nurse educators experienced the SPACE as impractical and not authentic, despite the richness of technology used during simulations. An environment simulation facility also contributes to the learning of the nurse educator. As the nurse educators at the time agreed that the SPACE was not suitable for HFPS because it was not an authentic environment, but a classroom with HFPSs and a number of computers, dedicated authentic environments were created for HFPS.

The authenticity of the learning environment seems to be as important for the participants (nurse educators) as for students. Jane demonstrated the principle as she talked about her discomfort with the SPACE.

But I cannot work in the SPACE. That was for me one of the “terriblist” things that could happen... there was this thing in the middle and the chairs and we have (had) a little place to work ... that was really scary. (sic)

Jane reported that the layout and other technology in the SPACE detracted from the authenticity of HFPS. Her discomfort increased her level of stress even further, and seems to have hindered her learning about HFPS.²¹

Six months later, the HFPS moved to authentic environments. When Jane talks about her first experiences in these environments now, her excitement is clear.

I, there was a room, it was a critical care room with walls with a wash basin and that and that so it feels for me if I step in a hospital... and and what's so exciting for me was that I'm not a critical care person so the hospital was for me very, to step in there I was myself, I could be myself to be in a ward in in that three-bedroom but the critical care scare me off but not anymore I think after a few simulations... I know a ward better than critical care unit.

There is a clear contrast in the emotions of the last two quotes. Jane's excitement indicates the importance of *authenticity* in her adoption of HFPS as a learning strategy. Nurse educators and students should see the simulated environment as real. This statement may indicate that there is a direct relationship between authenticity of the learning environment and participant excitement.

Excitement is the fuel for nurse educators adopting HFPS. Emotions play a significant role in learning about and adopting HFPS.

²¹ Nurse educators involved with the first simulation participated in a nominal group discussion to determine the learning that took place from this experience. I took notes of nurse educators' responses. Some of the nurse educators voiced strong criticism of the experience and Jane started crying in response to some of the comments. However, most of the criticism related to logistical problems due to the nature of the SPACE. Unfortunately, at the onset, this contributed to some negative perceptions about HFPS. I therefore suggest that the core group of simulation nurse educators receive respect, because early adopters experience high stress levels at the onset of a new venture.

The HFPS environment could provide an incubator for the development of the nursing students, nurse specialists and nurse educators. Although Chris enjoyed the flexibility of HFPS, a year after the interview he considered himself to be ready to leave HFPS and develop his future as a critical care nurse. He was enthused and confident because of the enriching opportunities he had experienced as a simulation facilitator. Some of the other participants mentioned that their experiences of simulation enabled them to work in the clinical setting again with confidence. This is an indication that simulation improves nurse educators' clinical skills as well.

Renee and Cheryl were beginner nurse educators who had not attended the workshop and who experienced HFPS as a radical new approach to learning. Renee said,

In my education there was no simulation, none whatsoever, it was transparencies. So, there was also not visuals and videos, so it is a big leap from my education to the modern education... I liked that, it was bringing the practice into the learning of the students. We didn't have that privilege when I was a student, it was just literature.

Okay, the first simulations I was actually not educating at that stage, but I enjoyed it because it was like being in practice again. That's what I enjoyed; it's like being in hospital, real life. So it's not theo... less theory, more practical, that's what I enjoyed. That's why I enjoy simulation, back to the hospital setting.

Cheryl reported that she did not have sufficient experience as a nurse educator, but the HFPS was exciting nonetheless, although she could not comprehend everything.

I think I was out of my depth because it was something totally different even though you prepared me... So, for me it was exciting, very exciting but also I was quite scared... because I didn't know what to expect because I didn't see the full picture, I only saw the mannequins and the setup here, I didn't experience it with the students, so it was, it was quite exhilarating for me afterwards.

At the time of their first experiences, both these participants were new to education and had not practiced nursing for some years. On the one hand, they noticed how technology had changed nursing education over the years; on the other hand, it refreshed their clinical knowledge within a short time.

Some previous undergraduate students joined the school of nursing as part-time nurse educators or preceptors after experiencing HFPS as a learning strategy during their undergraduate studies. I can only presume that they still enjoy gaining the learning that HFPS provides. A hidden benefit may be that a steady stream of new nurse educators could gravitate towards HFPS. Some of these former students are even willing to provide their services without remuneration [17.42].

5.5.2.4 Technology and equipment

About seven years ago, when we started out, simulation equipment was newly developed technology and the software was still in the process of refinement. From time to time problems arose, which frustrated nurse educators. Over the years, the software and functionality of the simulators and adjunct equipment improved and resulted in fewer troublesome simulations. Technical problems seem to contribute significantly to participants' stress levels. Examples of technical problems are loss of WiFi connectivity between the manikin and the tablet, mechanical failure of simulators, batteries running out of power after a number of simulations, or even failure of adjunct simulation-related equipment.

It was often difficult to determine if the problems experienced were due to inexperience in managing the equipment, or a real equipment failure. As already indicated, participants were trained regularly in the management of technology and equipment in the simulation environment. However, as they did not manage all the features on a regular basis, they remained insecure, as they forgot some of the details. One or both simulation coordinators provided nurse educators with technical and logistical support. Therefore, consistent support and encouragement by the simulation coordinators played an important role in reducing the stress experienced by nurse educators [17.41; 17.43].

Lorrie said that the simulation technology did not intimidate her, but she was often afraid that problems with technology would interfere with the students' learning [3.7]. As already established, Jane did not enjoy the technological side of HFPS. Due to her upcoming retirement, Lorrie took more responsibility for the technical side of simulations in the module they presented jointly. Despite the technological part, Jane coped well with preparation of the environment, briefing and debriefing of students and leading the nurse educators in her module through adopting simulation. Participants, even Jane, were willing to learn how newer technologies are used, but in a safe environment, away from detractors or the possibility of harming a patient.

During the interview, Jane mentioned that she found it difficult to hear what students said during simulations. She ascribed this to her age. Furthermore, she had also developed cataracts due to age, which made it difficult for her to see well during simulation. These challenges faced by older nurse educators should be considered when designing and selecting equipment for HFPS environments. The demographics of the participants in this study indicate that older nurse educators are also interested in implementing HFPS. An inability to hear and see well may be obstacles to adopting HFPS.

5.5.2.5 Learning by doing

The nurse educators received an introduction to the best practices, as described by the INACL, at the onset of simulation implementation. This instruction on best practices was repeated during the simulation workshop, because practices are revised from time to time. Adhering to these practices helped with successful simulation experiences during the implementation of simulation. Consequently, confidence in the use of HFPS increases over time.

After a number of simulations, one can hear how relieved Jane was when the team worked together well:

C is very valuable to us. She is quick and extremely organised and enjoys the simulation. She (and D) sat in our debriefing sessions to learn. L... kept a cool head and had to handle all problems. The sessions went very well. Students say that they enjoyed it and that the debriefing sessions were pleasant!

During HFPS, participants were exposed to all facets of HFPS to develop their understanding of functionality and the limitations of HFPS. For instance, 70 students require the help of at least six nurse educators. Tasks participants contributed to were managing the scenario via technology, rearranging the simulation environment at the start of the simulation, replacing the patient documents in the patient files, briefing the students, acting as the voice of the patient, playing the role of the doctor on the phone, and guiding reflection during the debriefing. These tasks were allocated according to a roster to expose all nurse educators to all the learning opportunities. The rotation system ensured that students experienced continuity during the HFPS. The same nurse educator briefs them on the objectives for the HFPS, observes the scenario during the simulation and guides their debriefing session. The rest of the nurse educators play a supportive role by managing the technology, placing new documents in the

patient file, adjusting infusions and an array of other tasks. Participants preferred being allocated tasks above a reactive volunteer system.

This was the first simulation... We were enough facilitators and Maria had drafted a plan (roster) for each person for every hour. We also used two debrief rooms which meant that when the facilitator was busy debriefing, the next group would be starting with the simulation. We started falling behind a bit but realised that with the simulation we had to build in a tea break of half an hour. It depends how many people (facilitators and {name redacted}) are helping, how many groups each one must observe and debrief.

Jane's words indicate how structure helped the nurse educators to have a better experience of HFPS. Two other documents played an important role in providing structure for the participants: a scenario development tool and a checklist for preparing the simulation area. Instruments are important tools for structuring the experiences of nurse educators during their learning process. However, with smaller groups of students the structure seemed to be less important.

As the number of simulation events increased over the years, nurse educators had more opportunities to practise their simulation skills and experiment with alternative applications, which led them to take on more responsibility for the quality of the HFPS experiences of their students. Some nurse educators took the freedom to develop their own distinctive styles for their students. Over time, more nurse educators started using simulation as a learning strategy. The uniqueness of nurse educators' use of simulation indicated that one must not be too quick to standardise all processes in HFPS, instead, allow for some freedom and experimentation with alternatives without dropping the standard of HFPS. The more experienced nurse educators acted as mentors for less experienced nurse educators.

New nurse educators also attended the *team meeting* a week before the simulation, at which the final discussion of a scenario took place. The meeting seems to be very important for the participants' learning. During the meeting they hear other nurse educators' aims and expectations of students. It ensures that all nurse educators are on the same page and lays the foundation for cooperation in the team [4.14]. The new nurse educators observe the first few simulations and sit in at the debriefing of the students. Over time, new nurse educators' skills and confidence increase and they start practising their skills with the support of a mentor. Jane's comments indicate how important the team meeting is:

An important aspect of simulation is the meeting one week prior to the simulation. This is where the detail of the simulation is discussed and changes are made and/or additions are made. Each person received a simulation document beforehand to study and to comment on. At times not everyone is able to be at the meeting, which sometimes has negative results on the day of the simulation (Jane's reflective journal).²²

Reflecting with students and colleagues was a source of learning for nurse educators. HFPS is an occasion for students and nurse educators to learn parallel to one another, although the foci are different. The antithesis of students becoming the teachers of the teachers; and the teachers becoming the students of students, is one of the unique features of the learning experience of implementing simulation. Some nurse educators were not convinced that exposure to students is a learning opportunity for them, but the majority believed it was beneficial.

Learning is an activity and an experience. The learning opportunity within simulation is a vast subject. The hands-on learning opportunities that participants mentioned were demonstrations and hands-on involvement of simulation equipment. The simulation environment helped nurse educators to update and practise old and new skills in safety and privacy until they were comfortable. They also experimented with new hospital equipment without fear of failing in front of peers. Learning by doing according to a rotating allocation of tasks was considered to be one of the most beneficial learning experiences. The tasks they performed were of an educational and a logistical nature.

5.5.2.6 Simulation workshop

The school of nursing at the research site presents a yearly credit-bearing, interprofessional simulation workshop. Expert simulationists from a university in the United States supported the first two workshops.²³ Attendees come from all over South Africa and neighbouring countries. The school of nursing sponsors four to six participants from among the local nurse educators to attend. After the first workshop, the schools of medicine and allied health at the participating institution collaborated in presenting the workshop.

²² Primary document No. 60.

²³ During the second workshop, some of the participants in this study helped as facilitators. The school of nursing now presents two simulation workshops every year, at which most of the participants are facilitators of the workshop who teach others to practice excellence in simulation.

The workshop exposed some participants in this study (Chris, Lorrie, Cloe and Susan) to a rich learning opportunity – they could observe national and international experts, nurse educators from other health professions, and even from countries outside South Africa. The four of the participants in this study assisted during the second workshop. These participants emphasised the importance of the simulation workshop as a learning experience. At the time of the interviews, the participants were still focused on refining their technical and educational skills.

Susan and Cloe stated that the simulation workshop was the best workshop they have attended; therefore, they attended the workshop twice before they participated in this study. Cloe specifically mentioned that, the second time around, she did not learn much more, but she learned deeper. The presenters treated the nurse educators as *equals* and the nurse educators felt *cared for during interactions*. The workshop provided a solid theoretical and practical foundation. The presenters had excellent interpersonal skills and acted as professional mentors. The participants were impressed with the experts' debriefing *skills*.

Those who did not attend the workshop believed that the workshop had been informative. Nevertheless, they felt strongly that the workshop would not necessarily provide them with sufficient experiential learning from direct exposure to HFPS. Jane had limited interest in attending a simulation workshop. One can understand this, in the light of her looming retirement. However, she did not totally disregard the idea of attending a workshop.

5.5.3 LESSONS LEARNED FROM HFPS

The exposure to a new learning strategy opened the participants' minds to new educational perspectives. Participants re-examined their past and future educational perspectives. Participants were sincerely committed to ensuring that their students benefitted from HFPS. Figure 5.11 is an illustration of some of the raw codes of participants' reflections on their experiences. These codes contributed to the subordinate themes.

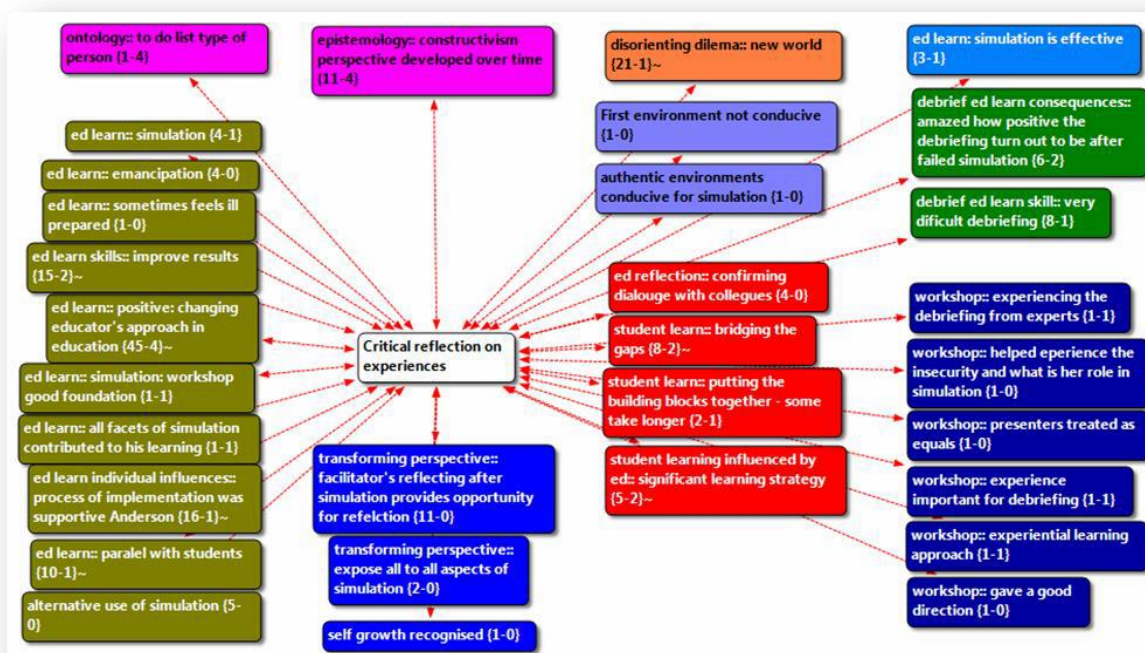


Figure 5.11: Raw codes from critical reflections on experiences

The raw codes in Figure 5.11 introduce what participants said in their reflections about their learning. The first number between brackets indicates the number of participants' comments regarding a specific code, and the second reports how many times the code is linked to other statements (e.g. [4.2]). Three categories emerged from the data. The categories are not exhaustive, but limited to the data collected.

5.5.3.1 Traditional education leaves gaps

The first lesson learned is that traditional education focuses on the knowledge and skills development of students. Chris experienced a traditional, teacher-centred approach during his undergraduate and post-registration studies in nursing education. He was also the youngest of the participants. His perspective reflected the most recent experience of the manner in which education is presented at the research site. According to him, the lecture-based mode of information delivery is a flawed system; he said, "*knowing does not mean able to do*". He explained that he believed there was a missing link between what the students are taught in class and the experience in the clinical setting. Traditional education leaves gaps between the knowledge and the clinical application in the learning of students, and foundational aspects may be deficient. It is not sufficient to cover material in class.

In the following quote, we can see Chris's frustration with a traditional education system.

There's in my opinion a few gaps. There's a gap in what is taught in class and it was quote-unquote explained to us in the beginnings of the... we are "taught the ideal world and we have to make it fit in the reality" which doesn't really work . Out there, in the reality nothing is ideal, you don't... or the, the environment doesn't really facilitate that you can function ideally as taught in the class.

The older participants (Lorrie, Cheryl, Renee and Cloe) indicated that they were initially thinking within a teacher-centred paradigm because of their *traditional lecture-based educational background*. Kaakinen and Arwood (2009:1) confirm, in their systematic review, that nurse educators initially approach simulation from a teacher-centred paradigm.

Chris's experiences as a simulation facilitator confirmed this gap. Chris warns, "*knowing does not mean able to do*", and even if nurse educators address content skilfully in class, students may not understand the context, implications or applications of their learning [1.3]. He considered simulation as essential for identifying and addressing gaps in learning.

Even if students had similar experiences during previous simulations, they could still repeat the same mistake. Some participants even questioned the ability of HFPS to address these gaps, compared to clinical experience. Consequently, some speculated that simulation only prepares students to be successful in simulation. Although these questions do not fall within the scope of this study, the fact that participants thought about these arguments are indicative of their critical reflection on their leaning and actions. At another time, Chris mentioned that students often repeat the same mistake during simulation. From practical experience, the fact that students repeat the same mistake during subsequent simulations could indicate that these students need additional educational strategies to address a foundational learning need. HFPS is not the solution to all learning problems.

5.5.3.2 Effectiveness of HFPS

The study aims to describe the learning experiences of nurse educators implementing simulation. The following section does not reflect about student learning as such, but indicates how the participants interpreted the learning of students.

All the participants concurred that HFPS is an effective learning strategy that allows students to learn through discovery. One of the significant advantages of HFPS that was mentioned is that

students could practise decisions-making skills with real patient problems. In the clinical setting, students are not permitted to take decisions that affect patient outcomes. In HFPS, students can make these clinical decisions in a safe and supportive environment. After acting students discovered the consequences of their own actions and observed patient outcomes resulting from their decisions and actions [16.6]. Simulation enriched the clinical experience of students. Participants suggested that the simulation environment is ideal for preparing prospective preceptors.

Furthermore, students learn to collaborate within a team, and learn effective ways to communicate and make recommendations according to patient needs. Students can call timeout to regroup or rethink and replan actions within their team. Moreover, they may indicate the need for a facilitator when they are stuck, which is not possible in real life. The group can rethink their course of action, or the facilitator can provide prompts towards the solution of the problem. Students can also experiment with alternative management strategies. During simulation, the students become familiar with medical equipment and drugs through experiential learning. Symbols used for the learning of students were “stacking building blocks” and “connecting dots”, which is reminiscent of the learning of a child. Learning takes time and each student has his/her own pace and unique style of learning.

Lorrie believed that the flexibility of HFPS enables nurse educators to throw anything at students and to see how they are able to manage a patient problem. Gaps in learning are revealed and can be addressed again in class. Lorrie even used HFPS as a feedback mechanism in the quality assurance for the module that she presents. She can see the quality of student learning or identify aspects that require remedial learning. Renee discovered during debriefing that students actually have thoughts about and reasons for their incorrect actions. She said, *“I had to learn that, I did not know that.”* The best approach to students was to help them, rather than to give them a lecture. It is these personal interactions with students that brought on the change in the way they perceived students.

However, a non-judgmental, supportive approach to students does not imply setting low standards for students. Setting a low bar may cause a false sense of accomplishment and boredom in students. The NJSF requires nurse educators who use simulation to create nurse educator- student interactions, active learning, student collaboration with peers, high expectations, diverse learning, feedback, and time on task (Hallmark et al., 2014:e2). Therefore, nurse educators are required to balance the challenges during scenarios to keep students engaged without overloading them.

Participants mentioned that they equip themselves regarding the theoretical content students covered during the module of the HFPS, to ensure that their (nurse educators') knowledge is consistent with students' existing knowledge. Participants mentioned that they want to be clear about the content of the module so that they can address students' learning gaps. Participants' confidence was strengthened by knowing the theoretical content well. Some participants mentioned that they noticed that some nurse educators did not prepare for simulation. The participants had different roles, and theory covered in class may not be current in all the nurse educators' memories. These nurse educators came to realise the importance of mastering the content thoroughly before an HFPS. Mastering the content was not a superficial learning of material, but involved deeper thinking about how students might use the content.

Simulation scenarios are carefully planned. However, students sometimes came to different conclusions and the scenario is adapted according to their actions. Susan explains her learning about the learning of students:

Because I see it with the new educators as well, it's a skill that they find very difficult... allowing students to learn what they want to learn at that stage. My expectations of them have changed; I don't expect them to perform perfectly, because, and I think that's what we did with the third years when we started with this. You know we expected them to do things that they haven't done before, haven't seen before, that we didn't prepare them enough for. So my expectations has changed. The student will do what they are able to do. Yes, it's also outcomes driven so we will reflect on the outcomes and we will identify gaps, but it's difficult to let the student talk and see those things by themselves, and not sit there and teach. I think I'm actually getting there, I'm more comfortable with that and you know that "aha" moment when that student says to you, O Mevrouw, is dit wat jy bedoel? [O, Ma'am, is that what you meant?] Then you know they got it [6.4].

Comments by participants indicated the personal growth they experienced. Cheryl indicated that she started to understand the literature regarding preceptorship better. Lorrie indicated that simulation exposed the students' learning gaps and the aspects of learning that need revisiting or correction. By just tweaking a scenario, the individual needs of students – identified in previous simulations or any other learning strategy – can be addressed by means of HFPS.

HFPS is efficient in bridging students' theory-practice gap. For instance, if a student experiences problems communicating with other professionals, the student can undertake deliberate practise encounters until he/she has mastered the skill. Along the same lines, Cloe believed that there are more uses for simulation, such as using it as a bedside teaching strategy, developing mentors and preceptors, or as a remedial learning tool for students.

Participants identified and rectified misconstructions and gaps in learning during the debriefing sessions with students. All the participants agreed that the debriefing is essential for student learning and should be conducted skilfully. The debriefing opportunity should not be rushed and students should be given time to reflect on their actions.

Both Renee and Cheryl experienced that, when nurse educators provide the answer to a problem for students, it interrupts the learning process. Alternatively, when nurse educators talk while a student is considering different options during debriefing, it may distract from learning. During interruptions the student goes into an automatic mode of merely absorbing, and learning becomes superficial. Therefore, participants wanted to master the listening skills required for debriefing.

5.5.3.3 Learning about their own learning

Initially, participants were very ignorant about simulation. Feeling ignorant is an uncomfortable disposition for accomplished nurse educators and clinicians. The discomfort, however, motivated participants to understand students' learning during simulation. Despite their discomfort, they also realised that they are not in control of the students' learning processes.

Participants initially believed they should judge students' behaviour and thinking during simulation. Their unintended perspective may be students should assimilate nurse educators' thinking, values and action. Setting outcomes and leading the discussion during the debriefing were ways of structuring the learning of students. However, structuring students' learning too strictly could limit their critical thinking and judgment.

For Renee it was a new experience to consider the physiology of learning during simulation. Information about the brain and learning theories opened new understanding for her. Chris found it easier than the rest of participants to allow students to solve problems for themselves. As a nurse educator, Chris never had the opportunity to present any formal lectures, and this may be why he was comfortable allowing students to learn. I speculate that regular lecturing

cultivates a question-answer pattern in the nurse educators' thinking habits, where the student asks and the nurse educator answers.

Furthermore, HFPS improved the participants' facilitation and guided reflection skills. As a coordinator, I refrained from prescribing any specific simulation or debriefing strategies at the research site. Participants had to select and develop their own preferred strategies. However, participants were introduced to the main the strategies in simulation from literature and international webinars, but they were responsible for studying and experimenting with the different strategies and select their preferred one.

Chris was not fond of reflecting on his own actions and, consequently, he was not as interested in the debriefing component of the simulation as some of his colleagues. Jane, on the other hand, had a natural inclination for guiding students' reflection. There may be a link between someone's ability to critically self-reflect (see Section 5.6) and ability to lead students in reflection; or perhaps these skills just require maturity that develops over time (new).

Participants mentioned that they continue reflecting on simulations in the days following the learning experience. In general, the reflections of participants were mostly positive, though some participants mentioned negative experiences. Consequently, reflection on experiences seems to elicit feelings of self-doubt, contemplation and self-criticism. Figure 5.12 indicates that participants experienced high levels of discomfort, and that comfort developed over time. Reflection is clearly not a comfortable process and participants experienced intense emotions during their learning processes.

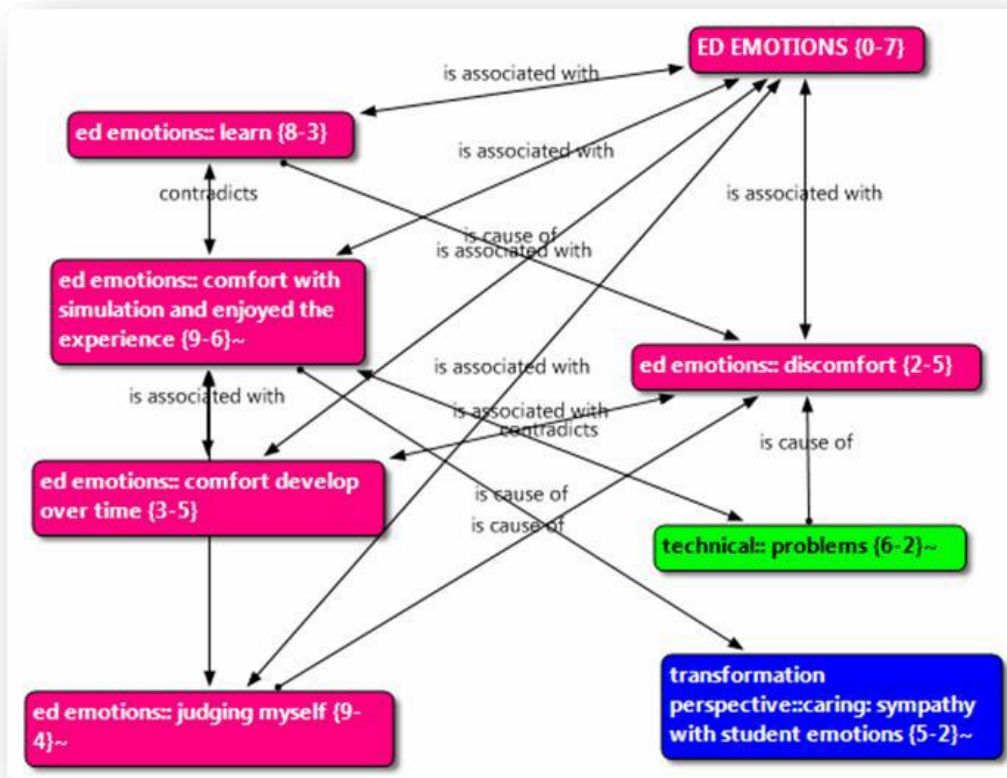


Figure 5.12: Emotions participants experienced because of HFPS

At the onset of simulation, some of the participants were harsh with themselves. They judged themselves severely or called themselves control freaks. The perfectionistic nature of their personalities caused them to mull over their performance. Some of the participants indicated that they had to have a parental talk with themselves and tell themselves to stop thinking this way.

They also became aware of the importance of their own theoretical preparation for simulations. Cheryl indicated that she was much more prepared and less anxious during simulation when she prepared the theory that was relevant to the HFPS. Furthermore, she was convinced that nurse educators could appear defensive if they did not have basic knowledge readily available. Chris mentioned that, as a recent student, he experienced that nurse educators are not up to date with current practices. Lack of knowledge or experience is a major cause of stress for nurse educators during simulation.

Most participants considered simulation to be a science, even an advanced education skill, and therefore it is essential to attend a simulation workshop. They considered the workshop important for establishing a good foundation in the theory and for mastering the practical skills of simulation. It takes some time to develop the skill to present an authentic simulation and the workshop was a catalyst for learning how to create such an environment. The authenticity of a simulation determines the quality of learning. Nurse educators themselves contributed to the authenticity of simulation. The manner in which nurse educators behave during simulation in the presence of students may have a positive or negative effect on student learning. For example, if a nurse educator does not stick to his/her function during a scenario, or acts unprofessionally, students' learning may be distracted. Students notice nurse educators' attitudes and values easily, and professional behaviour should be emphasised in all circumstances. The authenticity of both people and experience expose students to deeper level of learning.

I noticed that simulation encouraged nurse educators to work effectively in a team. Working in a team is also a skill, especially when team members do not agree. Disagreement is a natural phenomenon when more than two or more people work together. Any disagreement amongst nurse educators about a scenario will interfere with student learning. A thorough discussion of scenarios with colleagues before the simulation is important for developing joint understanding of the flow of a scenario. The team must select the best, workable solution and they should all agree to maintain equal learning opportunities for students.

Participants mentioned that simulation does not solve all students' problems, however, some problems cannot be solved without simulation. This is also true for nurse educators. Simulation, as a learning strategy, facilitated the learning of nurse educators. Lessons that participants learned are about how students learn, that it is uncomfortable to be exposed to new experiences and that nurse educators are not in control of students' learning. When students engaged with their own learning, their thinking, values and actions are unpredictable, but some freedom allowed for discovering their own way to solve problems or identify the gaps in their learning.

Participants had different levels of expectations of students. Differences in expectations cleared up as participants discussed and described what these expectations are. Through dialogues, they examined their points of view, and compared or discussed it with colleagues. At some point, nurse educators had to reach consensus, which will either contradict or confirm their point of view. Some participants became aware of the physiological process of learning. Renee

found the exposure to a different learning theory refreshing. She realised that nurse educators' behaviour during simulation may pose obstacles to students' learning. When nurse educators interrupt students' thought processes while students reflect on their learning, neurons may not form connections, as required by learning (Reedy, 2015:355). Developing the skills of a facilitator of learning, rather than a teacher, was an uncomfortable experience. The discomfort associated with letting go of control is confirmed by a review of the literature by Nehring et al. (2013:12-13) (refer to Figure 5.12).

Learning is an emotional process, especially when deep reflection becomes part of learning. Reflection is mostly an uncomfortable process. Both Mezirow (1978) and Illeris (2014:161) confirm that there is an emotional dimension to transformative learning. The debate about the role of emotions resulting from learning continues. In this study most of the participants referred to discomfort they experienced during their initial exposure to HFPS. Reasons for discomfort of participants were not limited to the intimidating nature of the technology, but also related to the nature of learning that challenged participants' points of view and habits of mind. The origin of habits of mind lies in each participant's unique cultural, political, social, educational and economic background. Habits of mind are connected to a person's identity, and challenging the identity raises insecurities. Therefore, exposure to HFPS resulted in strong emotions of excitement or anxiety.

Participants discovered that they, as nurse educators, do not know everything and their knowledge is at risk of becoming outdated. Participants also discovered that they contribute to the qualitative processes of student learning. When you pretend that you do know, students may experience this as defensive, or lose respect for you. Some factors contributed to participants' learning, among which, the authenticity of the environment, the equipment they used, and the simulation workshop. Participants had to learn to function effectively in a team, which might have been challenging, at least for some.

5.5.4 WILLINGNESS TO ENGAGE IN CRITICAL SELF-REFLECTION

Exposure to simulation opened new perspectives on education strategies. Initially, participants indicated their commitment to providing quality education to students. Convinced by the benefits of student learning, participants set themselves high expectations for their roles as nurse educators, but participants aimed to advance their skills with each simulation. Moreover, participants identified additional learning applications or alternative uses in simulation.

Examples mentioned were using simulation to simulate bedside teaching sessions, mentoring students during simulation and changing the scenarios according to students' learning needs.

Participants exhibited a willingness to engage in critical self-reflection about or to adapt their perspectives, regardless of their educational perspectives, in order to benefit student learning. The willingness to critically self-reflect relates to nurse educators' perspectives before and following a number of HFPS experiences. They developed an understanding of gaps left by traditional strategies, how to use HFPS effectively, and learning about the learning that happens during HFPS, both within the student and within themselves. Hence, they reached another step in the process of transformation.

The more participants were exposed to simulation, the less discomfort they experienced and the greater their willingness to engage in critical self-reflection. The participants set future goals from personal to national levels. Each participant set personal goals relating to improving their simulation skills, for example, their debriefing skills. They planned to expose themselves to peers' debriefing sessions and therefore others' ways of doing (Susan). This indicates that participants realised that there are a variety of effective ways to use simulation and guide reflection by students. Cloe said that she would like to revise educational strategies in her module once she completes her PhD. One of the aims she set for herself was to treat students as adult learners and to ensure that students become independent learners. Renee wants to learn more about the physiology of learning, to improve the strategies she uses in class. Lorrie saw the benefit of simulation of providing her with visual feedback about her teaching strategies it is a tool to refer to during teaching sessions. This indicated that changes participants wanted to achieve were not limited to simulation, but reached into the other aspects of education.

Lorrie wanted to expand simulation opportunities for students and Susan mentioned that she would like to see collaboration with other universities. These participants are aware that their suggestions have logistical and financial implications and will require significant input from their side. Nonetheless, it indicates that participants want to see changes taking place. The ideas may be rough around the edges, but there is an indication of critical reflection about traditional educational strategies and a need to see some changes to improve student learning. Cloe added that she wanted to increase the use of HFPS further in the modules she presents, in order to advance students' engagement with their own learning. However, participants expressed concern about possible risk of causing harm to students if participants make mistakes in the implementations of HFPS. This is an example of how nurse educators set themselves higher expectations, which contributed to a higher level of stress in during HFPS.

5.5.5 DISCUSSION OF CRITICAL REFLECTION ON EXTERNAL EXPERIENCES

We learn about ourselves through a process of *critical reflection* (Stayt, 2012:e25). According to the TLT, reflection takes place at three levels, *content* reflection (actual experience), *process* reflection (process of the experience) and *premise* reflection (personal, moral and ethical assumptions) (Mezirow, 2012:85). Participants exhibited content and process reflection during critical reflection about experiences. *Premise* reflection, the next phase of critical self-reflection, describes the framework of this study. Premise reflection is essential for completing the *transformative learning* process (see Chapter 2). The transformative learning process does not end after the phase of critical reflection on HFPS experiences, and therefore old perspectives may remain unchanged if premise reflection does not take place.

However, in this study, most participants exhibited the value they assigned to quality learning by students and did not want to cause harm to students – this revealed participants' values. Nevertheless, participants' learning during this phase focused more on developing their own skills and less on inner reflection. In this study, I would pose that there is a difference between values and motivations. Values lie much deeper than motivations, as motivation implies rewards for doing something. Most of the literature in HPFS refers to both motivation and values under one heading, called incentives for nurse educators (the term faculty is used in this publication) (Nehring et al., 2013:24).

5.5.5.1 Motivation to use HPFS

The first simulation experience played a significant role in gaining nurse educators' interest in HFPS. During the first exposure to HFPS participants were only observers, and were able to give their full attention to the simulation. The obvious question to ask is, if the participants had had responsibilities during their first simulation experience, would their experience still have been positive? The answer to this question will influence the practical implementation strategies institutions implement for the first simulations nurse educators experience. As other institutions are implementing HFPS, someone – often a single person – has to champion the first simulation. However, at a practical level, one person may not ensure the success of a first experience. A positive first simulation experience plays an important role in gaining the interest of the participants in this study.

Participants ascribed the *motivational factor* for using HFPS to the safe learning environment simulation afforded students. Simulation also bridges the gap between theoretical content of modules and that which students experience in the healthcare system (Dillard et al., 2009:99). HFPS enables nurse educators to observe students' clinical judgment and the integration of other skills, such as ensuring patient safety, communication and collaborative skills, legal and ethical understanding and application of clinical judgment. The commitment to implementing HFPS for the participants of this study involved, firstly, *external* motivation to see students learning effectively. Seeing their students benefiting from HFPS triggered the *internal* motivation to overcome their own discomfort and to invest time and energy in implementing HFPS. Participants did not receive any incentives, such as work relief or additional remuneration, for additional workload. Nehring et al. (2013:24) lists a number of incentives (external motivational factors) that can motivate nurse educators to implement HFPS. Participants in this study were motivated mainly by the internal motivation of recognising the benefits of simulation for student learning. One may also argue that possible academic and research opportunities within HFPS could motivate nurse educators. Both internal and external motivational factors may play an important role in learning about HFPS.

5.5.5.2 HFPS as an andragogy for nurse educators

Nurse educators have realised that HFPS is an *andragogy* in its own right and that there are cognitive and practical skills they need to master (Walton et al., 2011:299). HFPS is therefore a learning opportunity for both nurse educator and student, who simultaneously experience disorienting dilemmas. The TLT challenges pre-existing frames of reference to transform in the three mentioned areas of education and to pave the way for developing a new perspective on learning (Parker & Maryk, 2011:328-329). Observation is a valuable tool for learning about what and how students learn, and about the effectiveness of their educational practices, but HFPS is a learning strategy for the nurse educator observing students during HFPS (Nehring et al., 2013:25; Anderson et al., 2012:e62; Jones & Hegge, 2007:e6).

The context of the simulation environment and the authenticity of their experiences played a significant role in causing nurse educators' learning to be similar to that of students (Richardson, Goldsamt, Simmons, Gilmartin, & Jeffries, 2014:309). Using the equipment with the help of peers made it a social, collaborative learning process. Initially, most participants focused on their own learning, but participants with significant clinical experience advanced

faster in learning how to use HFPS. They found these encounters to be enriching and confidence-building.

When people are exposed to new experiences, it is inevitable that they (students and nurse educators) make mistakes while learning about HFPS (Nehring et al., 2013:4). For example, every time we upgrade to a new smartphone, discomfort sets in as we start the process of adapting to a new instrument. We learn to manage a new device through use, by making mistakes and figuring out what is required. Therefore, mistakes are learning opportunities.

Participants' processes of learning about HFPS was initially informal, and later involved more formal experiences that improved their personal skills in implementing HFPS. The learning then continued through training other nurse educators who had not implemented HFPS before. Initially, the participants only observed a number of simulations. Participants attended demonstrations on the functions and handling of HFPS equipment. The participants then learned through hands-on experimentation and practise sessions in the *simulation environment*. Participants attended demonstrations of new medical equipment used in the environments. Observing, mentoring and reading about simulation, working alone, "figuring it out" and "trial and error" are also terms for informal learning opportunities in HFPS (Anderson et al., 2012:e6-e62). Transformative learning is the result of lived experiences that challenge previously held perspectives. Previously held perspectives about education did not fit the mould of HFPS. Participants realised that the strategy would require them to develop new skills for this strategy.

Participants found the technology of simulation to be a source of stress for them. Blazeck (2011:e57) calls this discomfort a *fear of technology*, and considers it to be a major barrier in the implementation of simulation. However, when I probed for the cause of stress, participants identified the unpredictability of technology to be the main reason for their stress. Janzen et al. (2016) expand the list of fears to *pedophobia* – a fear of dolls. These two authors also identified other types of fear, namely, *fear of the unknown* and the *fear of technology*. When listening to the enthusiasm of participants, however, the fear was a mere discomfort that provided the impetus to challenge existing frames of references.

Despite the barriers listed in studies, a few negative voices have been raised about using HFPS as a learning strategy (Akhtar-Danesh, et al., 2009:312). Meyer, Land and Bailie (2010:7) describe the fear as "emotional tensions and fears of loss of cognitive control over the situation, which results in feelings of powerlessness, dissatisfaction and alienation". The

question that arises is, does the support of HFPS provided by technology reduce fear sufficiently, or does mastery of the skills to handle HFPS equipment reduce fear and ensure successful implementation of HFPS?

Nurse educators' initial experiences may shape their perspectives or frames of reference regarding HFPS. This takes place during the persuasion phase (Miller & Bull, 2013:243), a term that originates from the theory that describes the diffusion of innovation. This theory distinguishes five distinct attributes required for the adoption of an innovative technology: *relative advantage*, *compatibility*, *complexity*, *observability* and *trialability* (Moule, Garside, & Prescott, 2011:657; Rogers, Singhal, & Quinlan, 1996:np). Nurse educators exposed to HFPS for the first time will inadvertently make mistakes [7:2]. Nurse educators may be mortified to realise that they made a mistake, especially if they made the mistake in the presence of their peers. As a result, they may feel exposed and insecure.

Developing nurse educators in the use of HFPS should include an understanding that transformative learning by HFPS is a way to transform nursing education. Nurse educators need theoretical, technological and practical support during their exposure to HFPS. Allowing them to experiment, experience and sometimes make mistakes is part of providing an opportunity to re-evaluate ineffective perspectives about learning. Participants struggle with their feelings of inadequacy (a disorienting dilemma), thereby providing the opportunity for nurse educators to examine the effectiveness of frames of reference. If nurse educators feel overwhelmed by the theory of simulation, technological complexities and practical challenges, they may give up on HFPS as a learning strategy.

I suggest that simulation coordinators and nurse educators who use simulation should agree on ways to deal with mistakes that occur during simulation. *Depersonalising mistakes* creates a safe environment for learning. It is wise for simulation teams to establish cooperative values for simulation sessions early on, specifically for when they make mistakes. Simulation experiences should be value driven – respect and confidentiality, for example, are essential values.

Participants' adaptability was a particular key element of dealing with the mistakes of either student or nurse educator. Despite careful planning for and preparation of each scenario, students' reactions might be different from that expected, and participants have to adapt accordingly. Dealing with challenges during simulations led to a more cohesive unit developing among students and nurse educators. Participants mentioned that, because of their own challenges during simulation, they were less harsh with students. Articles claim that nurse

educators experience high levels of fear of technology, and that this poses a barrier to adopting HFPS as a learning strategy (Nehring et al., 2013:25; Anderson et al., 2012:e59; Blazeck, 2011:e57). A question that arises is, is this fear caused by technology, or is it a fear of making mistakes while managing technology? The literature does not say much about mistakes as a learning opportunity during HFPS.

The findings that transpired from the data and participants in this study provide sufficient evidence that the implementation of HFPS complied with the attributes of innovation adoption posited by Rogers et al. (1996), and might have contributed to the participants' commitment to HFPS, despite a number of barriers. The TLT also indicates that learning occurs because of a problematic frame of reference. I therefore suggest that fear of technology is not the real barrier, but part of the learning process of implementing an innovative strategy. The cause of fear may be fear of exposure of personal flaws, though it also presents an opportunity for growth and transformation.

Elements of transformative learning abound in the context of HFPS. In a grounded theory research methodology, Parker and Maryk (2011:73) measured the social-psychological processes students experience during HFPS. I have established that the learning of nurse educators and students are of a similar nature, but that it differs regarding content of learning. Therefore, drawing from this assumption, one may deduce that the social-psychological processes of nurse educators may be the similar to that of students. These authors recommend that the social processes that guide knowledge creation in HFPS should receive close attention (Parker & Maryk, 2011:78). Parker and Maryk's (2011:78) findings were that technology-based learning tools are amendable to social construction in the neo-modern adult learner. In presenting the theory, Parker and Maryk (2011:76-80) indicate how student learning during HFPS is compatible with symbolic interactionism, social constructionism and social discourse. HFPS provides the context and the opportunity for making meaning of concepts, the social environment, social communities, cultural and linguistic demands of a profession, and the institutional culture. The benefit of HFPS is that the nurse educator can choose to manipulate these social processes.

Identifying the social processes was one of my personal, hidden aims of this study. When we established a new simulation laboratory, I found that there is limited research about the social construction of knowledge by students during HFPS, and even less about the way nurse educators derive their knowledge or praxis in HFPS. It is crucial that research in HFPS extracts the underlying constructive and social processes of the way nurse educators derive their

knowledge. Unless we understand the social and constructive nature of the learning process, establishing best practices for nurse educator development in HFPS will be futile. The above-mentioned role that HFPS played in the development of the participants was underscored by the attendance of a simulation workshop.

Authors agree that a *formal simulation workshop* should be part of the development of simulation nurse educators (Harder et al., 2013:1244; Larsen, 2013:e105; Jones & Hegge, 2007:e19). Most of the participants voiced that the formal simulation workshop provided a good theoretical foundation for further practices. Attending the workshop also clarified their role during simulation, subsequently reducing their stress response during simulations. They believed it is essential that nurse educators be exposed to HFPS before attending a simulation workshop. The factor that impressed the participants who attended the workshop was the interaction between attendees and presenters, and that the workshop was practical and workable. Participants left the workshop with positive impressions of the presenters, and considered them experts, inspirational and role models, and that presenters were respectful towards attendees. Presenters' simulation and debriefing skills were elements that inspired attendees. Attending a simulation workshop may be more useful to people interested in simulation, who have experienced most of the activities of simulation and see themselves involved with simulation in the next few years. Jones and Hegge (2007:e19) confirm that simulation workshops improve nurse educators' comfort levels in using HFPS technology. The role of the nurse educator should be clarified and attending a workshop helps, but may not be the only way to clarify what is expected of nurse educators.

The participants who had had less exposure to HFPS expressed that the simulation workshop may help their skills development, but that it may not satisfy their need for individualised, informal learning (Kelly & Hager, 2015:376). The simulation workshop did not seem to be essential for those participants who were experienced simulation nurse educators.

5.5.5.3 Lessons learned from HFPS

The authenticity and realism of the HFPS learning environment contribute to the effectiveness of this learning strategy, and the realism of the experience is dependent on the skills of nurse educators facilitating the simulation (Al-Ghareeb & Cooper, 2016:285). Participants' previous clinical experiences enabled them to create an authentic environment. HFPS is a creative and innovative learning strategy, but must be congruent with theory and practice (Al-Ghareeb & Cooper, 2016:285). Most participants believed that simulation improved their knowledge and

skills. HFPS opened the doors for participants to develop an understanding of students' learning processes, because it gave them the opportunity to enter into the learning environment of the student. Simulation is a process that enables nurse educators to walk with the student in their learning.

As nurse educators learn and their praxis of simulation deepens, they are able to use the scenario and debriefing as tools to build on students' previous learning. HFPS benefits the learning of both nurse educator and student. Through direct, face-to-face contact between nurse educators and students, nurse educators became more aware of the learning needs of students and adopted a more holistic approach to the students' learning. They might assign students roles during HFPS to match areas that need more development.

Leaders in nursing education in Canada endorse a blended-learning method, including simulation, as part of the mentoring of clinical expert part-time nurse educators (Reid et al., 2013:288). This study indicates that clinical experts who received educational development can provide rich HFPS experiences.

A number of traditional learning theories have been used to develop nurse educators using simulation, for instance, Ajzen's theory of planned behaviour, Van Sell's skills acquisition nurse theory, and behaviourist-based simulation (Faz et al., 2014:50; Jones, Fahrenwald, & Ficek, 2013:e213; Parker & Maryk, 2009:325-326). Learning theories applicable to HFPS are the theory of diffusion of innovation, experiential situated learning, reflective learning, Benner's performance model (novice to expert), constructivist-based simulation, Bandura's self-efficacy model and the cognitive learning theory – these are the kinds of learning theories that are used to design and evaluate the outcomes of these studies (Kaakinen & Arwood, 2009:3.10). Kaakinen and Arwood emphasise that comparing traditional and contemporary learning theories is complicated, as the traditional outcomes of learning did not study all the aspects of learning, for example, problem-solving and critical thinking. HFPS highlighted two important aspects for consideration: 1) the learning strategy must match up with other number of learning strategies used in the curriculum, and 2) the framework used for designing a simulation scenario and the way outcomes are measured by a study must be congruent.

Despite participants' confidence in their educational practices, they realised that simulation will *require a different set of skills* they still have to master. Examples of their regular practices are facilitating learning (rather than teaching), creating active and experiential learning opportunities, offering problems that need solving, and facilitating reflection on experiences.

Nonetheless, these skills were not sufficient, because teacher-determined learning was still at its core. Over time, participants realised the importance of allowing students to figure out a problem and not providing the answer up front. However, some participants indicated that remaining quiet or just keeping on asking questions to encourage students to think about problems was a difficult habit to cultivate [2.11, 4.9, 5.6).

At a psycho-social level, participants learned about the learning processes of both students and themselves (Walton et al., 2011:300). The most challenging aspect of the learning was the personal learning nurse educators experienced. As simulation is a new learning strategy, mistakes are bound to occur. Participants of this study, therefore, had to deal with their own and colleagues' mistakes.

Participants learned about the *learning processes of students*. Even though students' actions during the simulation were incorrect, students had some rationale for their actions. Listening and discussing students' own thinking processes helped participants (nurse educators) to understand their own thinking processes. Understanding why students reason incorrectly or have misperceptions about basic module content is essential for nurse educators -- even correcting their comprehension of the subject matter may help students. The focus of observing students' actions should include identifying the students' understanding of the condition and process of managing the patient in the scenario. Students may even perform the correct actions – display the correct behaviour – but may be unaware of the correct reasons behind such actions. The nurse educators' role during the simulation is to facilitate student learning towards the outcomes set for the simulation. The NLN states the following as the outcomes that should be reached by a simulation: Nurse educators should ensure that students understand how facts learned in class are interrelated with one another, even between different modules; students must incorporate skills – including soft skills; and participants must ensure learner satisfaction, critical thinking and clinical judgment, as well as self-confidence (O'Donnell et al., 2014:380).

Students were able to communicate freely about their learning needs. This gave participants a greater insight into the students' learning needs. Together students and nurse educators learned through taking risks, or by trial and error. Participants discovered over time that, even though subject theory and associated skills are addressed with students in class, and even though engaging strategies were used, effective learning is not guaranteed. Nurse educators realised that HFPS set a high level of expectation among students and therefore nurse educators had to take the lead in setting a higher standard for themselves.

Participants were impressed by the fact that HFPS made it possible for students to make mistakes without harming a patient, and to learn from it. Making mistakes is a significant learning opportunity. Part of the process of personal growth is learning from mistakes. Students can learn in a safe learning environment, and participants' opinions indicated HFPS is the best way to establish a safe learning environment that, together with other learning strategies, may expose a student to, for instance, psychological harm. Participants described what they thought they had learned about their own learning about HFPS.

Participants' became aware that *traditional education leaves gaps*. Kaakinen and Arwood (2009:1) confirm in their systematic review that nurse educators initially approach simulation from a teacher-centred *approach*. Traditional pedagogies are characterised by a teaching approach in which students are passive, receptive and content-driven (Hung, Lim, & Lee, 2014:10). Therefore, the traditional education of students does not only influence the perspective of future nurse educators, but it lowers the expectations set for students. In the absence of high expectations, students are only required to explain what they will do, instead of doing, and as Chris said, "*knowing does not mean able to do*". In recent years, nursing education has been encouraged and has attempted to move away from traditional pedagogies, towards experiential learning theories, and has started focusing on social learning and cultural practices (Poikela & Poikela, 2012:19; Berragan, 2011:661). Some participants were concerned about students repeating mistakes. From a TLT perspective, this concern may have resulted from an uncritically assimilated frame of reference. For example, a student may have seen an incorrect example of a senior student in the clinical setting, and assumed it was correct behaviour. When witnessing a student making such a mistake, a nurse educator may think that the student should be able to fix the misperception once the educator has explained why it is incorrect. However, the student observed incorrect behaviour. If not corrected, wrong learning may become the students' behaviour in the future. Nurse educators guided by the TLT in conjunction with HFPS develop a deeper understanding of students' reactions. The TLT also provides an opportunity to guide a student to addressing ineffective perspectives. Therefore, nurse educators should probe students' frames of reference, and reflect on content, processes and premises that are key elements of TLT (Kitchenham, 2008:114).

Nurse educators want to be in control of student learning, but students will learn from their experiences. Some participants felt strongly about communicating specific outcomes to students before simulations (also called briefing), rather than setting objectives and providing information. From nurse educators' perspective, they want to define what a students' thinking

and behaviour should be. Soon they realised that students solved problems in different ways and that scenarios had to adapt to the students' actions. The student may not even think about what nurse educators intended, especially if students make a mistake at the onset of the HFPS. Nevertheless, Lorrie found that students learned the most during these opportunities. She gave the example of students administering a drug via the wrong route and the patient dying. In this case, different outcomes were achieved. In addition, students said they would never forget the experience.

Mistakes can lead to significant learning. Like children playing (learning while playing), students' learning may sometimes seem messy. Initially, nurse educators became upset with students and wanted to stop the process, indicate the mistakes and explain exactly what should be done. Over time, however, the nurse educators realised that students are learning despite what is happening. Mistakes can be learning opportunities, as mentioned above, when nurse educators create a supportive, non-judgmental and safe environment for students to discuss deep thoughts and feelings. Even a negative experience may be the disorienting dilemma that pushes a person towards an alternative perspective to coping with a situation where old perspectives are ineffective and that needs a change in perspective.

Nurse educators new to HFPS need some structure to guide their actions and reduce stress. Participants expressed the need for structure during simulation even though they had received orientation, informal and formal training, and had attended and helped to present simulation workshops.

Participants became much more secure when each nurse educator was assigned specific tasks at a specific time. The task allocation rotated to expose all the nurse educators to equal learning opportunities. When I scheduled tasks for each nurse educator, they experienced structure and were less disorganised in their minds. For me, the tasks seemed very logical, for example: cleaning up the simulation environment after a group left; being the voice of the patient or the doctor on the phone; managing the scenario on the tablet and so on. These tasks seem menial, but if not done judiciously, it may influence the students' quality of learning. Students easily become distracted if equipment or information has not been prepared properly. As a result, out of my concern with providing equal learning opportunities for nurse educators and a correctly prepared learning environment for student learning, I drew up a schedule of all tasks. The bigger the student group the more nurse educators were involved and the more complex were the management demands of the simulation.

Scheduling the participant tasks allocated responsibilities, and provided opportunities for learning and structure for learning about simulation. I therefore draw the conclusion that structure is essential for alleviating some of the nurse educators' anxieties; structure provided more time to think, which resulted in deeper development of participants' simulation skills. As indicated in Section 5.3.2, participants had habits of mind that created a need for them to experience structured support. By dealing with a habit of mind, and not a point of view, I aimed to assist nurse educators as far as possible in their need for structure. Therefore, providing structure reduced participants' anxiety and insecurities, so that deeper learning could follow.

HFPS seems to provide the ideal environment for both the nurse educator and student to transform. The ideal environment suggested for transformative learning is a safe, open and trusting environment that allows for participation, collaboration, exploration, critical reflection, and feedback (Baumgartner, 2001:20).

5.5.5.4 *Willingness to critically self-reflect*

The data of this study indicates that willingness to do critical self-reflection occurred after a number of exposures to HPFS. This is why I, as the simulation coordinator, created an opportunity for nurse educators, in the beginning, to merely observe their own students in HFPS. My reasoning was to reduce their stress experience from the onset. My perception was that the awareness of their future responsibility to assist with simulation would raise their anxiety levels and limit their openness to learning. I invited new nurse educators to come and observe what we were doing, with the aim of obtaining commitment from more nurse educators to implementing HFPS. The willingness to commit, however, did not automatically mean they committed to a transformative learning perspective. Meyer et al. (2010:40) describes discomfort as an experience that can either be productive (reflective) or unproductive (defensive/destructive). The difference between reflectiveness and defensiveness is a term they use as a threshold.

The term used in this study is "willingness to critically self-reflect", and in the context of this study it may be similar to the threshold concept of Meyer et al. (2010). A threshold is a specific intensity or a place that needs to be reached for change to occur. It sometimes also refers to the strip on the floor that keeps the pillars of a door stable. In this case, it is a point one has to pass over to reach the other side of the door. The participants perceived *experience to be the best master of learning*. Participants' learning about HPFS within the context of this study

related to the participants' willingness to critically self-reflect and transform and therefore they experienced a transformative learning process.

5.6 CRITICAL SELF-REFLECTION

The butterfly emerging from the chrysalis represents critical self-reflection in the framework of the study (Figure 5.2). The willingness to change brought about the next stage of development as a simulation nurse educator. In this picture, we see a different organism that has developed into the chrysalis. The butterfly has the ability to transcend the boundaries set by the stages of the egg, worm or chrysalis. As the wings of the butterfly dry, the butterfly prepares itself for flight, to pollinate flowers and be the parent of the cycle of the next generation. This process is symbolic of the skills the simulation nurse educator developed at this stage.

The nurse educators are now at a stage where they have changed some important perspectives on education, and have settled into an expanded role, that of an nurse educator using simulation. In this stage, the participants are now capable of critical reflection on external experiences, and they embrace their new roles and purposes as nurse educators.

This phase of critical self-reflection provides the answers to Sub-questions 5 and 6 below. As indicated in 5.5.5, a threshold can be reached during critical reflection on experiences. When they reached the threshold, the participants stepped into the next stage of critical self-reflection.

Sub-question 5

Which education practices changed due to learning experiences while implementing HFPS?

Sub-question 6

What influences did the implementation of simulation have on educator reflective practices?

Critical reflection on experiences during the chrysalis stage is unlike the young butterfly stage. The chrysalis phase focuses on the skills that need to develop, but the young butterfly stage focuses on a permanent change within the *inner being* of an nurse educator. The resulting transformation is dramatic and steady. Contrary to the discomfort that participants experienced during the chrysalis stage, some participants moved to the young butterfly stage and the critical self-reflection in this analogy.

Taylor and Elias (2012:158) refer to this phase as the self-transforming way of knowing. During this phase the intent is to negotiate multiple self-constructed boundaries. Adult learners (simulation nurse educators in this case) reconsider and reframe these boundaries to transcend into other areas (Taylor & Elias, 2012:158). This transformation does not focus on “the self”, but on the “non-self”, which is seen as wisdom and not cumulative knowing. The adult learner can now transcend his/her own boundaries in order to benefit “the other” (students). Critical self-reflection on assumptions (premise reflection) is much narrower than critical reflection on experiences and content, and the former is process driven (Baumgartner, 2012:105). Premise reflection includes critical reflection on assumptions about cultural systems, including organisational cultures, norms and values, ethical decision-making, problematic feelings, dispositions and consequences of actions (Baumgartner, 2012:106).

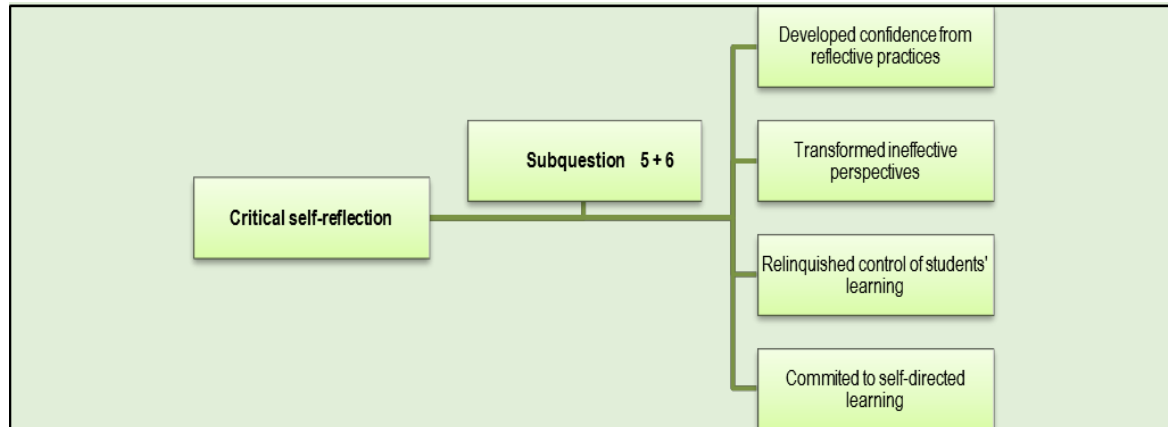


Figure 5.13: Critical self-reflection on assumptions

Critical self-reflection cannot be observed, and participants may not always be aware of the *evidence in the data* of the critical self-reflection process. Therefore, as recommended by Lundgren and Poell (2016:4), I searched for the results of critical self-reflection in the data and excluded habitual and non-reflective perspectives. Four main features of critical self-reflection transpired: confidence, transformation of ineffective perspectives, relinquished control over the learning process of students, and commitment to self-directed learning (Figure 5.13). The four features are inward (*self*) transformations intended to benefit students' learning (*non-self*) during simulation.

5.6.1 DEVELOPED CONFIDENCE FROM REFLECTIVE PRACTICES

Reflection takes on various forms during simulation. The first form, the most commonly used in HFPS, is the reflection that takes place following a simulation event. The nurse educator facilitates students' learning by guiding their reflection on their simulation experiences. Secondly, at the site of the study, nurse educators critically self-reflect on a day's simulation experiences with their peers. Not only do they improve the content of the scenario during these sessions, but nurse educators discuss the emotions they experienced and highlight their learning experiences and the problems they experienced. The practice assists nurse educators to get rid of excess emotions built up during the day. Thirdly, the simulation experiences linger in their minds, and nurse educators may reflect on the simulation events from time to time. In Figure 5.14 some of the comments about learning from reflection are illustrated.

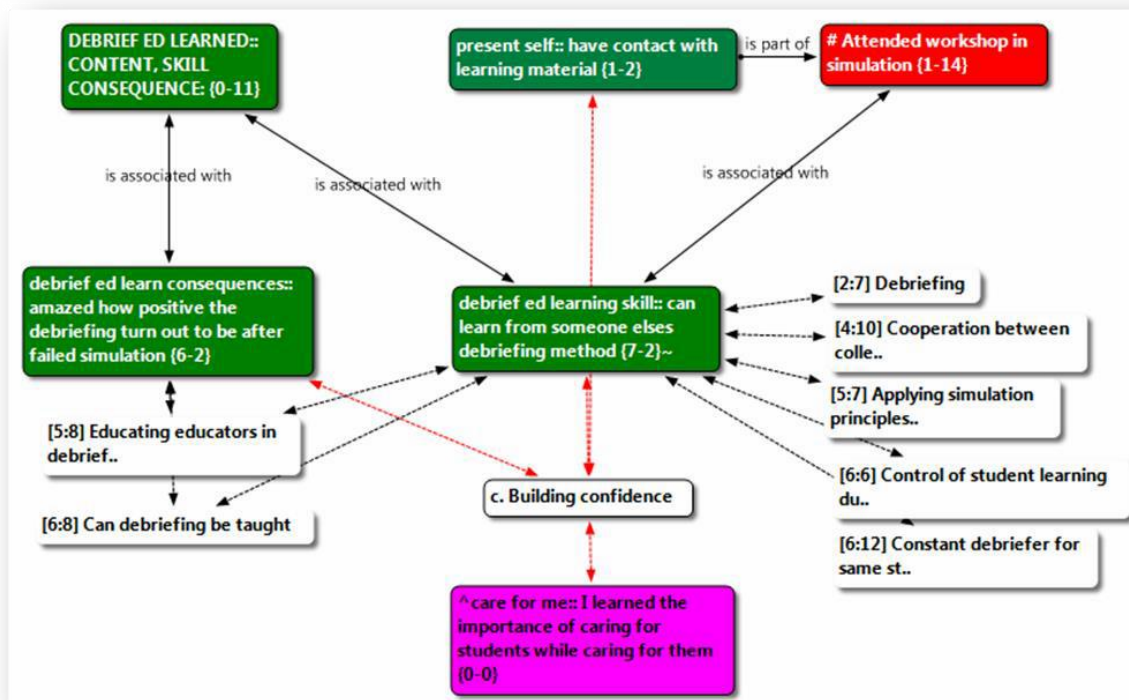


Figure 5.14: Building confidence because of debriefing sessions²⁴

A major contributor to building confidence in participants was the debriefing sessions (refer Figure 5.14). During these sessions, participants honed their debriefing skills. While they

²⁴ Number before code = quotation number.

listened to students describing learning experiences during simulation, their confidence in HFPS grows and they experience the positive results of the scenario they designed and facilitated. The direct, face-to-face contact with students provided participants with non-verbal feedback from students.

Nurse educators experienced the best learning opportunities during debriefing and reflection after simulations. Students also found the debriefing session to be the prime source of learning. Participants identified three ways they developed their debriefing skills:

- learning from doing itself,
- learning from watching another participant's debriefing technique, and
- through exposure to difficult debriefings.

Initially, the participants learned debriefing skills by observing a mentor. Over time, beginners joined the experts during debriefing, then beginners started debriefing students under the leadership of the expert, and later on beginners became comfortable handling debriefing by themselves. Nurse educators can also use an audio-visual recording to evaluate their debriefing of students, by watching it afterwards for reflective purposes.

Self-reflection did not come naturally for all nurse educators. For example, Chris said that he did not like the reflection component of simulation, but he succeeded in developing the skill and, by practising it, he experienced the benefits. He said that he reflected more about his experiences than in the past and he gained more objective perspectives through critical self-reflection.

Participants reported that developing the skill of debriefing and reflection is emotionally demanding. Participants often feel emotionally and physically tired after a simulation. A reason for this is possibly that the nurse educators have to concentrate on both their own and the students' reflective processes. They also have to search for the style and strategy that suits them best.

Lorrie said that she learned the most from *difficult debriefings*. She explained that the students made a fatal error whilst administering a drug during the simulation – this mistake would have caused instant death in real life – the patient in the scenario “died”. She expected the students to be devastated. Her previous clinical experience as a critical care nurse enabled her to handle the debriefing in a sensitive way, whilst also being an advocate for the patient. The students' responses convinced her that students would never forget the lesson they had

learned. She said that students left the session having learned that anyone can make a mistake that had the potential to cause serious harm. During this incident, nurse educator and students learned simultaneously.

Although participants became progressively more comfortable with their skills of planning and conducting a simulation, some still indicated, even after a number of years, that they wanted to improve their debriefing skills. They still believed that their learning was incomplete. The transformative learning process is never completed and critical reflection on experiences is a never-ending process. However, the process differs for each person. Discourse with peers helps with to stimulate new ideas and to devise strategies. The support and cooperation amongst colleagues contributed to building confidence. Participants suggested a number of strategies to improve their debriefing and reflective practices:

- Listening to and reflecting on audio or video recordings of their debriefings;
- Practicing their skills on one another;
- Sitting in with peers when debriefing students after a simulation, and
- Debriefing students in pairs, which may afford a broader understanding.

These were merely suggestions for the future and were not investigated further in this study. Both Susan and Cloe were satisfied with their skills in debriefing students, but they felt that they could still learn from one another. Nurse educators in similar nursing disciplines may collaborate in their simulation efforts.

Support from colleagues can play a significant role in building the confidence of nurse educators who venture from the familiar into a challenging strategy to benefit students' learning. Support from within the simulation fraternity seems to be most important for cultivating confidence. Cloe stated that, if leaders in the school expressed care about her HFPS efforts, it would encourage her to enhance her efforts and it would boost her confidence. A similar need was expressed by new nurse educators in nursing education, who looked for support from their peers and seniors (Gardner, 2014:110). Cloe ascribed the lack of support she experienced to daily pressures and a focus on academic scholarship development. Scholarship development took precedence over her excitement about HFPS. She acknowledged that a leader might have a limited understanding of the substantial influence simulation has on student learning.

Disunity within the ranks may harm the reflective processes of nurse educators. Cheryl experienced stress in coordinating a simulation on her own. Criticism from peers caused doubt, and stress crept in:

G doesn't always see the need for us having a full meeting before each simulation in order to eliminate any possible glitches and so ensure that I meet her expectations. For example, at the last simulation Justin was intubated and patient had to become restless, which is difficult when he is unable to speak.

Ventilator that keeps sounding bothers her but hopefully we will be able to solve this with our "Super Justin" seeing as he will correlate with ventilator.

Something that happened last week : D... said perhaps I should start completing the check-list so I thought to myself maybe the lecturers should all complete the correct simulation documents. This will eliminate problems.... I am able to do the work and I think I do it well, but I also realise that I do not have any theoretical background other than to overrule certain actions.

Building confidence through reflection seems an important ingredient for an nurse educator using simulation. Nurse educators build their confidence through reflection in collaboration with students and peers and by themselves. A supportive, non-judgmental, encouraging work environment for reflecting on experiences is essential for transformative learning.

5.6.2 TRANSFORMING INEFFECTIVE PERSPECTIVES ON LEARNING

Transformation involves changing ineffective, previously assumed perspectives, and more specifically, in this study, nurse educators' frames of reference. Courage and confidence are required to examine ineffective educational perspectives.

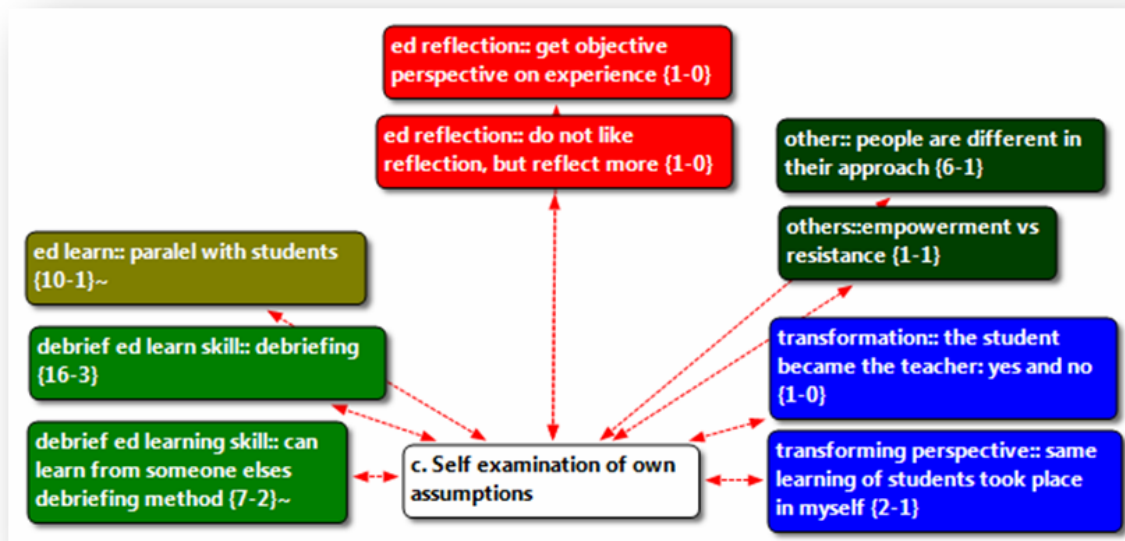


Figure 5.15: Self-reflection on assumptions

As it is difficult to identify the transformation of another, I could only focus on identifying the results of transformation as described by the participants. The transformations described are only those that the participants were aware of and were able to express. There might be other transformations that the participants were not aware of, or that they were not willing to discuss. The following transformations that indicated critical self-reflection about learning emerged from the data and can be seen in Figure 5.15:

- Empathy with students;
- Direct engagement with students;
- Listening to students' perspectives, and
- Transformation from a teacher-centred to a student-centred approach.

5.6.2.1 Empathy with students

The most prominent transformation that emerged from the data is empathy with and concern for students. Most of the participants expressed empathy with and pride in their students for participating in simulation. However, a prominent feature of this study was the participants' emotive development. Empathy is not the natural outflow of most learning-strategies. Empathy is indicative of a deep change in the participants' thinking about their students and their own roles in the learning processes of the students. Participants also mentioned empathy with

challenges and limitations students experienced in the clinical setting. Renee expressed her concern about the challenges that students have to deal with in clinical settings. These comments indicate that participants might even have transferred some values gained from HFPS to preceptorship. However, this supposition needs further confirmation and investigation (further research). Emotive learning can be indicative of a deep, transformative learning process, because of the nurse educators' exposure to HFPS.

Susan expressed that her *expectations* of students had changed [6.4]. She mentioned that she is not so hard on students anymore. This links with her comment at the onset of the HFPS that she was hard on herself and possibly on students too. Some participants went through simulation experiences and developed an understanding of what students experience during simulation, which includes high levels of stress, and feeling exposed or criticised. Most participants indicated advocacy for students. Most participants were committed to protecting students from harm. They understood that each simulation is crucial to ensuring successful simulations in the future.

5.6.2.2 *Direct engagement with students*

Participants considered simulation to be an effective, advanced education strategy for student learning. Simulation required of them to engage with students at a higher cognitive level. They respected their students during simulation. Furthermore, it was their privilege to witness the positive outcomes of students' learning over time. Witnessing the positive results of HFPS directly in each student, transformed nurse educators' educational perspectives and practices into a more positive, supportive and constructive approach. As they saw how students improved because of simulation, they reflected and searched for improvements they could bring to their scenarios. Cloe experienced that she could move with her students as a team.

Simulation seemed to provide the nurse educators with natural feedback on their education practices. HFPS confronts nurse educators with the situations students are able to manage and those that need further development [3.11]. Collectively, the nurse educators learnt to provide students with rich learning experiences. As nurse educators do not have to assign marks for simulation sessions it may take some pressure off them in terms of teaching and assessing. Assessment of students may exert subtle pressure on nurse educators, as student marks may indicate nurse educator performance at a personal level. Simulation does not emphasise right and wrong, but the quality of the learning opportunity for students. HFPS complemented nurse

educators' commitment to quality education, leading to the excitement discussed in Section 5.2.3.

Participants continued examining their interpersonal skills. Cheryl indicated that they believed they had sufficient knowledge and communication skills, but Lorrie and Cloe indicated that they were wary of harming the students. This indicates that participants were mindful of and reflected on their practices. They could identify their areas of strength and areas that needed improvement. Participants' most substantial learning experiences resulted from direct contact with students during debriefing. Some indicated that debriefing is difficult to master, but that they consider this as the most significant learning opportunity for students. The debriefing and reflection phase of HFPS is time consuming. However, the deep interactions between a nurse educator and students who are listening closely to one another are one of the most successful strategies for learning (Chickering & Gamson, 1987).

5.6.2.3 *Listening to students' perspectives*

Most participants found it hard to only *listen* to students and to resist the habit of teaching during simulation. Participants developed the capacity to listen to students as their listening skills developed. Realising the importance to students of verbalising their experiences in the scenario is crucial for their learning processes.

Participants aimed to improve interactions with students. Nurse educators, in general, do not often acknowledge students' perspectives. When he was a student, Chris had thought that his nurse educators saw students as "empty heads that need filling with someone else's thoughts". This is the perspective of a student that may not be true about the nurse educator at all. Nevertheless, participants were pleasantly surprised to hear students' thoughts about life and their willingness to engage with their own learning during the debriefing. This may indicate that the participants had not considered students' thoughts during learning, or did not invite students to raise an opinion in class. Communicating these observations indicates that the participants' listening and observational skills had improved. As a result, participants placed students' interests at centre stage, indicating a renewed focus on a student-centred approach.

Participants' expectations of students broadened over time. Expectations of students became less defined and more open as nurse educators' experiences improved. Participants saw students as learners with various needs. One participant indicated that her expectations of the

undergraduate and the post-registration students differed. It was not clear, however, what this difference in expectations was.

However, the same participant believed strongly that students should receive written outcomes before entering the simulation. I do not agree, because outcomes are the indicators of students who have mastered a specific portion of the content (Franklin et al., 2013:S20). In addition, students' learning needs were unique or sometimes different from the outcomes set for the simulation. Thus, the outcomes should be set in such a way that students can address their own problems, or be assisted to solve their problems and meet their learning needs within the simulation.

5.6.2.4 Transforming from a teacher-centred to a student-centred approach

HFPS is a student-centred learning strategy, with the student learning the focus from scenario development, briefing, facilitating simulation, debriefing and reflection. The simulation process pushed nurse educators towards a student-centred paradigm from beginning to end. The process of HFPS leaves little time for teaching. Susan, Cloe, Renee and Lorrie mentioned that their educational perspectives about a student-centred approach had changed drastically, although they had had a constructivist approach from the start. Adhering to a paradigm does not guarantee student-centred learning.

The participants changed or transformed from lecturers to facilitators of learning as HFPS challenged their thoughts, values of teaching and learning, perspectives about students and even students' futures. Participants freed themselves from the burden of having to encourage students to learn, and handed the responsibility to learn over to students. They mentioned that they could now sit back and provide students with opportunities to engage with their own learning. Their renewed focus on student-centred learning is an inclusive process that benefits student learning.

Cheryl reflected on her way of approaching education and how that influenced her way of training students. Training students is not merely following a survival manual, but involves dealing with the totality of the student.

I was an ICU-trained nurse only I just wanted to bombard the poor students in the ICU with all the knowledge and how you must do things and I'm a bit of a control-freak. So told them [how] to do it... but I think I've learned that my way isn't always the right way; there's different ways to learn[ing]; and I think there's a lot

that I still need to learn concerning... how to teach someone without... throwing out all the knowledge... and I really don't know how to do that... you just survive and you train as quickly as you can... and you just want to get the job done and... you're actually busy with the whole person, with the student, the holistic... it's not just about learning, it's about them [2.9].

Cheryl saw the bigger picture regarding students – that they have individual needs, backgrounds and expectations.

Cloe believed that her own and her students' exposure to HFPS increased the value of the post- registration module she presents. She went through experiential learning when she implemented HFPS. She believed it was necessary to revisit the theory covered in the modules with students, and constructed a better way of facilitating students' learning. The learning she experienced helped her to see new ways of structuring her modules more effectively. According to her, HFPS contributed more to her personal learning than any other learning experiences had before. She emphasised that simulation is an excellent promoter of deliberate practice and that seeing results comes with time.

5.6.3 RELINQUISHING CONTROL

From the nurse educator's perspective, adapting to a "hands off" learning strategy is one of the key dispositions for a nurse educator to learn (McAllister, Reid, & Davis, 2013:1456). HFPS provides the ideal opportunity for the nurse educator to develop the ability to "not interfere" with the learning process of a student.

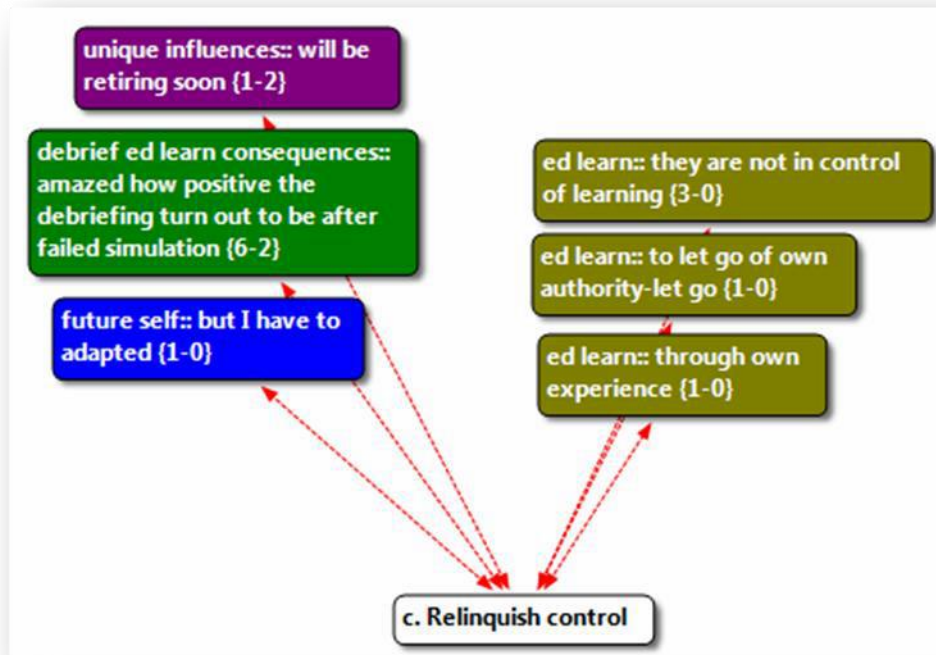


Figure 5.16: Relinquishing control

Chris stated an incorrect assumption he had of some nurse educators that he had experienced as a student when he said, “educators saw themselves as in control of student learning” [1.8] and he believes they were mistaken. Considering the rapid changes that will take place in the nursing profession in the future due to the rapid expansion of knowledge, and external influences, nurse educators cannot consider themselves as the only determinants of the learning process and the content of learning. This belief will clearly be a limiting factor in promoting the learning of students during simulation, when, in fact, we should allow students to develop the skills to gain knowledge most pertinent at a specific point in time. The need to control student learning did not apply to all the nurse educators. Jane stated that she did not want to be in control of student learning:

I'm the facilitator and I don't want to be really in control, I want to uh, look at the needs of the students and try to act upon that, because when we start with this problem-based we really facilitate; we are not there in control, the students was... in control, but hopefully we were both side by side.

The design of a scenario for simulation involves planning, but the scenario should not be too rigid; it should be adaptable to students' actions during the simulation. Participants indicated

that they learned from previous experiences and even from failures. Adapting the scenario during a simulation became easier over time. However, from time to time the nurse educators did not agree on the way forward, because they have their specific perceptions and even misperceptions. For the coordinator, ambivalence or disagreement on the way forward and maintaining the flow of the scenario is difficult to manage. Everyone has a point of view and participants said reaching a consensus through open communication was a key feature of finding solutions. Due to the individual way in which participants functioned in a traditional setting, they developed skills to negotiate their points of view, but also considered others' points of view. Reaching this point is very different from the initial HFPS experiences that required much more structure and guidance. Nurse educators initially required to be told what they should do, but nurse educators became more flexible with more exposure to HFPS.

However, an overemphasis of the principle of structure may limit nurse educators' ability to identify alternative learning opportunities for students, as nurse educators may focus only on performing their tasks. Cheryl said,

Well some people don't need to but I think you should need to know what's going on everywhere. So I think this makes you feel not in control because you're not, you're not in control. Because the students can do anything and they may do anything and ag, and the technology thing can fail you as well so you never know what's gonna to happen, if Hulk [her name for the patient simulator] is not gonna be able to talk or... so you're the whole time, you're just seeing what's gonna happen, you're not in control.

Relinquishing their control over students' learning was a major challenge for most of the participants (see Figure 5.16). Exposing students to real-life experiences in a safe environment enables students to learn dealing with challenges, and emancipates students from limitations. According to Mezirow (refer to Section 2.4.1), people make meaning through experiences. If you do not have any experience, it is difficult to have a perspective, and one can conclude that you can only have an opinion. It seems that nurse educators need to experience letting go of control to change their perspectives regarding students taking control of their own learning.

5.6.4 COMMITMENT TO SELF-DETERMINED LEARNING

Subsequent to a number of experiences in the "new world" of transformative learning experiences, followed by reflection on these experiences and, now, critical self-reflection, the

participants found themselves at a pivotal point again, where they had to decide what should happen next. Similar to the decision described in Section 5.5.4 that participants had to make, that is, being willing to critically self-reflect, the participants reached a point where they had to commit to developing themselves in a different way.

Figure 5.17 indicates how participants described their new insights and in which way they thought their insights should expand or deepen.

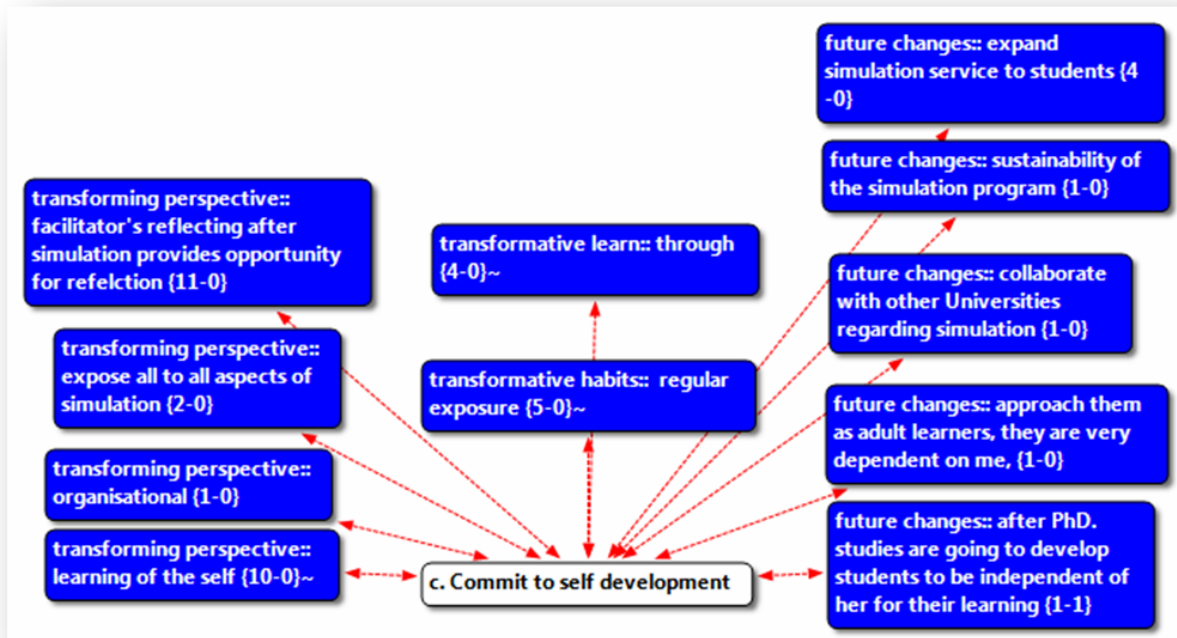


Figure 5.17: Commitment to self-development

The participants' commitment to self-development is linked to similar reasons for becoming involved with HFPS (Section 5.5.1). Participants considered HFPS to present a solution, because it provides quality learning for both students and themselves. They identified gaps in students' learning and some gaps in their own learning regarding the education of students. One of the motivations for their commitment to self-development was that some participants believed that they could address their own learning needs through HFPS. Others enjoyed the freedom HFPS gave them to apply simulation in the way they thought best. For some it was important to engage with theory to determine the various uses of HFPS. Most participants emphasised that regular and frequent implementation of simulation would develop their skills

and expertise in HFPS, and that skills may be lost if nurse educators do not frequently practise their simulation skills.

Strategies that supported their personal learning about HFPS were attending pre-simulation meetings; being involved in all aspects of the simulation, as well as participation in the reflection sessions of simulation nurse educators and coordinators at the completion of simulations. The pre-simulation meetings provided structure for nurse educators to agree on outcomes and aims for the forthcoming simulation. Practising all the aspects of the simulation provided an understanding of how complex their own learning is and what is required to be an expert in this field. These reflection sessions after simulation events focused on what had gone well and what should be improved or changed in the future.

Participants indicated that they reflected on the findings of their own research they had conducted. Susan indicated that the literature review and findings of her research for Master's degree purposes about students' HFPS learning experiences assisted her to understand the principles of simulation. Similarly, Cloe mentioned that her study for PhD purposes about students' learning experiences in a post-registration paediatric nursing care programme (of which HFPS is one of the strategies) helped her to reconsider and improve her educational practices.

After the participants initially mastered the basic skills of HFPS, they critically self-reflect on their personal learning from HFPS experiences. The result of critical self-reflection was to determine the skills needing more development. They selected strategies, such as identifying gaps in learning, enhancing their knowledge of the content of a module, experimenting with new applications of simulation, frequent implementation of simulation, attending and contributing to preparations, and running and reflecting on simulations. These learning strategies were active and not merely focused on knowledge transfer.

5.6.5 DISCUSSION OF CRITICAL SELF-REFLECTION

Critical self-reflection is the validation of epistemic beliefs, and invokes the best judgment of what is true (Kitchenham, 2008;105). The process of critical self-reflection on assumptions develops self-confidence. Participants developed their confidence and skills in facilitating students' reflection mostly during debriefings. Participants developed their confidence through critical self-reflection. During the debriefing of students, they were *looking into a mirror at their reflection represented by words* of students. Of all the components of critical reflection, content,

process and premise reflection contributed to their critical self-reflection and the reflection they see of themselves in other nurse educators, managers, administrative staff or their own thoughts. Reflections are sometimes blurred or distorted, depending on the kind of mirror they were looking into. Reflections are therefore the images of how we understand ourselves through projections of others and ourselves within the context of an experience.

A key role player in developing a participants' confidence was critical self-reflection. Most people consider critical self-reflection to be intimidating. Those courageous enough to do it reap the benefits. Reflection could be either collaborative or individual. There were various opportunities for critical self-reflection in HFPS. Examples of opportunities for collaborative reflection was during the debriefing of students, while observing and reflecting with fellow nurse educators after a day of simulation, and discussions about experiences with peers. Individual reflection opportunities included observing and listening to students and personal reflections after simulation, which seems to continue over days after an experience. There was an additional reflective opportunity for participants who were involved with research, who had to reflect during the writing up of research findings (as two of the participants indicated). This may indicate that the process of research brings a critical self-reflection into play, encouraging the nurse educator to examine epistemic and ontological assumptions (Stevens-Long, Schapiro, & McClintock, 2012:182).

Positive encouragement is crucial for developing confidence, and negative feedback can be devastating for developing confidence. Peers play an important role in either increasing or rescinding simulation nurse educators' confidence (Hodge, Martin, Tavernier, Perea-Ryan, & Alcala-Van Houten, 2008:213). Nurse educators should practice the same professional and social values they require of students. The atmosphere during simulation should be respectful and supportive (Regan & Onello, 2013:108). One participant indicated that she needed the support of peers and supervisors not involved in simulation. These people may include other nurse educators, managers and administrative staff. Encouragement has a positive influence on the reflective processes of simulation nurse educators, and criticism may even halt an nurse educator's creativity and innovation (McParland, 2015:115).

Beginners at implementing simulation developed their skills and confidence during debriefing, in particular, through a tiered mode of learning. The mode of learning started with repeated observation of a variety of experienced nurse educators leading the reflection of students, then joining in with an expert, followed by an expert sitting in on the mentee's debriefing, and then by doing it alone. Participants said that developing the skill of debriefing and reflection is

emotionally demanding. Participants often feel emotionally and physically tired after a simulation. The fatigue is a result of the intense concentration on both their own and the students' reflective processes. Finding the matching style and strategy of debriefing that suited nurse educator and student best requires constant concentration.

Learning about students resulted from experiences – by observing, listening and hearing them – and active involvement with students. At the same time, it was important for participants to develop an understanding of who the student is and what his/her learning needs are (Flanning & Gaba, 2007:119). A normal phenomenon is that nurse educators initially approach the implementation of simulation from an ineffective *teacher-centred approach* (Kaakinen & Arwood, 2009:1). Attempting simulation from a teacher-centred approach seems to frustrate the participants' efforts. Their frustrations forced them to consider making a fundamental shift towards a student-centred approach. Critical self-reflection resulted in developing empathy for students' learning processes (Stevens-Long et al., 2012:182). Seeing their students going through a transformative learning process was the greatest reward for most of the participants. The nurse educator-student interaction deepens the retention of learning, confidence, motivation and significance of the learning experience for students (Hallmark et al., 2014). The question that arises is whether the reverse is possible: whether the student could have the same effects on the nurse educator. The study indicates that the implementation of HFPS caused participants examine learning theories critically, making sure that the HFPS is congruent with educational theories they considered appropriate for their modules. The theory of learning became real and applicable. As a result, nurse educators developed confidence in their HFPS skills as they experienced the learning that resulted in students. Participants saw HFPS as a significant and successful learning strategy. Consequently, they became leaders in HFPS.

Nurse educators realised from their HFPS experiences that they do not possess all the knowledge, and possessing all the knowledge is not required at all. HFPS is a team effort and the team supplements shortcomings. Each member of the team makes a unique contribution, thereby supplementing one another's shortcomings. This is a strategy not generally seen in nursing education. As a simulation nurse educator, I experienced that working well within a team did not come spontaneously. This may be a consequence of nurse educators' total responsibility for a module. Participants may have become used to an individualised way of working or of working by themselves, which requires them to take the final decision. Participants may have absorbed a frame of reference according to which they are always responsible or not responsible for another's module. After years of working "alone", experiencing and collaborating

within a team presents a disorienting dilemma. Participants found the new team approach of HFPS to be a difficult experience due to longstanding habits of individualised handling of modules. In addition, they might now make mistakes in the presence of their peers, which may lead to embarrassment. I believe it caused participants to commit to self-determined learning in a positive way.

Commitment to self-determined learning may be the other side of the coin of barriers to and enablers of HFPS. If nurse educators are fearful of technology and other equipment and are constantly pressed for time, the natural tendency is for them to “pass the buck”. The study indicates that the TLT provides an alternative perspective to addressing issues such as fear of technology, and provides some ideas for saving time. Nevertheless, HFPS will remain a labour-intensive learning strategy and a number of committed nurse educators are needed to provide and expand this innovative learning strategy that will be part of the future.

Participants in this study exhibited the characteristics of adult learners when they took responsibility for their own learning and were committed to improving themselves through lifelong learning. Clapper (2010:e8) lists the characteristics of adult learners (andragogy):

Self-directedness,

Accumulated reservoir of experience that becomes a resource for learning,

Readiness to learn and growing orientation to the developmental experiences,

Learner carries social roles and responsibilities,

Application of knowledge that is increasingly tied to application and problem centredness,

Internal motivation to learn, and

The need to know why something should be learned.

These characteristics were captured in the data, but do not give all the answers to the research questions.

A deeper level of andragogy, called heutagogy or self-determined learning, provides a more comprehensive explanation of the learning experience of adult learners, in this case, nurse educators. According to Steward Hase (2011), heutagogy (based on the Greek word *self*) is a more complex development of a learner. This invisible process is not linked directly to a preplanned curriculum. Learning, defined in terms of heutagogy, is the making of linkages in the

brain and involves ideas, emotions, and experiences that result in a new understanding of self or the world (Hase, 2011). The learning can be seen as random and even disorderly. This kind of learning results from a personal need and often occurs to resolve uncertainty. Heutagogy is a good example of the learning associated with the learning about technology and the Web 2.0 (Blaschke, 2012:57). Heutagogy involves the development of capabilities through an active and proactive process by which the learner is the main ingredient of learning from experiences (Blaschke, 2012:58).

Blaschke (2012:59) indicates the close relationship between critical self-reflection and discourse as described by Mezirow (2009:95) in the development of maturity and autonomy. The outcome of heutagogy is self-efficacy in continuous learning and critical self-reflection; communication and teamwork skills; creativity; flexibility and adaptability during unfamiliar circumstances; and positive values (Blaschke, 2012:59).

Self-determined learning for nurse educators in HPFS seemed to be an important element for the participants, and it makes complete sense, because nurse educators are adult learners who should function at this level. However, commitment of to self-determined learning would only be realistic if there is a rethinking of organisational matters. The organisational matters that also need adjustment and reconsideration are administrative, logistical, technological and human resources.

5.7 TRANSFORMATIVELEARNING IN ACTION

The adult butterfly now has all the requisites to fly. The adult butterfly is the result of the stages in the life cycle of the butterfly described thus far in this chapter. Figure 5.2 represents the *transformative learning in action* stage. Transformative learning is a cyclical process, resulting in new perspectives that are able to deal with an ever-changing world. Transformative learning in action answers the final sub-question. This final superordinate theme is therefore a summation of the complete transformative process of the learning process participants experienced as they learned to implement HFPS.

Sub-question 7

How did the implementation of HFPS transform participants' educational paradigm?

Identifying the effect that HFPS had on the educational paradigm of the participants is not an empirical, but a qualitative matter. I therefore referred to the summaries that the participants

provided to determine the impact. The summaries were their retrospective views of their experiences from the start of HFPS, up to the time they wrote their summaries. Unfortunately, only four of the seven participants provided written summaries of their experiences. In this study transformative learning in action is what the participants said it is. In this case, I stayed close to the data and avoided interpretations, as my opinion would be speculation. Five subordinate themes transpired from the data and can be seen in Figure 5.18.

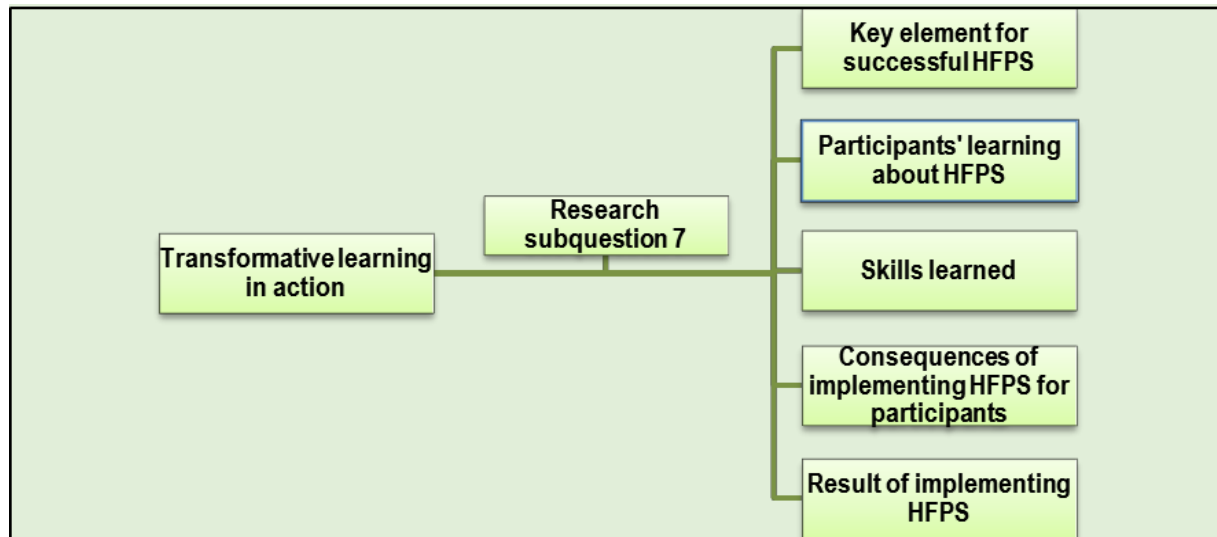


Figure 5.18: Transformative learning in action

Figure 5.19 indicate participants' contribution to the subordinate themes and is describe in 5.7.1 to 5.7.6.

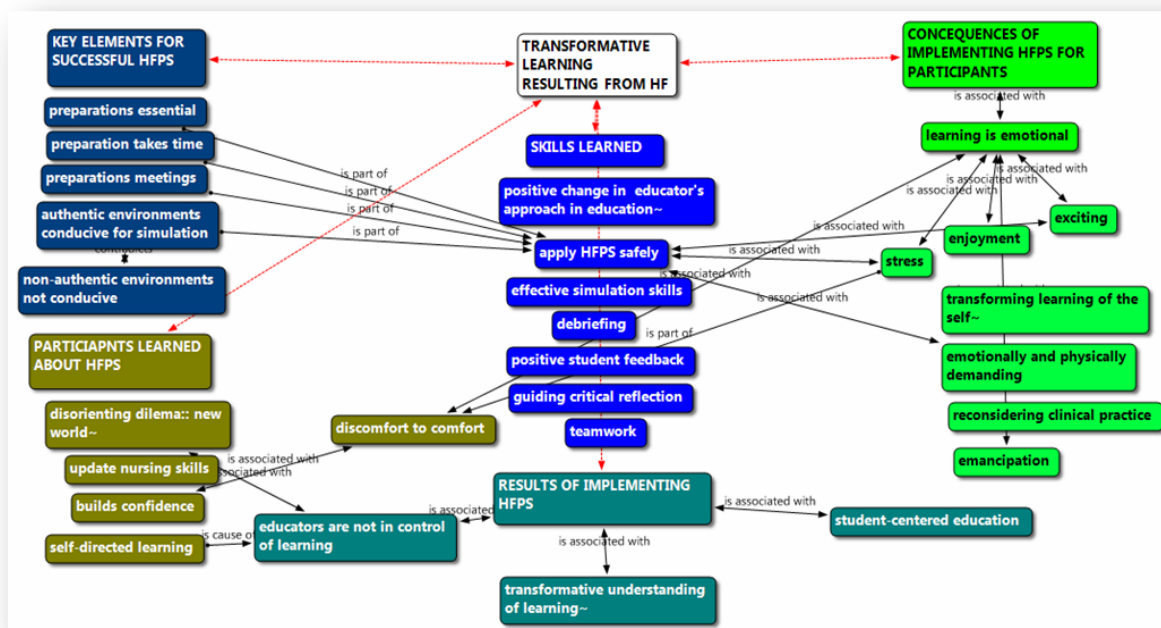


Figure 5.19: Raw data supporting the subordinate themes

5.7.1 KEY ELEMENTS FOR SUCCESSFUL APPLICATION OF HFPS

From a retrospective perspective, participants consider four key elements influential in their successful implementation of HFPS. This may exclude a number of other actions they might perform, but the ones listed are those they learned through experience as being central to their preparation. The participants believed the key to success lies in preparation. The preparations they considered most important are that the simulation should be authentic and as close to reality as possible. Participants prepared themselves for simulation by designing scenarios, preparing by attending the meeting a week before the simulation, and by thorough preparation of the environment for a simulation. Proper preparation is time-consuming, but is required for successful implementation of a quality presentation of a simulation experience for students. Even though the data represents retrospective reflection on experiences, Jane once again indicated that she did not experience the first setting for HFPS to be authentic – this had seemingly made a major impression on her. Her adoption of HFPS advanced quickly after moving to the authentic environments.

5.7.2 PARTICIPANTS LEARNING ABOUT HFPS

The participants indicated again how disorienting an experience HFPS had been to them initially. They expressed it as a new world. This was a very uncomfortable experience for them, but they indicated that, over time, their discomfort gave way to comfort. The new world is therefore a place one can adapt to, given time and support. In order to adapt to this new world, the participants updated their nursing skills and knowledge and educated themselves about simulation and knowing. Participants identified gaps in their knowledge and skills and addressed it in the way they thought best. The simulation orientation sessions and other training sessions were part of their development, but they had a choice whether to address their learning needs. This is an indication of self-determined learning, as indicated in Section 5.6.4.

5.7.3 CONSEQUENCES OF IMPLEMENTING HFPS FOR PARTICIPANTS

Participants indicated that the most important lesson they learned was that learning is an emotional experience. The emotions they experienced initially were discomfort, enjoyment and excitement (refer to Section 4.4.2). Participants experienced the implementation of HFPS as physically and emotionally demanding. Implementing HFPS enabled participants to learn about themselves and about students. Learning about themselves and students' responses to their action opened the door to critical self-reflection. Some participants mentioned that they once again feel ready to practice as nurses due to their exposure to assisting students in their learning during simulation.

Chris demonstrated the last stage of transformative learning that led his personal perspective transformation. Since data collection, Chris has resigned at HFPS to work full-time as a professional nurse in order to gain a qualification in critical care nursing. He indicated that, because of the positive and safe learning environment he had experienced, he had developed skills and the confidence to advance his career in the clinical setting. Chris experienced emancipation as a result of transformative learning. Although the aim of HFPS is to lead students in transformation of perspectives, Chris and some of the other participants experienced the reciprocal result of implementing HFPS as transformative learning. In this study the last phase of transformative learning resulted in significant learning and a change in perspectives (frames of reference).

However, I realised that the aim of transformative learning was a total change in perspectives. The change resulting from transformative learning may be drastic, as it was in this case. The implication of this loss was a disorienting dilemma, or opened a new world, at least for myself. The example of Chris demonstrates this last phase of implementing HFPS – that of an adult butterfly emerging and giving rise to a next generation.

5.7.4 SKILLS LEARNED

In the previous section, the positive change that participants experienced was discussed. The participants emphasised the positive influence that simulation had had on their educational perspectives. They believed that, due to their commitment to developing their skills in HFPS, they could present a simulation safely for students. As participants went through the learning stages of implementing HFPS, they refined their skills, and provided students with a quality clinical experience, encouraged students to critically reflect on experiences, and provided constructive debriefing after simulations.

As with most nurse educators, the participants had good verbal skills. However, developing their listening skills was difficult for them. They discovered that talking less during a debriefing prevented them from making harmful comments. Consequently, students had more opportunity to learn through their experiences during simulation. Most participants acknowledged that they have not fully mastered the art of listening, but were committed to working at it. Participants were also convinced that they could work well in a simulation team to provide a safe learning environment for students.

5.7.5 RESULTS OF IMPLEMENTING HFPS

The implementation of HFPS resulted in participants experiencing transformative learning, but also in them being enabled to guide student learning through a transformative process. The participants acknowledge that they discovered that their initial approach to HFPS was not a purely student-centred approach, but they could revisit their perspectives and adjust some of their points of view regarding their educational practices. The nurse educators realised that they cannot control all variables in simulation and that student learning cannot be quantified in terms of general educational practices. Consequently, participants acknowledged that HFPS is an effective learning strategy, or even andragogy, for students. Participants also benefitted personally from their learning experiences, which challenged their previous frames of reference

if the frame of reference was found to be ineffective, a new frame of reference could be adopted.

5.7.6 DISCUSSION OF TRANSFORMATIVE LEARNING IN ACTION

The boundary lines around perspectives of learning were extended through exposure to HFPS. In relinquishing control over the learning of the students, nurse educators expanded learning opportunities for students. Participants found it difficult to create a free learning environment for students. In order to create an effective learning environment, participants needed to liberate themselves, to expose themselves to new learning.

Investing time and using themselves as learning tools during debriefing became progressively more important. Correctly practiced, these two elements have positive influences on the learning of students. Negative influences on students include harsh criticism and judgmental comments, which participants had to avoid.

5.8 SUMMARY

Transformative learning is an essential feature of both nurse educators' and students' learning in the 21st century, due to progressive changes in and escalation of knowledge. The most important role of a nurse educator is supporting students to develop the adaptive skills they will require for their future profession (Hung et al., 2014:44). However, not all learning is transformative. According to Parker and Myrick (2010: 326) a transformative approach is ideal for HFPS to prepare a next generation of nurses. However, if a transformative approach is ideal for students' simulation encounters, my argument is that nurse educators, as the forerunners, should experience transformative learning during their implementation of simulation. Letting go of the old, and allowing something new to emerge, is characteristic of the TLT (Cranton & Roy, 2003:86). This study proposes that the experiences of participants implementing HFPS are closely related to the learning process of students. The implementation of HFPS provided a disorienting dilemma, where old teaching strategies did not provide comfort, and new ones had to be mastered while the old faded away. The reflective process played a key role in the examination of the simulation experiences and critical self-reflection. As participants gave feedback to students and to one another they learned about this new world they had discovered.

Exposing nurse educators to HFPS for the first time should be a structured process, as a lack of structure may lead to insecurity. A structured task allocation assists nurse educators to know what is required of them while they adapt to and adopt HFPS. Nurse educators were more comfortable when tasks were broken down in manageable parts during simulation. An unstructured approach may impose hurdles to adopting HFPS by the nurse nurse educator.

In general, the majority of participants enjoyed HFPS. The playfulness of simulation may be the cause of their enjoyment, reminding us about a time in our lives when things were safe and uncomplicated; alternatively, enjoyment may be related to the creativity required during HFPS. The main principles of HFPS that transpired were that it provides a positive, supportive atmosphere and mutual respect for both nurse educator and student learning,

CHAPTER 6: CRITICAL REFLECTION ON STUDY

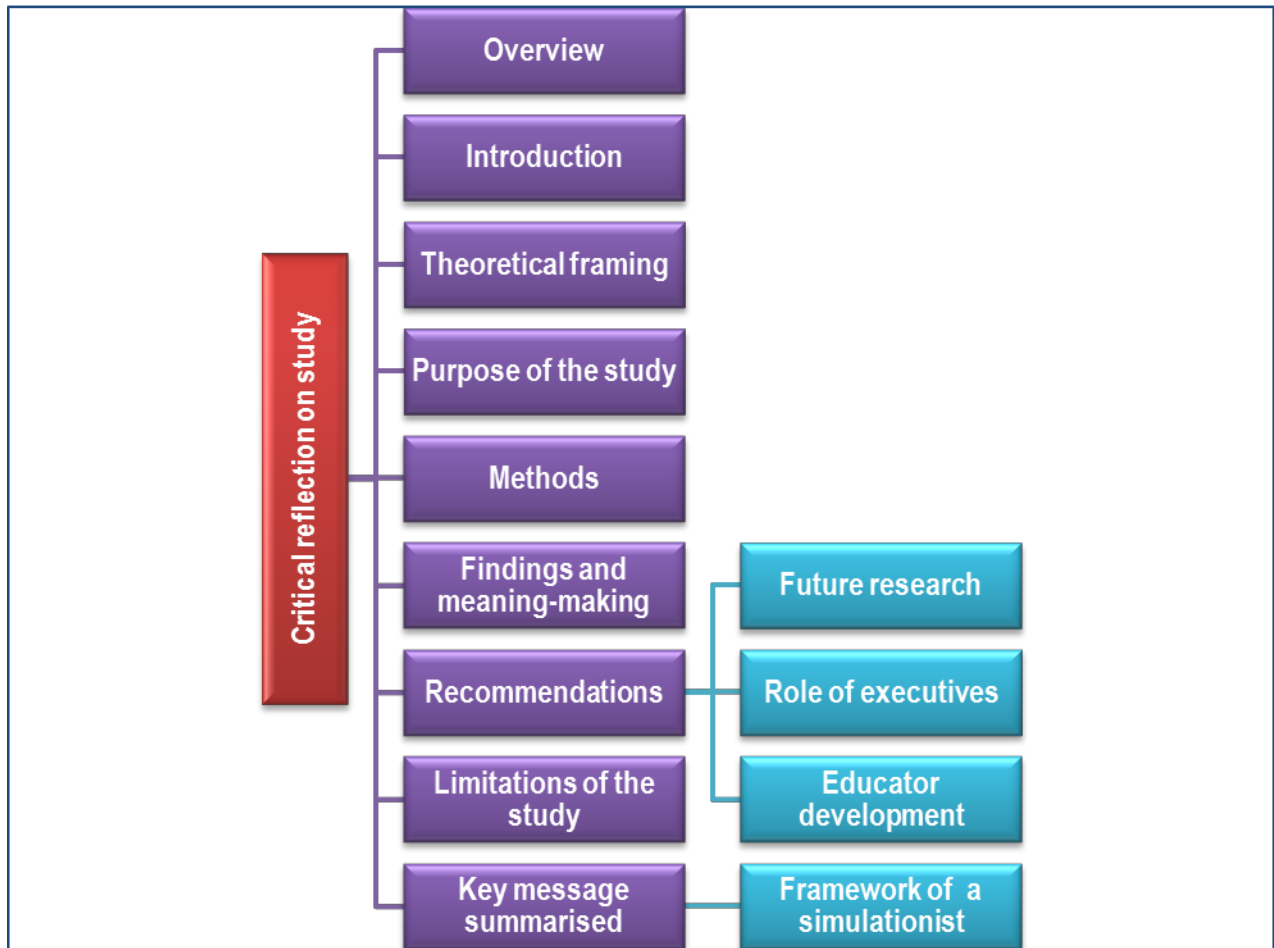


Figure 6.1: Overview of Chapter 6

6.1 INTRODUCTION

Recent technological developments have influenced megatrends in education, and specifically in nursing education. Technology is reshaping the landscape of nursing education in many countries (Caplan, Myrick, Smitten, & Kelly, 2014:1172; Skiba et al., 2008:228). Technological advancements led to the development of new learning strategies and even learning theories. Students enjoy HFPS as a learning strategy immensely (Edgecombe, Seaton, Monahan, Meyer, Lepage, & Erlam, 2013:5). The intention of higher education is to develop lifelong learners, and the most effective way to promote lifelong learning is through experiential learning. HFPS provides an ideal environment for safe and authentic experiential learning (Kear, 2013:1087). When students enjoy their learning, they are more likely to engage with their own learning. It

makes sense to use simulation for learning in higher education, but only if applied in an effective manner.

Simulation is not new to nursing education, in fact, it has a history of over more than 100 years. Technological advances since the turn of the last century have led to the development of lifelike manikins that are able to imitate the physiological responses of the human body. Worldwide, these sophisticated simulators, called HFPS, have become a new addition to the existing adult learning strategies used in nursing education. Student responses to HFPS experiences indicate that the strategy leads to an increase in self-confidence, develops their skills and promotes enjoyment due to exposure to a realistic learning opportunity (Blum, Borglund, & Parcels, 2010:11). HFPS increases student nurses' clinical judgment and competence in both undergraduate and post-registration programmes (Rutherford-Hemming et al, 2016:2; Shin et al., 2015:176). Simulation is a highly interactive, effective learning strategy that exposes students to real-life problems, in real time, in an authentic learning environment (Moule et al., 2011b:697). These simulated clinical experiences help students to reach multiple learning outcomes in a short period. Unfortunately, nurse educators were slow to adopt technology in their educational practices (Skiba et al., 2008:229).

Most nurse educators initially experienced discomfort, high levels of stress and the emotional reactions of distress or enjoyment. The nurse educators' discomfort was confirmed by a number of other studies (Al-Ghareeb & Cooper, 2015:281; Nehring et al., 2013:27). In addition, nurse educators mentioned that they experienced significant learning that resulted in continuous reconsideration of educational perspectives and adjustment to practices. The phenomenon of emotional experiences connected to transformative learning experiences clearly needed a deeper investigation. The focus of TLT is developing professional nurses and providing them with the ability to become independent, autonomous thinkers (Parker & Maryk, 2010:327). The challenges posed by HFPS caused participants to evaluate their previously held frames of reference and, if need be, to adopt a transformative learning process to overcome the challenges (Cranton & Carusetta, 2004:6).

Nehring et al. (2013:2), following a systematic literature review, indicated that, at first, nurse educators lack comfort with and confidence in implementing HFPS. Dowie and Phillips (2011:35) state that nurse educators felt that a simulation module would improve their confidence in the use of simulation. Most authors profess the success of nurse educators are dependent on the sufficient preparation for implementing HFPS (Cuellar et al., 2012:14).

Simulation is a complex learning strategy to implement, as it requires skilled, knowledgeable nurse educators, with sufficient clinical expertise and some technological proficiency, to lead students successfully into an authentic learning experience, even in developed countries (Moule et al., 2011b:697). No proven standardised training prepares nurse educators sufficiently for guiding the learning processes of students, as too many factors play a role in student success (Jeffries, 2008:71).

Although a number of HFPS workshops and online programmes exist, published standards of best practices, research reports and conference proceedings still report mainly on the challenges facing and underutilisation of HFPS and equipment in nursing education in South Africa (Thurling, 2016:np). At the research site, HFPS was implemented with success and therefore I sought out the aspects of the learning process involved in the learning of nurse educators who successfully implemented HFPS, for future development of simulationists. Authors agree that successful implementation of HFPS is dependent on nurse educators who are highly motivated, autonomous, competent, and who can rely on co-workers for a sense of belonging at work (Duvall, 2012:65). This study explored, analysed and interpreted the transformative learning experiences of nurse educators who implemented HFPS at a school of nursing at a university in South Africa.

6.2 THEORETICAL FRAMING

This study used both the NJSF and the TLT to enlighten the research question. The NJSF consists of three major, interlinked educational elements: educational structure, simulation design characteristics, and outcomes. The first element, educational structure, involves three constructs: the nurse educator, students and educational practices. The educational structure directly affects the simulation design characteristics, and the outcomes of the simulation refer to the importance of examining the nurse educator construct in the NJSF (LaFond & Van Hulle Vincent, 2013:462) (refer to Chapter 1).

The core concepts of the TLT used in this study were frames of reference, the adult learner, learning experiences, role of critical reflection and critical self-reflection, and the fostering of transformative learning. Frames of reference are the perspectives we use for meaning-making of significant lived experiences (Parker & Maryk, 2010:328).

A frame of reference is a collection of assumptions and expectations we form about the world and ourselves because of previous experiences. Frames of reference can be either conscious

or unconscious, and influence our perceptions, cognitions, feelings, moods, intentions and expectations (Mezirow, 1997:9). Lived dilemmas may challenge ineffective assumptions, causing life-changing reflection and changes in perspectives. Adult learners identify their own learning gaps by opening themselves to further learning as a result of experiences. Mezirow (1990:1) describes the result of reflection as, “the process of making a new or revised interpretation of the meaning of an experience, which guides subsequent understanding, appreciation and action” (refer to Chapter 2).

6.3 PURPOSE OF THE STUDY

The purpose of this study was to explore, analyse and interpret nurse educators’ learning experiences while implementing HFPS from a transformative learning perspective, at a school of nursing at a university in South Africa. The findings of this study will ultimately contribute to the international academic debate regarding the “teacher” construct in the NLN Jeffries simulation theory, and expound on future simulation educators’ development at a school of nursing in South Africa. The research questions in the study are given below.

6.3.1 RESEARCH QUESTIONS

The research question is of the study is:

How do nurse educators at a school of nursing in South Africa, who have not implemented HFPS before, experience their learning from a TLT perspective?

6.3.2 SUB-QUESTIONS

1. How did participants experience their first HFPS?
2. What learning experiences followed more HFPS?
3. Why did participants implement HFPS in modules?
4. How did implementing HFPS influence participants’ attitudes, knowledge and skills?
5. What education practices changed due to learning experiences during implementation of HFPS?
6. What influences did the implementation of simulation have on nurse educator reflective practices?

7. How did implementing HFPS change nurse educators' educational paradigms?

6.4 METHODS

The use of an interpretive, qualitative methodological research methodology answered the research question. I used the IPA research design authored by Smith et al. (2009) to gain a deeper understanding of the lived experiences of participants. Seven participants contributed to the data collected by means of individual and dyadic face-to-face, semi-structured interviews, reflective journals and reflective summaries. The researcher also contributed personal reflective notes to the data.

I used both inductive and deductive reasoning to interpret data. I followed the phases suggested by Smith et al. (2009) to analyse data (refer to Chapter 3). The analysis of the data involved exploring, describing, interpreting and analysing data as participants made meaning of their experiences (Smith et al., 2009:par 857).

Participants in this study considered their experiences as significant and they were excited and willing to share their learning processes with other professionals interested in implementing HFPS (refer to Figure 6.2).

6.5 CONCLUSION AND MEANING-MAKING OF THE STUDY

The main finding of the study was that the transformative learning process of the nurse educators resembled the life cycle of a butterfly. Five distinct superordinate themes transpired from the data.

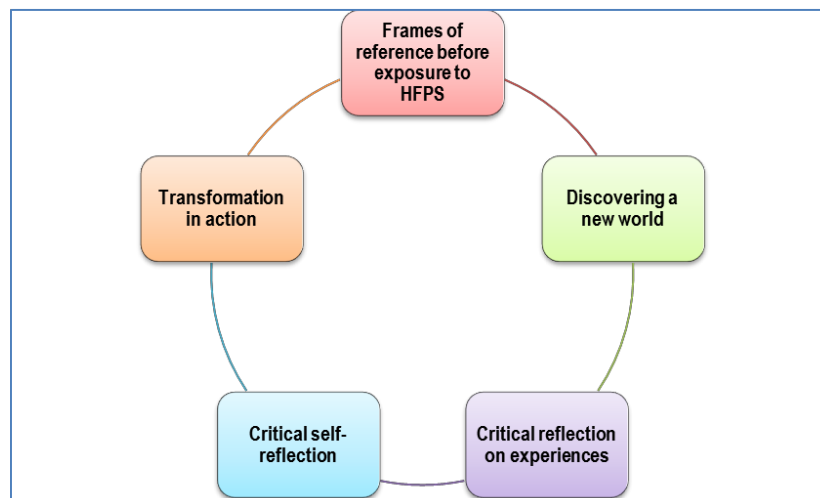


Figure 6.2: Superordinate themes of the study

6.5.1 FRAMES OF REFERENCE OF THE PARTICIPANTS

The *first theme* is that each participant's personal and professional background influenced habits of mind and points of view considerably. Most participants had post-registration qualifications as clinical nurse specialists, with matching clinical expertise. In addition, most were experienced nurse educators with nursing education qualifications or training. As a number of factors influence teachers' frames of reference, developing simulationists require a negotiated, individualised approach to assist a self-determined learning experience of a nurse educator developing HFPS.

6.5.2 DISCOVERY OF A NEW WORLD

The *second theme* followed the participants' initial exposure to HFPS. Discovering this new world led to intense emotions of enthusiasm and stress, resulting in challenges to their frames of reference. The "emotional highs" provided the energy to question the effectiveness of their previously assumed perspectives about their own learning experiences and their educational practices. Despite a persistent feeling of discomfort, the effectiveness of HFPS convinced nurse educators to examine the effectiveness of their own learning experiences and educational practices.

HFPS highlighted the contrast between a traditional learning experience and transformative learning. Participants started to practice critical reflection regarding experiences during simulation and while guiding the students in reflection. They questioned their own frames of reference, shifting their points of view on education to a more complex understanding of experiences (Kroth & Cranton, 2014:5). Both internal and external motivations played an important role in the participants' commitment to implementing HFPS. The commitment of the participants resulted in critical reflection on their experiences of content and processes during learning.

6.5.3 CRITICAL REFLECTION ON EXPERIENCES

The *third theme* resulted from experiences of successful and unsuccessful management of activities associated with presenting a HFPS experience. Unsuccessful activities led to experimenting with alternative practices and perspectives. Those activities found effective replaced old ones. Nurse educators can also learn from making mistakes and become more effective as a result. Participants renewed their focus on the content and process of student

learning as they repeated simulations. The literature does not emphasise the reflective processes of nurse educators who use simulation, however, reflection played an important role in this study. Participants critically reflected with students and colleagues. Participants' internal and external motivations provided the impetus and commitment to continue with the laborious activities of HFPS. The debriefing and reflective collaboration with peers also committed to quality education indicated participants' commitment HFPS. Nurse educators shared their learning experiences with colleagues, and thereby reinforced successful strategies and exchanged alternative ideas. According to participants significant experiences leading to transformative learning were the following:

- Their first exposure to HFPS,
- Exposure to experts during simulation,
- Taking responsibility for the tasks of the HFPS of their modules, and
- A structured approach to HFPS implementation.

Understanding the learning of students better resulted in the participants being willing to reflect and adjust their educational practices to more effective ones. A willingness to challenge old perspectives is essential for transformative learning.

6.5.4 CRITICAL SELF-REFLECTION ON OWN EXPERIENCES

The *fourth theme* was pivotal for the completion of the transformative learning processes. During this stage, participants became aware of their own critical self-reflective practices. Four major lessons ensued.

The first lesson participants learned was they were not in control of learning processes of students. Secondly, they learned to relinquish control over the learning of students, allowing students to take personal control of and responsibility for their own learning. Thirdly, as participants allowed students to engage with their own learning, participants recognised their own learning gaps and needs. Fourthly, participants' confidence in HFPS deepened as they conducted critical self-reflection, identifying their own learning needs and addressing it in their own ways. Confidence developed over time, through constructive and supportive feedback from peers.

In general, nurse educators' work in compartments and function alone. Therefore, they found it difficult to collaborate in a team, due to differences of opinion of how to go about simulation. Effective teamwork requires awareness of one another's skills. Supplementing and using one

another's weaknesses and strengths created a network of collaborators (Berragan, 2011:662). Effective nurse educator teamwork builds confidence. These new internal strengths led to transformative actions.

The original TLT comprised 10 phases, as described by participants. The comparable nature of Mezirow's phases (2012:86) and those of this study is listed in Table 6.1 (refer to Table 2.3), and the transformative learning process this study identified originates from the data in themes 2 to 4 of this study (refer to Section 4.4.1); it is compared with the 10 phases Mezirow identified (refer to Table 6.1).

Table 6.1: Comparing phases in the TLT to phases in this study

Phases in the TLT	Phases of TLT described in the study
1. Disorienting dilemma	Discovering a new world [HFPS]
2. Self-examination with feelings of fear and anger, guilt or shame	Recognising the effectiveness of HFPS
3. A critical assessment of assumptions	Reconsidering previous learning experiences
4. Recognition that one's discontent and the process of transformation are shared	Motivated to implement HFPS
5. Exploring options for new roles, relationships and actions	Willingness to reflect critically on experiences
6. Planning a course of action	HFPS as an andragogy for participants
7. Acquiring knowledge and skills for implementing one's plans	Demonstrations and hands-on learning
8. Provisional trying of new roles	Developing confidence from reflective practices
9. Building competence self-confidence in new roles and relationships	Transforming ineffective perspectives
10. Reintegration into one's life on the basis of conditions dictated by the new frame of reference (Mezirow 2012:86)	Transformation in action [facilitating transformative learning in others]

Comparing the transformative learning phases of Mezirow's seminal work and those of the present study shows some variations, but the similarities outweigh the differences. Phase 1 in both lists refers to a new experience. Participants in this study called it "a new world" and in Mezirow's study, it is called a disorienting dilemma.

Participants defined the first phase according to their personal experiences of the significance and benefits of the learning (Kroth & Cranton, 2014:7). The main difference between Mezirow's study and the present study is that the participants internalised their experiences of attending a higher education institution as non-traditional students, which was perceived as a disorienting dilemma (Mezirow, 1991:5). The participants in this study had to balance their discomfort and the benefits that simulation holds for students, and they called it a "new world" (internal and external benefits). At the end, in phase 10, the participants' learning in this study had the ability to create transformative learning experiences for students.

In phase 4, Mezirow's participants experienced discontent, and this study's participants reconsidered their own learning experiences. Participants indicated that they experienced discomfort during the new experiences. Participants did not experience intense emotions while observing students. Excitement grew over time as participants became involved with HFPS and student learning.

I wish to indicate that the parallels in the table are not intended to be a rigid, line-by-line comparison, but merely to suggest parallel experiences, in spite of small variations. There were a number of background differences between the participants of the two studies. Nevertheless, the similarities are clear without forcing the data into the mould of Mezirow's study.

6.5.5 TRANSFORMATION IN ACTION

The *fifth theme* is the result of transformative learning in action. Richardson et al. (2014:314) support the transformative effect of implementing HFPS for nurse educators' development. The participants in this study:

- Developed skills to plan and present quality, authentic and realistic scenarios,
- Set high expectations that resulted in them spending significant time and effort on all aspects of the simulation,
- Believed teamwork contributed to meeting their expectations,
- Exhibited a commitment to continuous experiential learning,

- Identified their own learning gaps and needs,
- Verbalised that their stress levels decreased over time,
- Exhibited empathy and nurturing towards students,
- Reported that their listening skills improved,
- Developed the ability to enhance students' critical thinking and clinical judgment skills,
- Revised their outdated clinical skills, eliciting a feeling of liberation, and
- Had to address their own leaning needs and gaps through a process of self-determined learning.

Participants remained concerned about their debriefing skills, although they developed other skills (see Chapters 4 and 5). Debriefing seemed to be the most difficult skill to learn in HFPS. Each debriefing is unique. In addition, student learning is dynamic and often transforms through experiences. Even if participants debriefed the same students after each simulation, the dynamics kept on changing. Facilitating student learning is often intuitive, and it may, if done incorrectly, result in the embarrassment of either students or nurse educators. However, these events are also learning opportunities.

6.6 RECOMMENDATIONS

This study attempts to contribute to the discussion about implementing HFPS successfully. Three sets of recommendations flowed from the understanding gained in this study. The recommendations for future research are divided into research strategies, the role of executives in ensuring effective HFPS, and developing nurse educators to implement HFPS. The recommendations are based on the data in this study and are therefore contextually applicable.

6.6.1 FUTURE RESEARCH

The following topics require further research.

6.6.1.1 *Suggested designs for future research*

Phenomenological and interpretive qualitative and grounded theory research methods are effective for studying topics of which little is known. IPA was a suitable design for this study to provide an in-depth, thick description of nurse educators' learning experiences. Future research in HFPS can use grounded theory or IPA for developing theories, frameworks or models in HFPS research.

6.6.2 SUGGESTED THEORIES NEEDING FURTHER INVESTIGATION APPLICABLE TO HFPS

The transformative learning described by participants in the study, and the strategy of self-determined learning (heutagogy) have commonalities. Heutagogy is a learning theory suitable for nurse educators to “relinquish some attempts to control and manage learning experiences, and instead empower the self-directive adult learner to accumulate learning experiences within dynamic and unpredictable clinical environments” (Bhoyrub, Hurley, Neilson, Ramsay, & Smith, 2010:322).. Heutagogy is not concerned with learning as a hoarding of knowledge, but more with knowledge sharing. Heutagogy is learning resulting from a high-impact clinical learning experience that provides students with an alternative perspective from which to view, maximise student learning and construct practice-based educational components in a module (Bhoyrub et al., 2010:326). The description of a high-impact learning experience is an accurate description of HFPS, including the participants’ descriptions of implementing HFPS. The parallels between transformation in action and allowing nurse educators to exercise self-determined learning eventually led to the development of skilled simulationists. The simulationist continues to refine existing skills through determining his/her learning needs and solving it in a personal way, resulting in radical changes in educational practices and living these transformative perspectives. Transformative learning causes permanent change in perspectives and actions. Both TLT and theory of heutagogy are emerging theories.

6.6.2.1 *Research settings*

Future research can focus on various human and physical influences on institutions’ successful implementation of HFPS, compared to institutions which have been less successful. The deeper the descriptions of research settings are the more studies can contribute to the pool of knowledge and patterns identified over research settings.

6.6.2.2 *Data-collection strategies*

The study indicates that the learning processes of nurse educators in HFPS are more complex than that of student learning. Data-collection strategies must be sensitive enough provide a deep understanding of a research topic. In this study, I experienced that using a variety of data-collection tools delivered a broad and deep spectrum of data. Quantitative researchers should not underestimate the value of qualitative data, as it may provide a range of findings that may serve as variables for new quantitative instruments or questionnaires.

6.6.2.3 *Effective transformative learning experiences of nurse educators*

The limited description of demographics in simulation publications makes replication and comparison of studies difficult. Therefore, future research should focus on the description of an nurse educator who is most likely to adopt and persist with simulation. Leaders in simulation research can indicate the minimum requirements for reporting on nurse educator backgrounds for future research.

This study indicated a possible relationship between nurse educator transformative learning and successful implementation of HFPS. The links between the effectiveness of the simulation workshops, nurse educators' comfort levels, educational frames and nurse educators' adoption of HFPS need further investigation. Many authors suggest that training, workshops, demonstrations, and nurse educator development provide the solutions for reducing nurse educator discomfort with technology, but the question remains, do these learning strategies bring about transformative learning (Jones et al., 2013:e218; Nehring et al., 2013:27)? Students' learning and resulting feedback to nurse educators also contribute to nurse educator learning. During reflection on experiences nurse educators learn from students what and how students learn. The close, face-to-face, personal interaction between nurse educator and students during reflection provides a positive feedback mechanism for nurse educator learning. The relationship between students and nurse educators seems to be very important for nurse educators to develop confidence in using HFPS. Future research could describe the relationship between nurse educators and students, and how it is related to success.

As nurse educators' clinical skills become outdated (refer to Section 6.5.5), HFPS affords them the opportunity to refresh their clinical skills. Therefore, HFPS is a learning experience for nurse educators too. It is my opinion that inexperienced nurse educators can develop as self-directed learners within a simulation environment. HFPS and standardised patient actors can be used to simulate learning environments in which nurse educators have to function, especially in nursing education. Examples of simulated environments include classrooms, bedside education for demonstrations, preceptorship, mentoring by peers, and reflective skills.

6.6.2.4 *Nurse educators' frames of reference before and after HFPS*

A deeper understanding of participants' backgrounds and demographics (frames of reference) can help to select future simulationists (Larsen & Schultz, 2014:626). Results of future research may indicate the best selection strategy for nurse educators with the right characteristics for

implementing simulation successfully (Rutherford-Hemming et al., 2016:3). HFPS requires highly skilled nurse educators who can facilitate quality, simulated learning opportunities for students, who have the ability to handle complicated technology. In this study HFPS brought nurse educators closer to a deeper understanding of the theory of nursing care and required them to present it to students in a digestible approach.

6.6.3 ROLE OF EXECUTIVES

Executives (managers of schools of nursing) perform a key role in the success of HFPS. Executives' responsibilities do not start and end with the financial implications of the acquisition of equipment, but also involve support of the sustained growth of facilities and services for both students and nurse educators. In order to support the implementation of HFPS, executives should understand that simulation is not just an add-on project, but instead a heutagogy that transforms nursing education.

Heutagogy is the andragogy of self-determined learning. In a heutagogical approach learners are "highly autonomous and self-determined and emphasis is placed on development of learner capacity and capability with the goal of producing learners who are well-prepared for the complexities of today's workplace" (Blaschke, 2012:57).

This approach is particularly suitable for nurse educators and simulationists. Executives who support their nurse educators in a very important learning experience will see nurse educators transform educational practices to higher levels.

6.6.3.1 *Accepting a new paradigm in nursing education*

Kardong-Edgren and Oermann (2009:e161) and Jones and Hegge (2007:e18) advise executives in nursing education that, when HFPS is adopted into a curriculum, it brings about fundamental changes in the skills and workload of nurse educators. Again, the demand on nurse educators to learn new skills is an important factor to consider when institutions implement HFPS in curricula. In addition, HFPS will also influence the preparation of future nurse educators (Dowie & Phillips, 2011:35). Listed above are just a few of the considerations an institution implementing HFPS should bear in mind.

In this advice to executives: carefully consider the degree of stress associated with HFPS nurse educators will have to handle. The appointment of nurse educators requires careful consideration. Workload allocation should consider the labour intensive nature of preparation,

implementing and cleaning-up for simulation. The technological skills required by educators takes time to develop.

In addition, executives should acknowledge the fears and trepidations nurse educators experience while they are implementing HFPS. Literature frequently refers to the stress that nurse educators experience, but it does not mention the role executives can play in relieving some of the stress. Physical, logistical and emotional support and patience with nurse educators may go a long way to relieving stress (Lévesque, Hovey, & Bedos, 2013:1173; DeWaard, Abajian, Gallagher, Hogue, Keskin, Koutropoulos, & Rodriguez, 2011:95). Part of the solution lies in having a deeper understanding of the transformative learning nurse educators experience.

Executives should allow nurse educators to experiment with various educational models that match students' preferences for learning by means of electronic media, and which could result in transformative learning. HFPS is not a stand-alone experience.

6.6.3.2 Considerations before implementing HFPS

Implementing HFPS should be a joint collaboration between nurse educators and those making executive decisions. *Firstly*, executives and nurse educators must discuss and agree whether there is sufficient interest in implementing HFPS. *Secondly*, the institution should have the fiscal and human resource capacity to maintain a programme into the future. The lack of an open discussion about these matters may lead to underutilisation of expensive simulators. *Thirdly*, forcing nurse educators to adopt this new learning strategy will be an unsuccessful approach, because nurse educators could prefer to educate in a different manner. Some nurse educators may not be positive about this learning strategy. Willing participants are more likely to adopt this learning strategy. *Fourthly*, success depends on a transformative frame of reference at an individual and an institutional level. The organisational system must have the will to adapt to transformative learning by nurse educators and students. Transformative learning is dependent on learning environments. Executives should consider managerial matters that need adjustment for the implementation of HFPS and support the nurse educators who are willing to contribute. Executives may have to revise, for instance, administrative processes, logistical, technological and human resources and the value that will be afforded to a commitment to transformative learning.

6.6.3.3 *Selecting and supporting simulationist coordinators of HFPS*

Literature consistently emphasizes the key role played by a full-time simulation coordinator, whose sole responsibility is planning and organising, leading and training nurse educators to use HFPS (Al-Ghareeb & Cooper, 2015:285; Nehring et al., 2013:26,29; Jones et al., 2013:e218; Labuschagne, 2012:246). Selecting the right coordinator for simulation is essential for successful implementation of HFPS (Hollema, 2015:3). Preparing a coordinator of simulation for his/her tasks and responsibilities should receive serious consideration from the start of a venture. Attending an internship at an institution skilled in HFPS will contribute to developing a coordinator's HFPS skills and help with logistical matters. New coordinators will require mentoring from an expert (Hollema, 2015:2). The coordinator should undergo the learning experiences described in Section 6.3.3.

The main responsibilities of a coordinator are to provide a safe environment for nurse educators (and students) to learn; to lead change in educational practices and to conduct research in an HFPS programme. Any coordinator needs, at least, the support of one dedicated nurse educator (even part time), an administrator and an IT expert to assist with logistical support. The two simulationists, supported by nurse educators trained in debriefing and reflection can, over time, develop the ability to run two simulations in tandem.

6.6.3.4 *Designing and implementing a simulation facility*

As already indicated, the simulation environment contributes to the learning of the nurse educators. This study discovered that, as some nurse educators are older, they might have problems seeing and hearing well during a simulation. The older nurse educators are able to implement HFPS successfully if hindrances they may experience are addressed. Some people would consider the older nurse educators lacking in the technological skills for the innovative technology used in HFPS. Contrary to this assumption, most participants in this study were in their middle years and older, but due to their extensive clinical and education background, they were able to contribute richly to the use of HFPS. Main obstacles can be removed if support is provided by a simulationist, an IT expert and administrative staff (Nehring et al., 2013:15). In the design and selection of equipment for HFPS one should consider the complications brought about by aging. Larger computer screens and good-quality microphones in the simulation area will assist in dealing with these hindrances. The technical support of the IT person and the simulation coordinators provide a platform for enhancing adoption and implementation of HFPS. Considering nurse educators' special needs during simulation should receive specific

attention. Transformative learning pertains to the old and young, as learning is and will always be part of everyday life.

6.6.3.5 Maintaining a safe and confidential learning environment for nurse educator learning

At the onset of HFPS simulation, nurse educators critically reflect on HFPS experiences. Outwardly, it may appear as if not much is transpiring. However, inwardly, major changes are taking place. The newness of HFPS experiences challenges longstanding perspectives, causing internal, emotional turmoil. Mezirow (2012:86) refers to feelings of fear and anger, guilt or shame when self-examination takes place. The emotional turmoil may escalate to the level where some participants voice their discontent and share their experiences of the processes of transformation with others (Mezirow, 2012:86).

Herein lays the problem: Nurse educators may share the content of simulation experiences that are supposed to be confidential. An outsider may not understand the distress caused by changes in the perspective nurse educators are experiencing. Any attempt to clarify nurse educators' insecurities from the outside is likely to cause irreparable damage to relationships. The process of transformation is individualised, internal and personal. Nevertheless, it is important to understand that a process of growth is taking place. Mezirow referred to this process as relating discontent to others. Executives must exhibit patience during this period of insecurity of nurse educators. Indicators, such as an increase in statistics measuring return on investment, should not be the focus at this time. Referring back to the analogy of the life cycle of the butterfly, interferences like these are similar to opening the chrysalis to see how the butterfly is developing. During this period, the simulation team is consolidating and learning to work together, which eventually leads to success. Interference or external pressure may cause destruction of these foundations. Everybody in a department that is implementing HFPS should practice confidentiality in order to ensure the safety of nurse educators and students alike.

6.6.4 NURSE EDUCATOR DEVELOPMENT

This study describes the disruptive effect of technology on nurse educators while they are transforming and adopting the new skills necessary for implementing HFPS with success. Nurse educators who implement HFPS experience an increase in work pressure and anxiety (Hollema, 2015:4; Nehring et al., 2013:25; Akhtar-Danesh et al., 2009:325).

Developing nurse educators to use HFPS successfully involves more than merely reading literature and attending workshops and hands-on training. Changing beyond educational practices is important for the future transformation of nursing education, and HFPS may be a tool for nurse educators to change their didactic strategies.

6.6.4.1 *Transforming nurse educators' experiences through HFPS*

Nursing education and nurse educators need to undergo a radical transformation in order to prepare students sufficiently for their future practice in a complex healthcare system (McAllister et al., 2013:568). Using the TLT as a theoretical framework, this study shows that HFPS is an effective tool for triggering nurse educators to re-examine previously uncritically assumed frames of reference. The disruptive nature of technology, e.g. HFPS, requires of nurse educators to transform their frames of reference and to implement new, effective learning strategies (Lévesque et al., 2013:1173; DeWaard et al., 2011:95).

This present study provided sufficient data to confirm that participants' discomfort with HFPS correlates with the description of a disorienting dilemma in the TLT. The disorienting dilemma has a powerful effect on adult learning. Letting go of old, comfortable learning strategies and implementing newer, complicated strategies cause anxiety in nurse educators.

Literature refers mostly to the intimidating effect of complicated technology on nurse educator confidence (Blazeck, 2011:e57). Therefore, authors recommend providing nurse educators with more learning opportunities to solve the problem, and some data do indicate that more exposure to HFPS reduces anxiety (Harder et al., 2013:1244). According to Nehring et al. (2013:25) repeated training, attending workshops, reading literature, trial and error, and observing expert simulation nurse educators alleviate the anxiety that nurse educators experience. Undertaking more learning opportunities was a catalyst for transformative learning in this study. However, nurse educators' inherent learning needs are not limited to gaining knowledge and skills development – although it is very important – it should involve higher-level learning about themselves and others, determining their values and learning the social skills necessary to influence the learning processes of colleagues and students positively.

6.6.4.2 *The first experiences are important for adoption of HFPS*

To facilitate a transformative learning experience the first exposure of an nurse educator to HFPS should be a positive one. Preferably, the nurse educator should only be an observer, even for the first number of experiences, so as to develop a familiarity with HFPS. Gradually,

one should expose nurse educators to the activities of implementation – from easy to complicated – and they should not be thrown in the deep end. Overwhelming nurse educators will cause irreversible self-doubt in and withdrawal of nurse educators from the implementation of HFPS (Lévesque et al., 2013:39).

Insecurities arise from feeling overwhelmed. The simulation coordinator and rest of the regular team can reduce nurse educators' levels of stress through consistent support and encouragement, which plays an important role in relieving nurse educators' stress. The value of a first positive simulation experience for gaining the interest of the nurse educators in HFPS, and even for further academic development, cannot be underestimated (Caplan et al., 2014:1173). When nurse educators make mistakes, it helps if these mistakes are depersonalised. A value system of a positive, non- judgmental, supportive approach within a confidential environment is emphasised in the literature (Reid et al., 2013:292). All nurse educators involved in simulation should commit to such a value system. The values can be strengthened by enhancing nurse educators' reflective practices. They could view audio-visual recordings of themselves during simulations and debriefing and reflect on their actions, which may contribute to constructing a safe learning process.

6.6.4.3 Nurse educators require preparation and support to implement HFPS

Each simulation centre should have a number of nurse educators sufficiently trained in implementing HFPS. Nurse educators who are committed to implementing HFPS have unique backgrounds, which provide strength to collaboration with one another. When nurse educators collaborate, HFPS can provide unique learning opportunities for learning. However, providing unique learning opportunities during HFPS is dependent on whether nurse educators can collaborate within a team and support one another.

This study identified a number of knowledge gaps and points of understanding regarding the development of nurse educators using HFPS for further research at the research site or in any other setting. One aspect that stands out is determining if the technological support provided and development strategies applied reduce nurse educator stress levels. There is a need for an accurate instrument to test or measure stress levels at regular intervals to determine if stress reduces over time. The fears and anxieties of nurse educators are one of the biggest barriers to implementing HFPS.

Participants preferred a communicative and experiential approach to learning about HFPS. Feedback by peers and students influenced participants' learning either positively or negatively. The communicative approaches helped participants to adapt to new experiences and to challenge personal frames of reference about education and their roles (Anderson et al., 2012:e59). As nurse educators prefer learning their skills through communication, it is and will always be a time-consuming process to develop nurse educators. Patience with nurse educators is therefore very important.

HFPS require nurse educators to prepare themselves on the theoretical and practical content of the module of the simulation. They should be knowledgeable about the total range of modules in the programme, including pathophysiology, anatomy, pharmacology, and the theoretical and practical content of other nursing modules. Furthermore, the nurse educator should be knowledgeable about nursing education theories and practices and debriefing, and possess feedback skills. New discoveries nurse educators make during HFPS should be captured after simulation and tested in subsequent simulation and evaluated during the simulation (Nehring et al., 2013:2). The participants experienced implementation of simulation as demanding and labour intensive.

HFPS holds benefits for nurse educators too. Nurse educators can update their outdated clinical skills in the safety of the HFPS environment, thereby avoiding embarrassment in a clinical setting. Participants emphasised a need for structured support while learning about HFPS. Blazeck (2011:e57) defines structured support as a low-risk environment that reduces feelings of anxiety while learning about HFPS. Participants referred to the design tools and instruments that provided structure; these tools may provide participants with the knowledge to reduce the chance of failing.

New nurse educators can practise and develop education skills for simulation and receive feedback from peers. In the same way that students learn, simulation provides nurse educators with confidence and a feeling of success. Participants said that HFPS provides the ideal environment for developing new nurse educators' facilitation skills. I am of the opinion that novice simulation nurse educators need a gradual, self-determined engagement with HFPS. Self-determined learning in HFPS involves a commitment to self-development in a way nurse educator see fit. Self-determined learning will require further thinking regarding the way the organisation should provide opportunities for self-determined learning for nurse educators.

6.6.4.4 Practical advice from participants to nurse educators who are new to simulation

The participants in this study listed the following practices that could promote the effectiveness of HFPS.

- Limit each nurse educator's number of debriefings to about four per day. Debriefings are emotionally draining and nurse educators become fatigued. After four debriefings, participants considered themselves to be less effective.
- Nurse educators can debrief the same group of students after each simulation. The nurse educators become familiar with each student's needs and can monitor each student's skills and learning. However, this may present logistical challenges regarding scheduling of students, especially for larger student groups. Further research is needed.
- Experienced nurse educators may continue beyond their initial learning by observing peers while they facilitate debriefing sessions in order to expose themselves to other styles of debriefing and for mutual learning and discussion.
- Instruments and checklists are effective tools for ensuring a well-prepared simulation area that fits the scenarios. Instruments are important tools for structuring the experiences of nurse educators during their initial learning process. However, with smaller groups of students, a structured environment seemed to be less important, as the allocation of tasks is less complex, and clearer.
- HFPS, specifically the debriefing sessions, lead to significant learning of the nurse educators. HFPS provides the opportunity for nurse educators to learn about student learning. The antithesis was that *students* became the *teachers* to the teachers; and the teachers became the *students* of students. Nurse educators open to these learning opportunities will gain a deeper understanding of students' learning processes and will realise what will lead to effective learning in a generation that learns in different ways (Hallmark et al., 2014:346).

The practical advice participants provided gave an insight into the implementation of HFPS as a process that is practical in nature, of which the consequences are deep and effective learning by both students and nurse educators.

6.7 CRITIQUE OF THE STUDY

When I developed a proposed plan for a research project, I tried to limit restrictions. Nevertheless, this study has a number of limitations.

6.7.1 CONTEXTUAL CRITIQUE

The first constraint of the study relates to *context*. Many of these constraints resulted from the newness of simulation in South Africa (Brocki & Wearden, 2006:90). The contextual limitation is that one university was involved, and that only certain nurse educators were selected to serve as units of analysis. Nurse educators from nursing colleges did not contribute, because colleges had not started using HFPS at the time. Some may consider the fact that only nurse educators were included and not nurse educators of any other professions, as a limitation. This limitation, however, ensured homogeneity amongst participants. Participants had obtained at least one qualification and were nurse educators or preceptors at the site of the study. This limited external influences on participants, resulting in congruent experiences.

Using a single site for research makes transferability a challenge. Though transferability was not an aim of the study, I intend to duplicate the study at other universities in South Africa, Africa and beyond. The limitation of a single site research may cause doubt if the understanding gained from this study can be applied to other settings. Furthermore, nursing care curricula in South Africa is unique, but it is true about any country challenging the transferability of this study to the body of simulation knowledge. Therefore, the simulations presented to students in different may vary in different countries as simulation should match the health needs of the context. Different contexts may contribute varying results to this study's results or may be similar. That should still be discovered.

[NOTE: The contextual nature of the study enabled the extraction of rich data that facilitated an in-depth understanding of a poorly understood phenomenon. This now enables a more meaningful exploration in other contexts, which could include quantitative generalisations.]

6.7.2 METHODOLOGICAL CRITIQUE

Some may consider the *number of participants* in the unit of analysis to be insufficient. In general, methods like grounded theory include large numbers of participants (more than 20). However, in terms of IPA seven participants is considered to be a large unit of analysis due to the depth and rigour of the design (Pringle et al., 2011:21). However, not all the participants

provided their reflective journals and summaries for analysis and could be considered a limitation in the study. The reason for choosing not to provide the journals is not clear, however, as participation in the study was voluntary. One may argue that, if more journals and summaries had been submitted in the study, a deeper understanding could have been generated. However, those participants who submitted their journals did not include new data in their journals and summaries. The advantage was that it confirmed interpretations made and indicated the depth of those experiences.

The second possible critique is *language*. Whilst all the participants came from Afrikaans backgrounds (see Section 3.4 for full explanation), they were comfortable with expressing themselves in English. When it became difficult to find the right words, they switched to Afrikaans. Some participants experienced momentary difficulty expressing their experiences of discovering this new world of HFPS. Most of these occasions were related to the discussion of abstract experiences, which are difficult to express in a second language.

Willig (2013: 282) raises three concerns about IPA as a *research design*. Her concern with the research design is about the *role of language, and suitability of accounts and explanations versus descriptions*. Her concern with *role of language* relates to the fact that the researcher is working with text, be that a transcript, diary or journal. According to her view, phenomenology is concerned with the phenomenon itself and IPA with meaning-making of the phenomenon. In general, IPA does have a phenomenological focus, but it lies in the interpretivist paradigm, which more concerned with making meaning.

The second concern Willig (2013: 283) raises is with the *suitability of accounts*. Her concern is about the extent to which participants' accounts were suitable material for analysis. Suitability will depend on how well participants are able to express their thoughts about an experience. I did experience that some participants came to a point in the interview where they had difficulty finding the correct words to express their experiences. I interpreted it as their learning process still developing, and the participant lacking a landscape view of simulation learning.

Willig's (2013: 284) third concern with IPA as a design is *explanation versus description*. Her concern here is that the participant can provide a description of the experience, but is not able to say *why* the experience took place or *why* there are differences in experiences. Again, I believe the validity of this concern will depend on the eligibility criteria of the unit of analysis. The participants selected must have personal experience of the topic of the discussion. Research participants must have significant personal experience of the topic of the research.

Knowledgeable participants may be unable to highlight similarities and contrasting aspects of the study or contribute to a deeper understanding of the data.

6.7.3 DATA COLLECTION AND ANALYSIS CRITIQUE

A limitation of data collection was that I did not plan to determine participants' pre-existing frames of reference at the onset of implementing simulation. Then again, it might be difficult for participants to identify their earlier frames of reference, which have since undergone permanent transformation. The frames of reference were a product of the points of view participants expressed during their interview, as well as in their journals and summative records.

Another limitation may be that some participants might not have felt secure enough to share all their experiences during the interview. One must always consider whether participants feel free to discuss negative personal experiences during interviews. An indication of hesitation by participants was that some participants did not submit their reflective summaries. However, participants seemed excited about sharing their learning experiences with me and were willing to listen. Their descriptions indicated that learning about HFPS is a process and not a point that they had reached. Therefore, the depth of the data may depend on the journey the participants have already undertaken (Smith et al., 2009:par. 1417).

A number of data-collection strategies were used to collect data to ensure a comprehensive understanding of the experience: an individual, face-to-face, semi-structured interview; dyadic face-to-face, semi-structured interview; reflective journals of the participants; biographical information and the reflective summaries of the researcher. Brocki and Wearden (2006:91) consider the use of multiple strategies of data collection to be a limitation, but this can be balanced if the specific benefits and limitations of studies are not considered in the interpretation process, and described in the research report (Pringle et al., 2011:22).

The individual and the dyadic semi-structured interviews had limitations and advantages (Eisikovits & Koren, 2010:1643). The individual interviews involved a private discussion requiring deep reflection from the participants. The individual interviews developed my interview skills. After five interviews, the data seemed to reach saturation. I planned to conduct two more interviews, and decided to use a dyadic interview. The synergy of participants reflecting together could provide additional data not mentioned before by previous participants. I also believed that conducting a dyadic interview might save time. However, the interview lasted about 90 minutes. I experienced the dyadic interview to be more complex to handle, but I

derived deeper and wider data from the participants. When the discussion started to focus on one participant's need for support, I made a mental note and later scheduled an individual member-checking interview. Therefore, the dyadic interview contributed to a wider discussion of the topic, but may have the potential to embarrass a participant in the case of sensitive, in-depth discussions. Driskell, Blickensderfer and Salas (2012:1) confirm the complexity of the dyadic interview and state that "three might be a crowd". Dyadic data can lead to data that overlaps and can be contrasted (Eisikovits & Koren, 2010:1645). I did experience some overlap and contrasts in the data, but using AtlasTi 7.5 aided me to represent the duality of the data. However, I did not consider these as limitations, as the IPA preserves the idiographical nature of each participant's contribution to data.

6.8 COORDINATOR OF HFPS VS RESEARCHER

My responsibility as coordinator of simulation was to maintain a safe learning environment for both students and nurse educators learning during simulation. Curran and Murray (2008:105) indicate the importance of creating learning environments that expose nurse educators to the experiences students have.

6.9 KEY MESSAGE OF THE STUDY

HFPS brought a new and fresh approach to nursing education. Students generally enjoy HFPS experiences. Parker and Maryk (2010) suggest that the TLT provides an appropriate theoretical basis for explaining student learning that produces an autonomous learner through HFPS. From the onset, the TLT provided an appropriate explanation for student learning; however, I saw similar features in nurse educators learning about HFPS.

While studying the nature of TLT I became aware of the gap between the expectations of nursing students have of nurse educators and that which nurse educators can meet, and I questioned the ability of nurse educators (including myself) to display what is required of students from day to day. In order to solve this dilemma for myself, I investigated frameworks that could explain the gap between nurse educator and students. I considered learning theories, philosophies and research methods that could respond to the phenomenon I witnessed. Initially, I was not even sure what to call dynamic changes I noticed in nurse educators implementing HFPS.

With this research, I endeavoured to design a study that is congruent in terms of philosophy, research methodology and learning theory. I purposely constructed a particular match between TLT, IPA and NJSF to answer the research question.

6.10 FRAMEWORK OF SIMULATIONISTS' TRANSFORMATIVE LEARNING EXPERIENCES

Learning is the social result of knowledge creation through communication, experiences and reflection. The original use of the TLT focused on the learning of students, according to Parker and Maryk (2010:327). However, my questions focused on participants who have to create an environment for transformative learning, who have never experienced HFPS for themselves. I would like to share what I learned about transformative learning from nurse educators using HFPS.

Figure 6.3 is an illustration of how I answered a colleague who enquired about the findings of the study. I will use this sketch to explain my meaning-making of how nurse educators become successful simulationists from a TLT perspective.

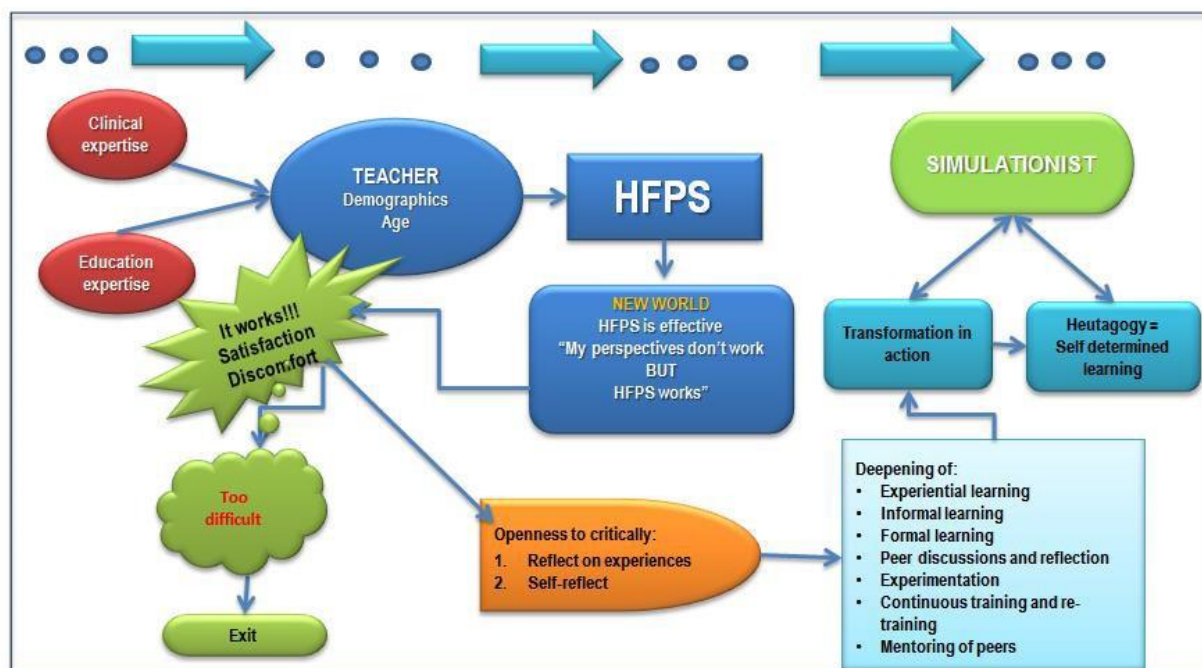


Figure 6.3: Framework of the simulationist'

The nurse educators using HFPS are usually experienced clinical nurse specialists with nursing qualifications and/or years of experience in nursing education (refer to Figure 6.3). The nurse

educator brings along various learning and perspectives resulting from meaning-making of past experiences. The nurse educator usually arrives at the simulation laboratory with great interest in all the gadgets and their functions (demographics in the teacher construct). However, not all participants met both features.

As nurse educators spend years developing their educational expertise, they tend to be older and, in this case, they were older than 35 years. The teacher construct in the NJSF lists age as a feature of nurse educators who eventually became simulationists, however, expertise may be related to the age of nurse educators in nursing, who tend to be older (age in the teacher construct).

Initial exposure to HFPS usually involves excitement and enjoyment. Old memories of clinical experiences are recalled and the participants were convinced at the time that HFPS worked. HFPS was an exciting new world for the participants. Over time, the participants became active in facilitating HFPS, which was an uncomfortable experience. They felt stressed and experienced self-doubt amidst excitement and exhilaration. These emotions brought them to a point of considering whether they would like to invest energy in HFPS. Those who believed that the experiences are too difficult might have exited from the strategy at this point.

The participants valued HFPS's benefits for student learning. They were open about reflecting critically on experiences of and perspectives on educational practices. Their commitment was a result of their commitment to deep learning for students and for themselves. The composition of their learning included experiential, informal and formal learning, peer discussions and reflection, experimentation, continuous training and retraining, and mentoring of peers. The commitment of participants to deep learning resulted in transformation of educational, social and personal perspectives according to the framework for transformative learning in HFPS.

Transformative learning experiences led to transformation in action, which indicates that participants were committed to their personal transformative learning. In this case, transformative learning meant permanent change – they will never return to previously held perspectives or points of view.

In conclusion, my journey via this research project transformed my frames of reference. I learned to learn, I came to see mistakes as learning opportunities and not damnation, I learned to overcome obstacles – other people also make mistakes; mistakes are learning opportunities, to put emotions aside and to continue. The journey convinced me how little we actually know, the need to discover knowledge and that knowledge will bring responsibility. Discovering

knowledge highlights how little we know about life and living in life. This study contributes a roadmap for the future development of nurse educators in HFPS about the topic. I am thankful for how far I have travelled, and how much I have learned and contributed. I have ventured into new methodologies and learning theories others have not heard of. Mostly, I am thankful for my learning experiences preparing me to face challenges in the future.

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APPENDIX 3.1: SUMMARY OF THE BELMONT REPORT

ETHICAL PRINCIPLES & GUIDELINES FOR RESEARCH

INVOLVING HUMAN SUBJECTS

Boundaries Between Practice and Research

For the most part, the term "practice" refers to interventions that are designed solely to enhance the well-being of an individual patient or client and that have a reasonable expectation of success. The purpose of medical or behavioral practice is to provide diagnosis, preventive treatment or therapy to particular individuals.

By contrast, the term "research" designates an activity designed to test an hypothesis, permit conclusions to be drawn, and thereby to develop or contribute to generalizable knowledge (expressed, for example, in theories principles, and statements of relationships). Research is usually described in a formal protocol that sets forth an objective and a set of procedures designed to reach that objective.

Basic Ethical Principles

1. Respect for Persons
2. Beneficence
3. Justice

Respect for Persons

The principle of respect for persons divides into two separate moral requirements:

- Individuals should be treated as autonomous agents, and
- Persons with diminished autonomy are entitled to protection.

Application of this principle Informed Consent

Respect for persons requires that subjects, to the degree that they are capable, be given the opportunity to choose what shall or shall not happen to them.

Three elements of an informed consent process:

- **Information** - The extent and nature of information should be such that persons, knowing that the procedure is neither necessary for their care nor perhaps fully understood, can decide whether they wish to participate in the furthering of knowledge.
- **Comprehension** - The manner and context in which information is conveyed is as important as the information itself. Because the subject's ability to understand is a function of intelligence, rationality, maturity and language, it is necessary to adapt the presentation of the information to the subject's capacities. Special provision may need to be made when comprehension is severely limited -- for example, by conditions of immaturity or mental disability.
- **Voluntariness** - An agreement to participate in research constitutes a valid consent only if voluntarily given. This element of informed consent requires conditions free of coercion and undue influence.

Beneficence

Persons are treated in an ethical manner not only by respecting their decisions and protecting them from harm, but also by making efforts to secure their well-being.

Two general rules have been formulated as complementary expressions of beneficent actions in this sense:

- do not harm, and
- maximize possible benefits and minimize possible harms

In the case of particular projects, investigators and members of their institutions are obliged to give forethought to the maximization of benefits and the reduction of risk that might occur from the research investigation.

Application of this principle

Assessment of Risks and Benefits

A method for determining whether the risks that will be presented to subjects are justified.

Elements of a Risk/Benefit Assessment

The Nature and Scope of the Risks and Benefits

Many kinds of possible harms and benefits need to be taken into account. There are, for example, risks of psychological harm, physical harm, legal harm, social harm and economic harm and the corresponding benefits. While the most likely types of harms to research subjects are those of psychological or physical pain or injury, other possible kinds should not be overlooked. Risks and benefits of research may affect the individual subjects, the families of the individual subjects, and society at large (or special groups of subjects in society).

The Systematic Assessment of Risks and Benefits

The idea of systematic, no arbitrary analysis of risks and benefits should be emulated insofar as possible. This ideal requires those making decisions about the justifiability of research to be thorough in the accumulation and assessment of information about all aspects of the research, and to consider alternatives systematically. This procedure renders the assessment of research more rigorous and precise, while making communication between review board members and investigators less subject to misinterpretation, misinformation and conflicting judgments. Thus, there should first be a determination of the validity of the presuppositions of the research; then the nature, probability and magnitude of risk should be distinguished with as much clarity as possible.

Assessment of the justifiability of research should reflect at least the following considerations

- Brutal or inhumane treatment of human subjects is never morally justified.
- Risks should be reduced to those necessary to achieve the research objective. It should be determined whether it is in fact necessary to use human subjects at all. Risk can perhaps never be entirely eliminated, but it can often be reduced by careful attention to alternative procedures.
- When research involves significant risk of serious impairment, review committees should be extraordinarily insistent on the justification of the risk (looking usually to the likelihood of benefit to the subject -- or, in some rare cases, to the manifest voluntariness of the participation).
- When vulnerable populations are involved in research, the appropriateness of involving them should itself be demonstrated. A number of variables go into such judgments, including the nature and degree of risk, the condition of the particular population involved, and the nature and level of the anticipated benefits.

- Relevant risks and benefits must be thoroughly arrayed in documents and procedures used in the informed consent process.

Justice

Who ought to receive the benefits of research and bear its burdens? This is a question of justice, in the sense of "fairness in distribution" or "what is deserved."

The selection of research subjects needs to be scrutinized in order to determine whether some classes (e.g., welfare patients, particular racial and ethnic minorities, or persons confined to institutions) are being systematically selected simply because of their easy availability, their compromised position, or their manipulability, rather than for reasons directly related to the problem being studied.

Whenever research supported by public funds leads to the development of therapeutic devices and procedures, justice demands both that these not provide advantages only to those who can afford them and that such research should not unduly involve persons from groups unlikely to be among the beneficiaries of subsequent applications of the research.

Application of this principle

Selection of Subjects

Moral requirements are that there should be fair procedures and outcomes in the selection of research subjects.

Two levels of justice relevant to the selection of subjects

- Social - Social justice requires that distinction be drawn between classes of subjects that ought, and ought not, to participate in any particular kind of research, based on the ability of members of that class to bear burdens and on the appropriateness of placing further burdens on already burdened persons. Thus, it can be considered a matter of social justice that there is an order of preference in the selection of classes of subjects (e.g., adults before children) and that some classes of potential subjects (e.g., the institutionalized mentally infirm or prisoners) may be involved as research subjects, if at all, only on certain conditions.
- Individual - Individual justice in the selection of subjects would require that researchers exhibit fairness: thus, they should not offer potentially beneficial research only to some patients who are in their favour or select only "undesirable" persons for risky research.

- Vulnerable subjects - Certain groups, such as racial minorities, the economically disadvantaged, the very sick, and the institutionalized may continually be sought as research subjects, owing to their ready availability in settings where research is conducted. Given their dependent status and their frequently compromised capacity for free consent, they should be protected against the danger of being involved in research solely for administrative convenience, or because they are easy to manipulate as a result of their illness or socioeconomic condition (United States, 1979:1–5).

APPENDIX 3.2: ETHICS COMMITTEE OF THE FACULTY OF HEALTH SCIENCES APPROVAL

Research Division
Internal Post Box G40
☎ (051) 4052812
Fax (051) 4444359

E-mail address: DuPlessisJ@ufs.ac.za

Ms J Du Plessis

2014-08-15

REC Reference nr 230408-011
IRB nr 00006240

MS MJJ PHILLIPS
BENEDICTUS KOK BUILDING
ROOM 12
UFS

Dear Ms Phillips

ECUFS NR 147/2014

PROJECT TITLE: TRANSFORMATIVE LEARNING EXPERIENCES OF NURSE EDUCATORS IMPLEMENTING HIGH-FIDELITY SIMULATION: AN INTERPRETATIVE PHENOMENOLOGY ANALYSIS.

1. You are hereby kindly informed that the Ethics Committee reviewed the above research project with and it was presented at the meeting on 12 August 2014. Research may not be conducted before the following condition(s) has/have been met and the Ethics Committee grants final approval for the project:

- 1.1 ***The summary of the protocol in lay terms should be revised to describe and to explain to the lay member what "high fidelity simulation" means.***

[A revised summary of the protocol in lay terms has to be submitted to the Ethics Committee for approval]

[Upon receipt of the above document(s), the Ethics Committee will issue an approval letter. Only thereafter may the study be conducted].

2. The Ethics Committee took cognisance with approval of the following:
 - ***The signed EC42 form from the UFS authorities was submitted***
3. Committee guidance documents: Declaration of Helsinki, ICH, GCP and MRC Guidelines on Bio Medical Research. Clinical Trial Guidelines 2000 Department of Health RSA; Ethics in Health Research: Principles Structure and Processes Department of Health RSA 2004; Guidelines for Good Practice in the Conduct of Clinical Trials with Human Participants in South Africa, Second Edition (2006); the Constitution of the Ethics Committee of the Faculty of Health Sciences and the Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines.
4. Any amendment, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

5. The Committee must be informed of any serious adverse event and/or termination of the study.
6. All relevant documents e.g. signed permission letters from the authorities, institutions, changes to the protocol, questionnaires etc. have to be submitted to the Ethics Committee before the study may be conducted (if applicable).
7. A progress report should be submitted within one year of approval of long term studies and a final report at completion of both short term and long term studies.
8. Kindly refer to the ETOVS/ECUFS reference number in correspondence to the Ethics Committee secretariat.
9. Thus, this letter only serves as conditional approval.

Yours faithfully



.....
PROF WH KRUGER
CHAIR: ETHICS COMMITTEE

Cc Dr L van Rhyh

ETHICS COMMITTEE

OF THE FACULTY OF HEALTH SCIENCES

ATTENDANCE LIST OF THE MEETING HELD ON 12 AUGUST 2014

A. FACULTY MEMBERS

1. SCHOOL OF MEDICINE REPRESENTATIVES

Prof WH Kruger	Dept of Community Health (Chairperson) M.B. Ch.B (UFS) M.Med. (Community Health) (UFS) MBA (PU for CHE) Ph.D (Community Health) (UFS)	Present
Prof DK Stones	Dept of Paediatrics and Child Health M.B. Ch.B (UCT) M.Med Paediatrics (UFS)	Present
Dr SM le Grange (Lady)	Dept of Surgery (Vice-chair) M.B. Ch.B (UFS) M.Med. (Surgery) (UFS) Cert. Paediatric Surgery (College of Surgeons of SA)	Apology
Prof PJ Pretorius	Dept of Psychiatry M.B. Ch.B (UFS) M.Med (Psychiatry)	Present
Prof BJS Diedericks	Dept of Anaesthesiology FFA (SA) M.Med (Anaesthesiology) (UFS) BA (Philosophy) UNISA M.B. Ch.B (UFS)	Present

Prof WJ Steinberg	Dept of Family Medicine M.B. Ch.B; DPH; DTM & H (Wits) M.Fam.Med (UFS) Dip. Obst (SA), FCFP	Present
Prof PH Wessels	Dept of Obstetrics and Gynaecology M.B. Ch.B; M. Med. (O. et G.) (UFS) L.K.O.G. (SA) MD (UFS)	Present
Prof BW J van Rensburg	Dept of Internal Medicine M.B. Ch.B (UP) M. Med (Internal Medicine) (UP) FCP (SA)	Present
Dr WJ Rabie	Dept of Family Medicine M.B. Ch.B (UFS) M.Fam.Med. (UFS) ATLS, Trauma Society ATLS instructor, Trauma Society	Absent
Ms M Nel (Lady)	Dept of Biostatistics B.A. (Urbanology) B.A. Hons. (Statistics) M.Med.Sc (Biostatistics) (UFS) IRENSA Diploma in International Research Ethics 2006	Present

2. SCHOOL OF NURSING REPRESENTATIVES

Ms MR Mpeli (Lady)	School of Nursing Diploma in General Nursing Diploma in Midwifery Advance University Diploma in Clinical Nursing (Advanced Midwifery and Neonatology) B.Soc.Sc. (Nursing Education) M.Soc.Sc (Nursing)	Present
Dr DE Botha (Lady)	School of Nursing M. Soc.Sc (Nursing) (UFS) Ph.D (Nursing) (UFS)	Present

Dr WJC van Rhyn (Lady)	School of Nursing B.A. Sc. (Nursing) (PU for CHE) M.Soc.Sc (Nursing) (UP) Ph.D (Nursing) (UFS)	Apology
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3. SCHOOL OF ALLIED HEALTH PROFESSIONS REPRESENTATIVES

Prof CM Walsh (Lady)	Dept of Human Nutrition B.Sc Dietetics (UFS) M.Sc Dietetics (UFS) Ph.D (Dietetics) (UFS)	Apology
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Ms PA Hough (Lady)	Dept of Occupational Therapy B.Sc Occupational Therapy (UFS) M.Sc Occupational Therapy (UFS)	Apology
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Ms R Smith (Lady)	Dept of Physiotherapy B.Sc (Physiotherapy) (UFS)	Apology
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4. BIOSTATISTICIAN

Prof G Joubert (Lady)	Dept Biostatistics B.A. UCT, B.Sc. UCT B.Sc (Hons) (Mathematical Statistics) UCT M.Sc. (Mathematical Statistics) UCT	Present
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B. NON-SCIENTIFIC MEMBERS

1. RELIGIOUS MEMBER/LAY MEMBER

Ms A Taljaard (Lady)	Systematic Theology and Ethics B.Th (US) D.Th Systematic Theology (US)	Present
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2. LEGAL MEMBER

Prof H Oosthuizen	Dept Criminal Law B.lur., LL.B., LL.D. (UFS)	Absent
Prof R-M Jansen (Secundus) (Lady)	Dept Private Law B.Soc.Sc. (Nursing) Hons. B.lur., LL.B., LL.M. (UFS)	Present

C. INDEPENDANT MEMBERS NOT AFFILIATED WITH INSTITUTION

1. LAY MEMBERS

Ms KM Jingosi (Lady)	Child and Family Welfare Society Social Auxiliary Work SA Council for Social Service Professions	Absent
Ms SS Seclave (Lady)	Retired Primary Lower Teacher's Certificate Teacher's Higher Bilingual Certificate Education Diploma for the Junior Primary Phase (UFS)	Present
Ms EF Makowa (Secundus) (Lady)	Day mother	Resigned

D. THE CENTRAL UNIVERSITY OF TECHNOLOGY, FREE STATE

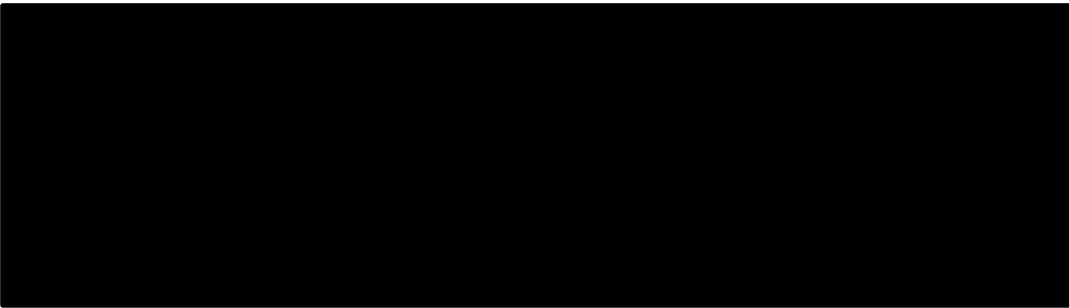
Prof WMJ v d Heever Kriek (Lady)	Ph.D Clinical Technology School of Health Technology Central University of Technology, Free State Bloemfontein	Aplology
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E. EX OFFICIO MEMBERS <i>(not entitled to vote)</i>

Dr S Gaelejwe	CEO: Universitas Hospital Bloemfontein	Absent
Dr BM Masitha (Lady)	H.O.C.S. – Chief Medical officer Free State Psychiatric Complex Bloemfontein M.B. Ch.B. B.Sc Hons Health Sciences IFE – Nigeria	Absent
Dr BA Benganga	B.Sc NBLS – ROMA Head: Clinical Services Pelonomi Hospital Bloemfontein	Absent
Ms BJ Ramodula	Chief Executive Officer National District Hospital Bloemfontein	Absent

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PROF WH KRUGER
CHAIR: ETHICS COMMITTEE



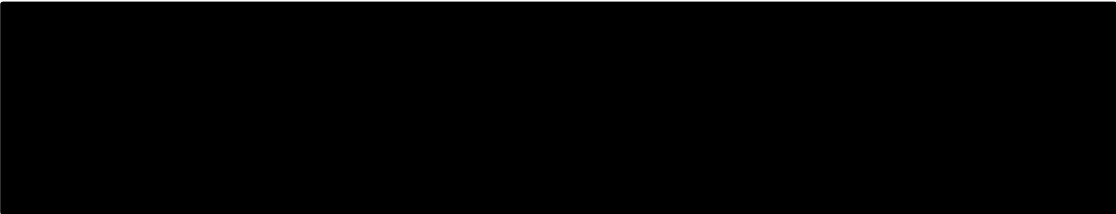
REC Reference nr 230408-011
IRB nr 00006240

MS MJJ PHILLIPS
BENEDICTUS KOK BUILDING
ROOM 12
UFS

Dear Ms Phillips

ECUFS NR 147/2014

**PROJECT TITLE: TRANSFORMATIVE LEARNING EXPERIENCES OF NURSE EDUCATORS
IMPLEMENTING HIGH-FIDELITY SIMULATION: AN INTERPRETATIVE PHENOMENOLOGY
ANALYSIS.**

1. You are hereby kindly informed that at the meeting on 16 September 2014 the Ethics Committee approved the above project after all conditions have been met when the following was submitted:
 - ***Revised summary of the protocol in lay terms describing and explaining to the lay member what "high fidelity simulation" means.***
 2. Committee guidance documents: Declaration of Helsinki, ICH, GCP and MRC Guidelines on Bio Medical Research. Clinical Trial Guidelines 2000 Department of Health RSA; Ethics in Health Research: Principles Structure and Processes Department of Health RSA 2004; Guidelines for Good Practice in the Conduct of Clinical Trials with Human Participants in South Africa, Second Edition (2006); the Constitution of the Ethics Committee of the Faculty of Health Sciences and the Guidelines of the SA Medicines Control Council as well as Laws and Regulations with regard to the Control of Medicines.
 3. Any amendment, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.
 4. The Committee must be informed of any serious adverse event and/or termination of the study.
 5. All relevant documents e.g. signed permission letters from the authorities, institutions, changes to the protocol, questionnaires etc. have to be submitted to the Ethics Committee before the study may be conducted (if applicable).
 6. A progress report should be submitted within one year of approval of long term studies and a final report at completion of both short term and long term studies.
- 

7. Kindly refer to the ETOVS/ECUFS reference number in correspondence to the Ethics Committee secretariat.

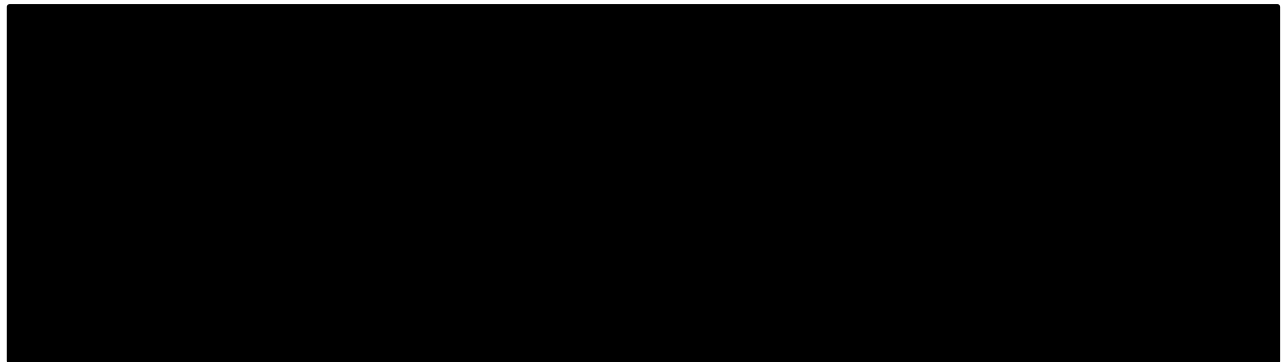
Yours faithfully



.....
PROF WH KRUGER
CHAIR: ETHICS COMMITTEE

Cc Dr L van Rhyn

APPENDIX 3.3: INSTITUTIONAL PERMISSION REQUESTS



.7.2014

The Head of the SoN, Dean of the FoHS, Vice Rector (research) School of Nursing



Dear Prof. Mulder, Prof van Zyl and Prof C Witthulm

Permission to conduct research

Researcher: Maria Phillips

Title: Transformative Learning Experiences of Nurse Educators Implementing High-Fidelity Simulation: An Interpretative Phenomenology Analysis

ETOVS no. ECUFS 147/2014

Hereby I request to permission to perform research at the School of Nursing in the Faculty of Health Sciences. The sample of participants will be taken from educators that mastered high-fidelity simulation as a learning strategy. The number of participants required for this study is less than 13.

The site has been chosen because this study's purpose is to explore the experiences of simulation educators to determine what and how educators learn to become simulation educators. The findings of the study will assist in the development of the future simulation educators in the School of Nursing. Participants will be interviewed individually, are requests to write a reflection regarding their initial experiences in simulation and to journal experiences after each simulation experience. Interviews will be scheduled according to the preference of the participant's and will not interfere with their normal academic responsibilities. Interviews will

take between one and one and a half hours congruent with time required for in-depth interviews.

Data collected will be managed as confidential and anonymous. All documents will be depersonalized. Data will be saved on an off-line computer and back-ups devices will be kept in a safe. Findings will be reported as a requirement for a PhD. thesis. Findings and recommendations will be disseminated at conferences and in academic publications. The university may benefit from the study as future simulation nurse educators will be prepared purposefully and guide other institutions in the implementing the same process.

I thank you in advance for your kind consideration.

Yours faithfully

Maria Phillips

**APPROVAL FORM: UFS AUTHORITIES /
GOEDKEURINGSVORM: UV OWERHEDE**

FOR PARTICIPATION OF STUDENTS/STAFF OF THIS FACULTY IN RESEARCH
PROJECTS

VIR DEELNAME VAN STUDENTE/PERSONEEL VAN HIERDIE FAKULTEIT AAN
NAVORSINGSPROJEKTE

Name & student/ staff number MJJ Phillips
Naam & studente-/personeelnr 765099
 Department _____
Departement School of Nursing
 Tel nr & e-mail 0846800456
Tel nr & e-pos phillipsm@ufs.ac.za
 Study leader(s) _____
Studieleier(s) Dr L van Rhyen Tel: 051 401 2966

Title of project / *Titel van projek*

**TRANSFORMATIVE LEARNING EXPERIENCES OF NURSE
EDUCATORS IMPLEMENTING HIGH-FIDELITY SIMULATION:
AN INTERPRETATIVE PHENOMENOLOGY ANALYSIS**

Who will be involved in the study? Please tick (✓) in appropriate box. /

Wie sal by die studie betrek word? Merk (✓) asseblief in die gepaste blokkie.

	YES / JA	NO / NEE		YES / JA	NO / NEE
Personnel	X		Students		X
<i>Personeel</i>			<i>Studente</i>		

Please attach the protocol for the study and the Ethics Committee application form.

Kindly note that it is the responsibility of the researcher(s) to ensure that all relevant signatures are obtained before this signed form is returned to the Ethics Committee Administration Division (D115) Francois Retief Building, Faculty of Health Sciences, UFS. The protocol may, however, be submitted for Ethics Committee approval while signatures are being obtained. /

Heg asseblief die protokol vir die studie hierby aan, asook die Etiekkomitee aansoekvorm.

Neem asb kennis dat dit die verantwoordelikheid van die navorser(s) is om te verseker dat alle toepaslike handtekeninge verkry word voor hierdie getekende vorm terugbesorg word aan die Etiekkomitee Administratiewe kantoor (D115) Francois Retief-gebou, Fakulteit Gesondheidswetenskappe, UV. Die protokol mag intussen ingehandig word vir Etiekkomitee goedkeuring terwyl handtekeninge bekom word.

A.

Approved / Goedgekeur	Rejected / Afgekeur
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HEAD OF SCHOOL /
HOOF VAN DIE SKOOL


SIGNATURE / HANDTEKENING

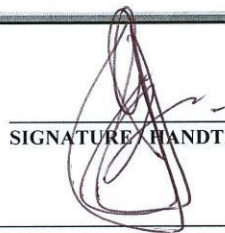
DATE / DATUM

COMMENTS / KOMMENTAAR:

B.

Approved / Goedgekeur	Rejected / Afgekeur
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DEAN OF THE FACULTY /
DEKAAN VAN DIE FAKULTEIT


SIGNATURE / HANDTEKENING

Dean: Faculty of Health Sciences

05 -08- 2014

DATE / DATUM

COMMENTS / KOMMENTAAR:

C.

Approved / Goedgekeur	Rejected / Afgekeur
--------------------------	------------------------

DEAN: STUDENT AFFAIRS /
DEKAAN:
STUDENTEAANGELEENTHEDE

(If research will include students on campus and if questionnaires will be distributed in hostels on campus) /
Indien studente op kampus en indien vraelyste versprei gaan word in koshuise op kampus.


SIGNATURE / HANDTEKENING

DATE / DATUM

COMMENTS / KOMMENTAAR:

D.

For studies in the Faculty of Health Sciences only

Approved / Goedgekeur	Rejected / Afgekeur
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VICE-RECTOR: ^{Research}ACADEMIC /

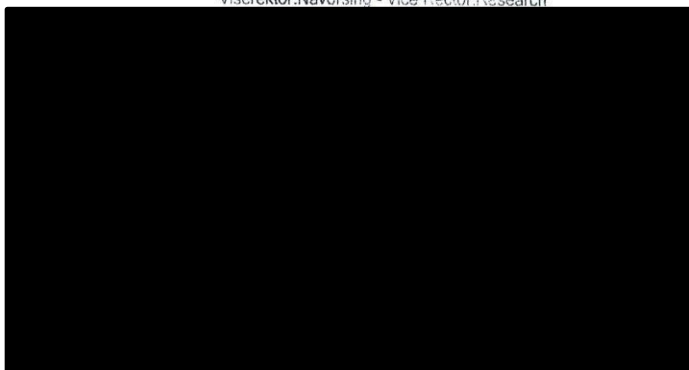
For studies on UFS Campus

Approved / Goedgekeur	Rejected / Afgekeur
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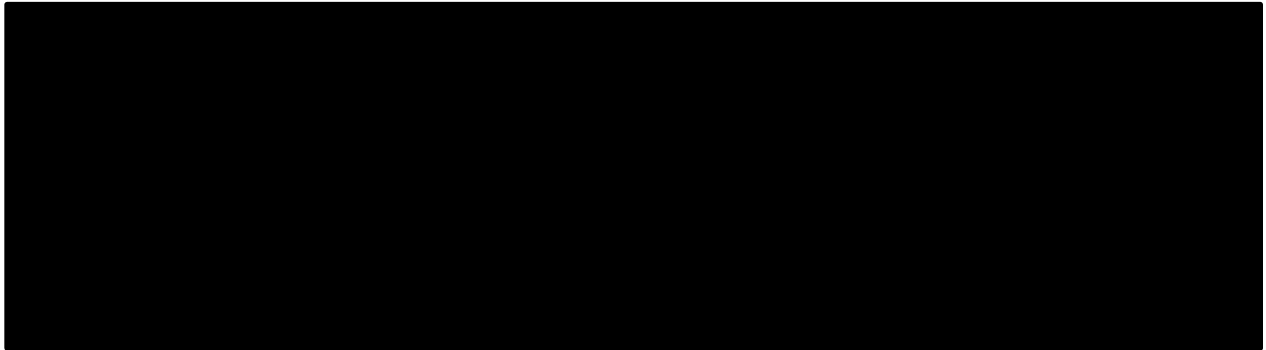
Navorsing
VISE-REKTOR: ~~AKADEMIES~~
COMMENTS / KOMMENTAAR:

Corli Withuhn 09/08/2014
SIGNATURE / HANDTEKENING DATE / DATUM/

Prof. Corli Withuhn
Viserektor Navorsing - Vice Rector Research



APPENDIX 3.4: PARTICIPANT INFORMATION LEAFLET



Universiteit van die Vrystaat | University of the Free State | Yunivesithi Ya Freistata

**Title: The Learning Experiences of Novice Simulation Educators Implementation High -Fidelity
Simulation: Interpretative Phenomenology Analysis**

You are invited to participate in a research study the experiences that led to their practices in simulation. The following information is provided to help you decide whether you wish to participate in the present study. You should be aware that you are free to decide not to participate or to withdraw at any time without affecting your relationship with the School of Nursing, researcher of the UFS.

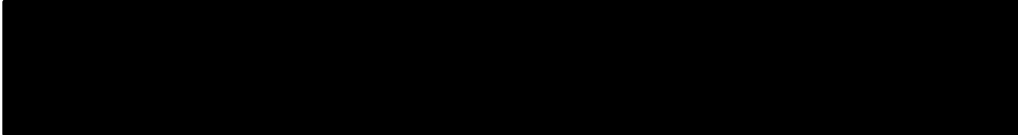
The end product is to determine the practices essential for a simulation educator. This information will assist us to effectively develop future simulation educators. Data will be collected using an in-depth semi- structured interview at a time that suits you. You will also be asked to write a reflection report about how you have experienced your initial learning in simulation. In addition to that you will also be requested to keep a journal of your learning experiences of the simulations that you are involved with. At a later stage you will be invited to contribute to prioritise learning experiences by completing a Likert scale. Do not hesitate to ask questions about the study before participating or during the study. I would be happy to share the findings with you after the research is completed. Your name will not be associated with the research findings in any way, and only the researchers will know your identity. There are no known risks and/or discomforts associated with this study. The expected benefits associated with your participation are the information about the experiences in learning research methods. If this study is later submitted for publication, a by-line will indicate the participation of all simulation educators.

Please sign this consent form. You are signing it with full knowledge of the nature and purpose of the procedures. A copy of this form will be given to you to keep.

Signature of Researcher: _____

Date: _____

Maria Phillips, Coordinator of high-fidelity simulation, School of Nursing,



APPENDIX 3.5: CONSENT DOCUMENT

TITLE: TRANSFORMATIVE LEARNING EXPERIENCES OF NURSE EDUCATORS IMPLEMENTING HIGH-FIDELITY SIMULATION: AN INTERPRETATIVE PHENOMENOLOGY ANALYSIS

Name of Researcher: Maria Phillips

Please initial the box below each question.

1. I confirm that I have read and understand the information sheet dated _____ for the abovementioned study and had the opportunity to ask questions. []
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my right to nursing education or my legal rights being affected. []
3. I agree to take part in the study. []

SIGNATURE OF PARTICIPANT

DATE

SIGNATURE OF WITNESS

DATE

I have explained the implications of participation in the study to the above-mentioned participant and have sought his/her understanding for informed consent.

SIGNATURE OF RESEARCHER

DATE

APPENDIX 4.1: DEMOGRAPHICAL DATA OF PARTICIPANTS

Only for Researcher's eyes

PARTICIPANT INFORMATION

Interview: 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐

Information leaflet read	Yes ☐	Date of interview	____/____/____
Informed consent signed	Yes ☐		
Pseudo-name	_____	Gender	M ☐ F ☐
Age	20-29 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ 60-69 ☐	Qualifications ☐ Basic degree..... Master's degree.. Ph.D.....	Clinical expertise _____ _____ _____
Attended local simulation workshop	☐ Yes ☐ No	Estimated number of simulation sessions managed	☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ Other ☐
Years of clinical experience	1-5years ☐ 6-10 years ☐ 11-15 years ☐ Other ☐	Years of educational experiences	☐ 1-5 years ☐ 6-10 years ☐ 11-15 years ☐ Other ☐

APPENDIX 4.2: STRUCTURED TASK ALLOCATION

TIME	STUDENT GROUP	TABLET HANDLER	SCENARIO FACILITATOR	DEBRIEFING		VOICE	RESET TO START	DEBRIEFING AREA	CLASS FACILITATOR
				PRIMARY FACILITATOR	SECONDARY DEBRIEF SUPPORT				