University of Alberta

Nurse Educators Preparing for the Use of High-fidelity Human Patient Simulation: A Process of Finding Their Way

By

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Dedication

I dedicate this thesis to those educators who have inspired me to be the best I can be in the world of healthcare/nursing education; to the nurse educators and students of the future as they *Find Their Way* in the world of simulation education; and expressly to my parents, William and Dorene, and my family, Bill, Paige and Hailey, to whom I will forever be thankful for the life learning moments and times we have shared together during this process.

"*It is good to have an end to journey towards:*

but it is the journey that matters in the end."

Ursula K. Le Guin

Thank-you, Tamara, for this lovely quote from *Passport to the Soul*!

Abstract

Over the past decade in particular, high-fidelity simulation technology has been readily embraced and is increasingly expanding as an innovative approach to the teaching and learning process involved in preparing nursing students for the clinical setting. To date, there are no studies that specifically address the process concerning the preparation of nurse educators in the use of this novel approach. The purpose of this Glaserian grounded theory study was to explore the actual process involved in preparing nurse educators in the use of high-fidelity human patient simulation. The primary source of data emerged from interviewing 17 nurse simulation educators, all of whom taught in a university nursing program. Indicative of the Glaser's rigorous, multi-method approach, data was also derived from 1) direct observation of three independent interactions between nurse educators and their students in the human patient simulation setting, 2) field notes and memoing, 3) researcher journaling, and 4) relevant secondary data. By constant comparative analysis of the data, the themes of *muddling through*, *introspecting* and *questing to evoke and enrich* emerged, reflecting the social psychological process nurse educators journeyed through in preparing for their teaching roles within the simulation environments. These themes, explicated from all the pertinent research data that was captured, generated the emergence of a core variable, *Finding Their Way*.

The research findings provide implications and recommendations for the future educational preparatory efforts of nurse simulation educators. Firstly,

consideration to the strategic development of well-thought out, formalized and personalized programs for nurse educators as they are *Finding Their Way* within the dynamic teaching and learning environments in simulation is requisite. The integration of *SIM*entorship strategies holds one potential solution conceived for building this capacity and support. Secondly, the establishment of the evaluation process, addressing best simulation teaching practices and nursing evaluation tools, also warrants further efforts. Finally, refinement in the preparation of nurse educators in the use of this evolving educational technology is necessary for future sustainability. It is imperative the role of clinical nursing simulation education be primary in advancing the development of critical thinking/reasoning, inter-professional team building and fostering leadership in the quest towards safe, competent patient care.

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Finally, in taking this 'voyage of discovery,' I wish to express my sincere gratitude to the warm hearts of my parents, my immediate family and my sisters and brother, my close Smitten family and my dear friends who have endured many bumps in the road with me, and yet, supported me in their own ways throughout this thought-provoking path. I know I did not take the 'gentle path.'

In loving memory of my father, William
Beloved husband of Dorene
Loving and devoted father to Jayne, Lynda, Billy, and Tamara
(January 11, 1931, to March 19, 2012)
"When love is great, there is no need for words. For even in the silences, love can be heard."

With Love and HugZ, and an extraordinary thank-you to my own close family, my husband, Bill, and daughters Paige and Hailey, for their unwavering encouragement and patience with enduring love and support. I could not have completed this dissertation without you.

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Summary of the Research Study

Preface

In the past decade, high-fidelity human patient computer simulation (HHPCS), hereafter referred to as human patient simulation (HPS), has contributed to changing the landscape of nursing education. This teaching/learning tool is purported to have the potential to offer a viable alternative toward the creation of a realistic and safe approach to the education of students in the healthcare field. Undergraduate, graduate and professional healthcare educators are embracing the use of this particular technology to introduce, enhance and refine clinical skills, critical thinking and decision-making in nursing education (Jeffries, 2007; McCausland, Curran & Cataldi, 2004; Medley & Horne, 2005; Ravert, 2002). With the integration of this rapidly expanding technological change into the healthcare education landscape, there is a need to ensure that nurse educators and decision makers effectively meet their roles and responsibilities to educate nurses for nursing practice.

Currently, there is a paucity of literature addressing how nurse educators prepare for the use of high-fidelity patient simulation as a teaching and learning approach to undergraduate nursing education (Jeffries, 2007; Kardong-Edgren, Starkweather & Ward, 2008; Lasater, 2007; Nehring, Ellis & Lashley, 2001; Nehring & Lashley, 2009; Rauen, 2001). “Faculty may view simulation as something for which they are not educationally or technologically prepared” (Kardong-Edgren et al., 2008, p. 13.) To date, there is no research study

designed to examine specifically how nurse educators are prepared to use this particular educational technology as an approach to teaching and learning in undergraduate nursing education (Association of American Medical Colleges, 2007; National League for Nursing, 2005, 2006). There is, however, research to support the fact that the high-fidelity patient simulator is useful, effective and has high satisfaction ratings as a teaching and learning tool by nurse educators and students alike (Carter, 2004; Kardong-Edgren et al, 2008; Jefferies, 2005a, 2007; Katz, Armstrong & Preheim, 2008). Further observation and research was thus warranted.

Objectives of the Study

The specific objectives of this research study are as follows:

1. To explore the process of nurse educators preparing for the use of human patient simulation as a teaching/learning approach for undergraduate nursing education;
2. To examine how nurse educators prepare to facilitate, guide and influence the teaching/learning process in the human patient simulation environment;
3. To determine how nurse educators prepare to use human patient simulation to create a climate conducive to the fostering of student learning;
4. To ascertain nurse educator perceptions about their preparation in the use of the human patient simulation as a teaching and learning approach;
5. To generate data that will contribute to an understanding of the kind of preparation required for nurse educators in the use of human patient simulation as a teaching/learning approach in undergraduate nursing education.

Method

Glaser's grounded theory method (Glaser, 1978, 1999, 2002, 2005; Glaser & Strauss, 1967) was used in this study. The basic social psychological process that occurred in preparing nurse educators in the use of human patient simulation was the focus of this exploration. A systematic, constant comparative analysis of conceptual data was conducted throughout the interviews and the observational process within the teaching and learning human patient simulation environment. The goal was to generate data that contributed to a understanding of what actually occurred in preparing nurse educators who use human patient simulators as an approach to the teaching/ learning process in undergraduate nursing education. Furthering understanding of this social psychological process in conjunction with determining the important elements of educator preparation in this specialized learning environment, coupled with conceptualizing how the teaching/learning process evolved, generated knowledge to assist in creating meaningful and purposeful educational opportunities for student nursing practice.

Data Collection

Data collection, conducted within a six month period between late 2009 and 2010, was comprised of the following: 1) semi-structured taped interviews; 2) field notes, memos, researcher's journaling; and 3) direct observation of three independent nurse educators and their nursing students using human patient simulation in the teaching/learning environment. In addition, relevant secondary data sources, including recent scholarly literature, materials disseminated in conferences, as well as notes from germane discourse with

interprofessional networking contacts who were immersed in the teaching/learning process of human patient, were considered. Personal reflections were also incorporated as deemed necessary.

Sample Size

The sample comprised 17 participants who were current nurse educators working within an approved undergraduate nursing program within a Canadian university. Most participants were interviewed twice. Two participants were interviewed three times. A total of 36 interviews were conducted to achieve theoretical data saturation (Glaser & Strauss, 1967; Glaser, 1978).

Research scholars (Morse, 200l; Robrecht, 1995; Schreiber & Stern, 2001) suggest that good quality grounded theory is based on more than one set of data sources to provide a diverse perspective on the phenomenon of study. In addition to the interviews, I also observed three independent groups of students with their respective nurse educator who were all immersed in the experiential human patient simulation setting.

Data Analysis

Utilizing the grounded theory approach of constant comparative analysis, relevant and useful data connected to preparing nurse educators for the teaching/learning approach using human patient simulation technology was used throughout the study (Reed & Runquist, 2007).

The data analysis process began immediately and simultaneously with commencement of the data collection process, from the very first interview. Data were constantly compared throughout the study and closely examined at

all stages of the analysis. The conceptual process was launched by determining codes and themes that evolved directly from the data. This inductive process led to the development of a core variable explicated from all research information that was captured and utilized. This core variable served as the significant concept from which a substantive theory evolved. I also included memoing, an integral part of this analytical process that contributed to the evidence of noteworthy linkages and clarifications. The writing of memos provided information that was useful for further extrapolation to help articulate my theory as it emerged.

Underlying Assumptions

In keeping with the philosophical underpinnings of qualitative research, the explicit assumptions that served to inform this study were as follows: a) nurse educators play a vital role in contributing to the experiential learning of nursing students in the human patient simulation environment; b) an increased understanding regarding nurse educators preparation in the use of human patient simulation as an approach to teaching and learning in undergraduate nursing education is warranted if we are to use this approach appropriately and effectively; and c) utilizing the unique approach of human patient simulation has the potential to create a complex, dynamic, and reflexive teaching and learning environment.

Limitations

This research study, as with any study, required deliberation on its limitations. The following shortcomings and cautions were recognized early in the study process:

1. The most obvious limitation was that of the potential researcher bias. This underlying factor must be acknowledged and guarded against, from the identification of the research questions to the finalization of the study. Open-ended interview questions were designed to allow for free-flowing conversations with the nurse educators and their students. Throughout the research process, strategies such as memoing, taking field notes and documenting reflections were used to remind me about any personal assumptions, beliefs, or conceptualizations that were formed. These approaches served to circumvent any potential notions that could bias the emerging data.
2. The length of time to complete the study could be perceived as a limitation. While recognizing sufficient time is required for collection and analysis of data to achieve data saturation, an interruption in the research process would require re-immersion into the data and, subsequently, into the writing development.
3. The study was confined to one undergraduate nursing program and, therefore, may not be generalizable to all undergraduate nursing programs.
4. The grounded theory method was used for the data collection process. This qualitative method is based on the social/psychological processes related to the individual participants as they engage in their specific roles in HPS. The HPS environment is relatively novel to the nursing educational curriculum and has been recognized for its own unique

nuances within the clinical educational setting. The emerging development of HPS as a tool for nursing education, thus, warrants recognition for its creativity and spontaneity. This creativity, in addition to my own limited analytical ingenuity, may have posed a conceivable challenge in truly capturing the depth and richness of the emerging data (Glaser, 1978).

5. Finally, the interview process, as a main source of data collection, presents constraints and possible biases. Providing additional sources of data via field notes, memoing, reflections and observations served to enhance and authenticate disclosures of the research participants (Field & Morse, 1985; Morse & Field, 1995).

Key Concepts

The following key concepts were considered relevant to this study: nurse educator; nursing student; undergraduate nursing degree program; high-fidelity human patient simulation (HPS); high- fidelity human patient simulation environment; experiential learning; debriefing; and advocacy-inquiry debriefing model.

Nurse Educator

A current, experienced nursing faculty, lecturer or sessional clinical instructor hired by a Faculty of Nursing within a Canadian university nursing undergraduate program to teach nursing students in preparing for entry into practice positions (College and Association of Registered Nurses of Alberta (CARNA), 2006). The nurse educator develops, monitors, maintains and evaluates the learning tools as well as the learning experiences of the undergraduate nursing students. Within a prearranged time frame of a formalized undergraduate nursing program, the nurse educator teaches, supervises and serves as a role model for the nursing student. For the purposes of this research study, the nurse educator must also have first-hand experience engaging nursing student learners in the high-fidelity human patient simulation environment.

Nursing Student

A learner registered in his/her last year towards completion of the undergraduate baccalaureate nursing degree program or in the after-degree undergraduate nursing degree program of an approved faculty of nursing in a Canadian university setting. Upon graduation, the registered nurse, at the point of initial registration, is considered a generalist and a graduate from an approved nursing education program (College and Association of Registered Nurses of Alberta (CARNA), Entry-to-practice Competencies for the Registered Nurses Profession, December, 2006).

Undergraduate Nursing Degree Program

A baccalaureate nursing degree program in an approved Faculty of Nursing, within a Canadian university setting that provides the necessary background for the national licensure examination for Registered Nurses (RN), a requirement for nursing practice in Canada. The program may range from four years to a concentrated after-degree program which can be completed in two calendar years.

High-fidelity Human Patient Simulation (HPS)

Life-sized full-body-length computerized mannequins with complex, multi-system physiological and pharmacological models that produce valid observational patient responses eliciting student interaction with the 'patient' in a closely-replicated clinical situation or event. These high-fidelity patient simulators are fully automated and computer-controlled mannequins that can imitate real cardiovascular and pulmonary physiology, allowing for patient monitoring with real physiological clinical monitors. The HPS tool can also be used to promote teamwork; communication between team members and crisis resource management. (Medical Education Technologies, Inc, 2011).

High-fidelity Human Patient Simulation Environment

Integration of the use of high-fidelity patient simulators as teaching and learning tools to augment and recreate a representation of clinical nursing situations, environments or events in a replicated healthcare setting that provide the dynamic nature of experiential learning for the nursing student. These high-fidelity patient simulators can be situated in a realistic hospital (in-situ) or

clinical working environment, typical of designated patient care areas such as emergency, intensive care, operating room, or hospital ward unit (Alinier, Hunt, Gordon & Harwood, 2006; Alinier, 2011; Beyea & Kobokovich, 2004).

Experiential Learning

An interactive, engaging life-like learning event that occurs in a realistic clinical setting and assumes incorporation of one's foundation of knowledge, skills, and attitude into the present teaching and learning episode (Knapp & Smith, 2009; Kolb, 1984).

Debriefing

The act of bridging the HPS experience to making sense of it through facilitated or guided reflection (Fanning & Gaba, 2007). Debriefing is considered fundamental to the teaching and learning simulation development as it supports the process of facilitated reflective practice. The design of the facilitative debriefing session in HPS should be tailored to the learning objectives in order to achieve the best possible learning experience.

Advocacy-Inquiry Debriefing Model

Model based on 35+ years of research on improving professional effectiveness through reflective practice (Rudolph, Simon, Dufresne & Raemer, 2006; Rudolph, Simon, Rivard, Dufresne & Raemer, 2007). Advocacy-Inquiry when applied to HPS simulation teaching and learning events involves the following: 1) nurse educator (facilitator) *advocates* for their own perspective of the educational event, stating an observation witnessed in the event; 2) nurse educator *inquires* by asking a question of the nursing student about their

perceptions of the actions taken, what was the thinking underpinning the action, and/or the rationale behind their action, and finally, 3) *reflection-on-action* (Schon, 1983, 1987) takes place when the nurse educator and nursing student analyze the simulation event after it occurs to re-evaluate their own interpretations of the event and their actions, thereby promoting reflective practice, which in turn, may result in transformative learning (Parker & Myrick, 2009; 2010).

The aforementioned guided self-reflection debriefing model as a key component in the HPS clinical scenarios takes approximately 20 to 30 minutes and includes discourse on the following elements: nursing students' feelings, the simulation activity, the patient's condition and the nursing students' responses, including their actions and/or decisions as a result of the meaningful learning encounter.

Chapter 1

Introduction and Background

In the past several decades, nursing has grown exponentially. In this context, the profession has embraced new technological developments, procedural skills, a variety of new medications, advanced testing, best practice guidelines and protocols all of which have served to infiltrate the increasingly complex healthcare system. Subsequently, nursing education requires educators to ensure that nursing students acquire the knowledge, skills, and attitudes necessary to successfully carry out their professional roles and responsibilities. This responsibility can appear to be an overwhelming challenge to the educational institutions that endeavor to prepare the nursing students with the creation of the best learning opportunities.

Currently, high-fidelity patient simulation technology, more often referred to as human patient simulation or HPS, and related technological or hybrid teaching environments are gaining momentum in nursing education. More specifically, as a result of limited clinical placements, nursing programs are compelled to integrate alternative and innovative educational strategies, tools and technologies to create clinical learning opportunities and, thus, clinical experiences. The evolution of high-fidelity patient simulation technology has revealed early promise in addressing the experiential clinical learning needs of health care professionals (Prion, 2008).

Context

Dr. David Gaba, often referred to as the pioneer of simulation in healthcare, defines simulation as “ an imitation of some real thing, state of

affairs, or process and consists of techniques that provide a teaching tool that is particularly well suited to dynamic and challenging environments" (Gaba, 2004, i2). Simulation, as applied to the nursing experiential teaching and learning events that include the high-fidelity patient simulators, can be defined as "the artificial representation of a situation, environment, or event that provides an experience for the purposes of learning, evaluation, or research" (Lammers, 2007, p. 505). In short "simulation is another educational tool" (p. 505). Applying this concept, the application of simulation to the healthcare educational environment may, thus, be considered the following: "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 and immersive manner" (Alguire, Whelan & Vijay, 2009, p. 157).

There are levels of realism (fidelity) that occur in the healthcare simulation educational experience. These are often referred to as low, medium and high-fidelity simulation events. Examples of low to medium fidelity include, but are not limited to, teaching strategies using case studies, partial task trainers, or standard manikins that replicate limited human patient functionality. The low to medium fidelity simulation learning events are more one-dimensional and generally focus on skill acquisition. High-fidelity simulations reflect the level of realism considered in this study. High-fidelity simulations are more multidimensional and replicate reality in the three main facets of: 1) equipment fidelity, referring to the duplication of the technical characteristics of

the simulator to create as close to reality as possible; 2) environmental fidelity, which refers to the replication of the simulation environment to the real world context; and 3) psychological fidelity, where the learners perceive the realism of the simulation situation as it unfolds (Beaubien & Baker, 2004). The high-fidelity simulation experience includes the synergy of all these dimensions for the realistic teaching and learning clinical experience. Innovative programs and technological advances continue to suggest that nurse educators are seeing only the tip of the iceberg in realizing the potential of high-fidelity simulation as augmenting the traditional didactic nursing programs (Feingold, Calaluce & Kallen, 2004; Jeffries & Rizzolo, 2006; Jeffries, 2007; Larew, Lessans, Spunt, Foster, & Oovington, 2006; Wilford & Doyle, 2006).

Considerable research has been conducted regarding high-fidelity patient simulation environments, investigating student learning satisfaction, comparing traditional learning strategies versus hands-on simulation learning experiences, and examining selected learning outcomes of the high-fidelity patient simulator learning episodes or events. To date, no studies have been conducted to examine nurse educator preparation. In other words, there is limited evidence on the exploration of the teaching and learning process that occurs in this novel technological environment. It is important, therefore, to examine how nurse educators are prepared in the use of high-fidelity patient simulation as a teaching and learning approach in undergraduate nursing education.

Undergraduate nursing education has most recently drawn on the preceptorship teaching and learning model in the preparation of nursing students to directly care for their patients in the clinical settings. Nursing students learn how to care for their patients with supervision, reading related texts and relevant information provided within the nursing curriculum, and from didactic programs consisting of lectures and clinical laboratory exercises. In addition to 'real patients' hired to enact a patient scenario, HPS has now been added to the collection of teaching strategies and tools in the education of nurses of the future. These experiential 'hands-on" learning opportunities allow the nursing student to engage in clinical decision making, communication with patients and family members and colleagues and acquire clinical skill acquisition (Cant & Cooper, 2009; Haig, Sutton & Whittington, 2006).

Intrinsic to HPS are extraordinary physiological capabilities that allow for realistic interactions between the patient and the nursing student. These tools continue to advance from their rudimentary, unsophisticated anatomical features to more complex imitations of certain physiological capabilities. Simulation is a time-intensive teaching and learning method that can provide nursing students with the opportunity to apply their nursing knowledge from their didactic environment and transfer it into tangible nursing practice in a realistic and complex healthcare environment. Mistakes can be made by nursing students in a non-threatening environment and without harm to actual patients (Lasater, 2007; Smitten, Montgomerie, Briggs, & Hadley, 2008; Wilford & Doyle, 2006).

Despite the apparent successes, there continues to be disagreement in the literature regarding the justification of the use of simulation technology for experiential clinical learning. Research studies generated primarily by surveys (Vozenilek, Wang, & Kharasch, 2006) have indicated that simulation has face validity. It has been argued, however, that the educational benefits of every simulation episode, using rigorous research methods, may be too much effort for too little benefit. Knowledge appears to be burgeoning. Moreover, there is general evidence of satisfaction with the powerful tool of simulation for improving instruction and meeting the learning needs of the students in various health disciplines (Alinier, Hunt, Gordon, & Harwood, 2006; Bearnson & Wiker, 2005; Gordon, 2004; Hoffmann, O'Donnell & Kim, 2007; Rhodes & Curran, 2005; Seropian, 2003; Weller, 2004). Gaba (1992), the inventor of the modern patient simulator and a pioneer in the field of human patient simulation, further supports the concept of face validity in his comment "no industry in which human lives depend on the skilled performance of responsible operators has waited for unequivocal proof of the benefits of simulation before embracing it" (p. 492). Countering this position, however, is the need for more studies to, at minimum, further authenticate the effectiveness and efficacy of human patient simulation in a variety of educational scenarios that support enhanced performance and/or competency in practice (Lammers, 2007).

In the healthcare educational domains there has been increasing evidence of widespread adaption and adoption of simulation technology (Alinier et al., 2006; Bearnson & Wiker, 2005; Gordon, 2004, Lammers, 2007).

However, the phrase that has been coined in reference to adaption and adoption of simulation in nursing education ‘it's not if, it's when’ is no longer valid. There is a definite need to explore what is required to ensure that faculty ergo nurse educators are prepared in the use of the high-fidelity patient simulation technology as part of a bona fide teaching and learning process in nursing education.

Problem and Significance

While considerable research has been conducted regarding student satisfaction, comparison of traditional learning strategies versus hands-on simulation learning experiences and selected learning outcomes of the high-fidelity patient simulator learning episodes or events, there continues to be an apparent need for research related to the preparation and application of high-fidelity human patient simulation in nursing education. There is evidence in the research of increased integration of Chickering and Gamson’s (1987) seven principles of best practice in undergraduate education when using the high-fidelity patient simulator learning experiences than in traditional learning strategies (National League for Nursing, 2006). The seven *Good Practice principles* include: 1) encourages contact between students and faculty; 2) develops reciprocity and cooperation among students; 3) uses active learning techniques; 4) gives prompt feedback; 5) emphasizes time on task; 6) communicates high expectations; and 7) respects diverse talents and ways of learning. These seven principles appeared to be operationalized by the nurse educators and were noted anecdotally throughout the observations of the

independent HPS scenarios in this study. What remains unclear is how the nurse educator is prepared to fully embrace and execute these principles while immersed in teaching with high-fidelity patient simulators. The relevance of educational principles and their application when utilizing technological resources in the teaching and learning process is evident in many learning situations, particularly in those that require analysis, synthesis and evaluation. Thus, the applicability of Chickering and Gamson's (1987) commonly-used principles requires more research and refinement of their measures to accurately support the evidence for generalizability when conducting HPS educational events. Upon closer examination and comparison with traditional lecture teaching methods, the use of the HPS technology more readily results in real-life learning episodes that encourage self- reflection and self-evaluation and thus evoke student motivation to learn. The impact of responding to the needs of the students based on their individual timing and mastery of skills or the learning that transpires over time has been found to be more flexible. A national, multi- site, multi-method National League for Nursing (NLN) and Laerdahl Medical quantitative study, examining learning, educational practices and simulation design, corroborates this assertion (Jeffries, 2007). This particular study also led to development of a simulation framework as a guide for conducting systematic, organized research on simulation activities (Jeffries, 2007).

In light of such developments, it is, therefore, timely to determine how faculty are prepared to include the innovative HPS lever that is fast becoming

integrated into the nursing curricula. Without a discerning perspective on how to prepare nursing educators for best practices within this transformative educational environment, the impact may be less conducive to the teaching and learning process in this particular context. This process is fundamental to the evolving nature of the high-fidelity simulation environment in the healthcare field. Yet, to date, no study has been conducted to this effect. This study is, therefore, significant as there is no research addressing the preparation of nurse educators in the use of HPS for the reality of their teaching and learning practice. The findings of this study can contribute much to our understanding of that which is specifically required to appropriately prepare nurse educators in the use of high-fidelity patient simulation as a teaching/learning approach in undergraduate nursing education.

Purpose of the Study

The purpose of this study is to explore the process in preparing nurse educators in the use of high-fidelity human patient simulation as a teaching/learning approach in undergraduate nursing education. Examination of this process will elucidate *how* nurse educators are actually prepared to facilitate, guide, and influence the teaching/learning process in HPS environments (McCausland, Curran, & Cataldi, 2004; Medley & Horne, 2005; Ravert, 2002). Further insight into how the nurse educator is prepared to use human patient simulation would expound upon what is significant for professional regulatory and educational accreditation bodies (Cant & Cooper, 2009; National League for Nursing, 2006; Kardong-Edgren, Starkweather, &

Ward, 2008). It is important that there be an ongoing refinement in the preparation of current and future nurse educators in the use of this evolving and innovative educational technology.

Underlying Assumptions

In keeping with the philosophical underpinnings of qualitative research, it is important to make explicit the assumptions that serve to inform this study. The assumptions pertaining to this study are as follows:

1) Nurse educators play a vital role in contributing to the experiential learning of nursing students in the high-fidelity patient simulation (HPS) environment.

2) An increased understanding regarding the preparation of nurse educators in the use of human patient simulation (HPS) as an approach to teaching and learning in undergraduate nursing education is warranted if we are to use this approach appropriately and effectively.

Nurse educators from a variety of specialty areas have integrated a large portion of the traditional didactic methods of teaching (lecture, group, discussion) into experiential learning through the use of the HPS as an educational tool (Bearnson & Wiker, 2005; Binstadt, Walls & White, 2007; McGaghie, Issenberg, Petrusa & Scalese, 2010; Rhodes & Curran, 2005). The importance of the influence of nurse educators on the outcome of the experiential learning events in HPS environments is implied. However, there is virtually no in depth research to illustrate the preparation of nurse educators in the use of simulation in the nursing curriculum (Montgomerie, Raymond &

Smitten, 2006). Indeed, there are a limited number of publications outlining the direct benefits, best preparation and practices for teaching the effective use of human patient simulation in healthcare education and specifically, nursing education. Limited information specific to debriefing practices for simulation in nursing education, a critical component in the planning of experiential learning exercises, reveals there is more research to be done. Best teaching preparation and practices by nursing educators using HPS will assist in enhancing the education of nursing students for their future roles in professional practice. Proficient nurse educators will provide authentic and practical human patient simulation learning opportunities for nursing students. Successful teaching and learning outcomes using this approach will create a domino effect and should inevitably enhance patient care.

Research questions

The following questions guided this study:

- What is the social/psychological process used to prepare nurse educators in the use of high-fidelity human patient simulation (HPS) as a teaching/learning approach for undergraduate nursing education?
- How are nurse educators prepared to facilitate, guide and influence the teaching/learning process in the high-fidelity human patient simulation (HPS) environment?

- How are nurse educators prepared to create a climate conducive to the fostering of student learning using high-fidelity human patient simulation (HPS)?
- What are the actual perceptions of the nurse educators regarding their role in the simulation teaching and learning sessions integrating the high-fidelity patient simulation (HPS) environments?

Chapter 2

State of the Knowledge

Historical Context of Simulation Initiatives in Nursing Education

Although the first high-fidelity patient simulators were developed in the 1960's, their pervasive use in the healthcare domain actually began in the early 1990's (Gaba, Howard, Fish, Yang & Sarnquist, 1992). The incorporation of the innovative, computerized full-body patient mannequin as a tool in the medical education and training of residents was launched in the focused area of anaesthesiology. The successful use of simulation in the medical field (DeAnda & Gaba, 1991; Gaba, 2004; Gaba & DeAnda, 1988) prompted the initial applications of high-fidelity patient simulators in the nursing field by nurse anaesthetists (Fletcher, 1995). Almost a decade later, the nursing profession slowly and progressively adopted utilization of this unique tool to augment the teaching and learning process in areas of acute care, emergency/trauma management, critical care, obstetrical and perioperative care (Beaubien & Baker, 2004; Fanning & Gaba, 2007; Finney & Olson, 2008; Gururaja, Yang, Paige & Chauvin, 2008; Parr & Sweeney, 2006). In fact, the 2005 survey by the National Council of State Boards of Nursing (NCSBN) predicted that human patient simulation environments would increasingly be used as an alternative to clinical experiences. The NCBSN posit that "simulations are activities that mimic the reality of a clinical environment and are designed to demonstrate procedures, decision-making and critical thinking through techniques such as role-playing and the use of devices such as interactive videos or mannequins" (p.2).

Today, simulation in nursing education is definitely on the rise. Increasing enrollments in nursing coupled with the challenge of educational institutions to provide sufficient clinical site experiences has created challenges that necessitate looking at alternatives for vital nursing experiential learning (Seropian, Brown, Gavilanes, & Driggers, 2004a, 2004b). The high-fidelity patient simulators have become more technologically advanced and present complex, interactive and lifelike experiences that assist in the experiential learning of nursing students. The current high-fidelity patient simulators present with voices, heart, lung and bowel sounds, pulses and programmable physiologic vital signs. The introduction by Medical Education Technologies, Incorporated, Sarasota, Florida (METI) of pediatric Models (PediaSim; BabySim) has also enhanced the choices and variety of inventory. Simulator refinements continue and the open architecture allows for the perpetual development of new simulation applications. Recent simulation equipment developments and computer technology improvement are providing opportunities for creating highly realistic clinical environments that show promise in immersing nursing students in pragmatic clinical situations, facilitating the nursing educational process and safe practice for nursing students (Ker, Ramsay, Hogg, Dewar & Ambrose, 2005).

Given the apparent acceptance and rise in the use of high-fidelity simulation as a tool, breathing 'life' into some areas of the nursing curriculum, it appears there remains little understanding vis-à-vis the teaching and learning process actually used in the high-fidelity experiential educational encounters.

Key to this notion is determining what is required to prepare faculty in the effective use of high-fidelity human patient computer simulation. Nursing faculty carry a great responsibility in preparing the next generation of nursing students in their transitional roles to professional practice, to care for their future patients.

The identification of educators who are 'champions' among the faculty to enthusiastically incorporate simulation into the curriculum is noted (Leigh & Hurst, 2008, p. 2). Although there is acknowledgement of these 'simulation champions' having knowledge and experience in using human patient simulators, it remains unclear as to what is required for an adequately educated and trained nursing faculty to be comfortable and competent in utilizing human patient simulators effectively in these 'realistic' clinical environments. To more fully appreciate and determine what is fundamental and vital for faculty preparation using this tool, it is important to explore the experiences, memories, and reflections of nurse educators and students who have familiarity and practice in the technological educational environment (Jeffries, 2005a; 2005b; Montgomerie, Raymond & Smitten, 2006; Young & Paterson, 2007). How one is prepared and what best facilitates the integration of simulation into nursing education is necessary from the perspectives of students and faculty within the health profession education fields in general and nursing in particular.

Trends and Issues in High-fidelity Simulation Environments

As in the preceptorship model of nursing education, the high-fidelity simulation experience links the nursing knowledge base to the actual nursing

practice (Seropian, Brown, Gavilanes, Driggers, 2004a, 2004b; Zekonis & Gantt, 2007). Further to this realization, from my perspective, it is worth noting that there continues to be an increased exposure to a diversity of possibilities in simulation experiential learning scenarios connecting nursing knowledge to practice (Bremner, Aduddell, Bennett, & VanGeest, 2006; Gantt, 2007; Henneman & Cunningham, 2005; Jeffries, 2006; Morton & Rauen, 2004; Schoening, Sittner & Todd, 2006; Zekonis & Gantt, 2007). Thus, closer examination and adjudication as to the best usage of high-fidelity patient simulators within the context of the nursing curriculum is warranted. It is evident that there are certain clinical applications and scenarios that do not match the effort and cost that result with the use of high-fidelity patient simulators in the teaching and learning domains (Lammers, 2007; Montgomerie et al, 2006; Murray, 1998; Schaefer,Vanderbilt, Cason, Bauman, Glavin, Lee, & Navedo, 2011). In articulating this perspective, it is also clearly evident that the usage of high-fidelity patient simulators in clinical scenarios, especially those that provide standardized learning experiences in the management of common as well as rare clinical patient situations, have been demonstrated as successful and a propos (Todd, Manz, Hawkins, Parsons & Hercinger, 2008).

High-fidelity simulation usage has been critiqued as being one of the most time and cost intensive teaching methods, especially when customization is required. It is not only the experienced ‘champions’ of nursing faculty who are essential for simulation course development, enactment and follow-up. An analogy of creating a theatrical academy award winning screenplay with the use

of special effects further emphasizes what may be required for the authenticity of the human simulation experience in certain complex, clinical scenarios (Hotchkiss, Biddle & Fallacaro, 2002). This is exemplified when the cost potential for creation of a sophisticated simulation experiential teaching and learning event occurs. An example of this occurrence is a collaborative, multi-level simulation that teaches higher level skills, such as in a disaster or emergency response drill involving an interprofessional health care approach. The 'production' may involve substantial time commitments, high-fidelity, simulation 'champions'/content experts and a well-designed facility for the diversity of settings. Kyle (2004) eloquently demonstrates the parallel between complex, high-end simulation events and theatre in suggesting "Clinical simulation facilities are theaters where plays of illness and treatment are imagined, written, rehearsed, staged, and criticized…[S]imulation scenarios need all the components of "real" theatrical productions: scripts, costumes, lines and action cues for all participants (including the patient simulator), props and rehearsal audience for constructive criticism (p.96)." Theatrical costs can be astronomical in the grand scheme of things. Who can predict the efficient and effective experiential teaching and learning success on a low-budget versus high-budget patient simulation experience? Occasionally, as is evident in some of the annual outcomes for the celebrated and legendary Golden Globe or Academy Awards, the underdog theatrical venture can also prevail. In the planning and design of nursing experiential education, simulation is only beginning to ascertain answers as to what can and cannot provide useful

evidence of an effective teaching and learning scenario (Jeffries & Rizzolo, 2006; Nehring & Lashley, 2004).

Binstadt, Walls and White (2007) developed a performance pyramid that aptly places the prerequisite, explicit contextual knowledge as the fundamental base for effective clinical performance. For the high-fidelity simulation teaching and learning process, operationalising the prerequisite knowledge is necessary to perform well in the experiential event. Nursing education encompasses fundamental concepts that are put into practice via a variety of skills- be they practical clinical procedural skills, critical thinking, or judgment and decision-making strategies. The conveyance of facts or memorization of data or selective information is not appropriate or efficient in the patient simulator learning environment. Higher-level performance criterion can be effectively executed to reflect higher-level learning skills, especially in the complex and unpredictable experiences that can occur within the clinical areas. Incorporated into the experiential learning experience that includes the interactions with human patient simulators are team training and/or individual debriefings that may focus on the following key concepts of higher-level learning skills (Binstadt et al., 2007): 1) teamwork; 2) effective communication; 3) decision making; 4) situational awareness; and 4) the mental model.

Hence, human patient simulation is more than the use of the mannequins and computer technology. Simulation in this capacity is an elaborate educational tool that provides promising experiences for the purposes of teaching and learning, research and/or evaluation.

Roles, Responsibilities, and Preparation of the Nurse Educator and the Nursing Student in High-fidelity Human Patient Simulation Environments

The nursing educator role is key to the success of the high-fidelity teaching and learning experiences for the nursing student. A wealth of substantive knowledge on the clinical applications integrating high-fidelity patient simulators, in concert with the importance of teaching and learning concepts within the patient simulation environment, are essential. The nursing educator, as a key resource to the nursing student, can make or break the teaching and learning educational experience (Myrick & Yonge, 2005).

The nurse educator may assume a diversity of responsibilities throughout the educational encounters when utilizing the high-fidelity patient simulation technology. These include, but are not limited to: acting as a major support and advocate for nursing students; directly meeting and preparing the students for the experiential learning encounters with simulation technology; ensuring that the learning goals and objectives of the educational institution are achieved; engaging the nursing students in their roles within the simulation environments; and ultimately assuming the evaluative responsibility for the final appraisal, marking and feedback of the student's clinical performance in their preparation for professional nursing practice (Radhakrishnan, Roche, & Cunningham, 2007).

Preparation for the Nurse Educator Role

The high-fidelity patient simulation environment can and does present uncertainty. Prior preparation similar to nurse educators' preparation for their traditional method of teaching as in the lecture format, is perhaps even more

critical in these changeable high-fidelity patient simulator environments. Because using simulation involves an engaging, experiential approach and differs from traditional forms of teaching, exposure to the simulation scenarios in advance is advisable to prepare the nurse educator, to some extent, for the diversion of clinical pathways that can often occur in the reality of clinical nursing practice.

The nurse educator is assumed to have familiarity in the utilization of high-fidelity human patient simulator technology and realistic interactions. Given there are a variety of educator development approaches found in the literature (Kneebone, Kidd, Nestel, Asvall, Paraskeva, Darzi, 2002; Savoldelli, Naik, Park, Joo, Chow, Houston, et. al., 2006; Smitten & Briggs, 2007), it is wise to scrutinize the current preparation of nurse educators involved in teaching in the simulation environments. One recurring nurse educator focus is related to the creation and writing of simulation scenarios designed for the specific objectives of the nursing curricula (Spunt, Foster & Adams, 2004; Starkweather & Kardong-Edgren, 2008). There are numerous references to seeking ‘champion’ educators to promote and support the evolving simulation experiential learning endeavors in nursing education (Jeffries, 2006; Leigh & Hurst, 2008; Nehring & Lashley, 2004). Identifying a simulation faculty ‘champion,’ one who has expressed a desire and enthusiasm for the experiential approach and also has considerable experience managing within the simulation educational environment, is deemed essential in the evolution of a successful simulation centre. The ‘champion’ nurse educator role is to facilitate, guide,

mentor, coach, motivate and/or consult fellow nursing faculty who are neophytes or have only limited experience in the high-fidelity patient simulator world (Morgan, Johnson & Garrison, 2007). What is not well articulated is the required preparation or actual experience of the identified 'champion' nurse educator who may possess the perceived characteristics for the simulation teaching and learning approach. How is a 'champion' nurse educator in simulation created, one who inevitably is spawning further simulation nurse educator 'experts?' What are the actual qualifications and experiences required to produce competent nurse educators in the use of high-fidelity simulation as a teaching/learning approach? Characteristics alone do not prepare a simulation 'champion' or nurse educators in this particular environment. What does the adept 'champion' nurse educator actually require in terms of preparation and experience? Are technical skills and content expertise sufficient? These are compelling questions and it is not clear and definitely understated in the literature.

Also indicated is the need for faculty development in best practices with technological teaching tools and strategies as those used in simulation events (Association of American Medical Colleges, 2007). Such development spawns a new era for faculty in the nursing education arena. Yet the fact remains, the directives for faculty preparation in high-fidelity simulation are nebulous (Jefferies, 2007; Montgomerie, Raymond & Smitten, 2006).

No competency based models are found to reveal what precisely are the learning objectives or levels of competence required for nursing faculty in

simulation centres. Given the various levels of faculty expertise working with high-fidelity patient simulators, designing and developing a competency based program for nursing faculty working in the technologically and pedagogical challenging patient simulator environments could prove to be a valuable undertaking. What appears to be a fundamental obligation within the teaching and learning simulation realm is one that has not been materialized to date.

It is apparent that the development of simulation courses for nurse educators reveals inconsistent balances between nursing theory and practice, and a wide range of practices with varying duration (Donnelly, 2003). What has been documented is general information for faculties or schools of nursing who have embarked on augmenting their nursing curriculum with high-fidelity patient simulator environments and include a diversity of seminars, retreats, or workshops on simulation activities (National League for Nursing, 2007). Originally begun by one of the flagship sites of high-fidelity patient simulator environments, the Harvard affiliated hospitals' Center for Medical Simulation's success in small group simulation training sessions has produced several independent simulation practitioner 'experts' who have subsequently developed a variety of tailored courses to assist sites in the early planning, development and implementation of their simulation centre activities. Other preliminary courses have been identified, usually include a focus on simulation scenario development. Faculty development with a focus on specific teaching elements within the simulation education environment is limited. Key concepts have been mentioned as critical to moving simulation forward and embedding

simulation into nursing curricula. The key concepts identified, however, are sketchy at best (Starkweather & Kardong-Egden, 2008). What is evident is the lack of specificity on what is required for nursing faculty to feel prepared and confident in orchestrating an efficient and proficient simulation experiential teaching and learning event. There is a need to further explore this area of growth and advancement in the nursing simulation educational world.

Preparation for the Nursing Student Role

The student currently registered in an undergraduate nursing program is expected to assume the following responsibilities: demonstrate a strong sense of commitment to the learner role within the simulation environment; engage with colleagues and all persons involved in the high-fidelity human patient simulation environment with respect and consideration; follow up on their preparatory roles and responsibilities to foster their own learning; participate interactively to learn in this unique environment; communicate openly and contribute to the feedback and evaluation in their clinical practice using this tool; and, aim towards demonstrating satisfactory communication, organizational, technical and time management skills in their clinical simulation educational episode (Myrick & Yonge, 2005: Myrick, Yonge, & Billay, 2010). Invariably, just as the faculty needs to be prepared for the dynamics of the high-fidelity patient simulator teaching and learning process, so, too, must the nursing student. Specific directions and preparation required of the student should be clearly articulated by the simulation faculty who are facilitating the simulation scenarios. How does one prepare a nursing student for the most

useful simulation experience in order to translate the learning moments into clinical competency within actual clinical settings? Faculty must ensure that students are not floundering due to lack of preparation, for example, as a result of a deficiency in fundamental, requisite clinical knowledge for the given scenarios in the simulation environment. The most efficient method of instruction must be considered for the clinical arena utilizing simulation (Lammers, 2007; Schoening, Sitner, & Todd, 2006). A focus on imparting facts is an ineffective teaching and learning strategy within the simulation environment. Simulation is purported to be more relegated to higher-level learning (Binstadt,Walls, & White, 2007; Kyle, 2004). Given that the healthcare education model focuses on knowledge and clinical practice, simulation technology could foster assimilation of these key components in nursing education.

Theoretical Foundations of Healthcare Education

Historically, the healthcare education model for the 20th century was established on two key components that included the scientific university-based curriculum and the clinical practicum (Lupien, 2007). Classic university-based curriculum was delivered in a non- interactive fashion, usually by lecture format, whereby the passive students were the recipients who were ‘to store’ or become the receptacles of the learned information. In contrast, the clinical practicum was interactive and learning was experienced in the discipline-specific care environment (Lupien, 2007). The traditional concept of nursing education, therefore, was founded on a combination of classroom and clinical

education, with the ultimate goal of achieving a successful balance between the two.

High-fidelity patient simulation learning experiences are considered to be more two dimensional that include distinctive pedagogical dimensions of learner involvement and content control (Lupien, 2007). Simulation learning is thought to have some controlled dissemination of the information by the nursing educator with encouragement of and active involvement of the student learner. Brown, Collins and Duguid (1989) refer to this kind of learning as 'situated cognition' (p. 35) where the information and resulting learning is most useful when learned in contextual schema. The two dimensional classification of learner involvement is how teaching and learning is illustrated within the dynamic, and unpredictable clinical simulation environment. As the development of clinical expertise requires the nursing student to be immersed in clinical practice to foster development of the essential clinical reasoning and critical thinking required for decision making, patient simulation augmented education serves to produce viable and safe environments to apply theory to practice in the clinical setting (Medley & Horne, 2005). The challenge to ensure that students acquire as much of the existing and new content knowledge, attitudes/behavioral skills, and technical skills as possible is a daunting task for faculty in nursing education programs, and may, at times, appear to be insurmountable.

Human Patient Simulation: Perceived Barriers and Facilitators.

A healthy recognition of both advantages and potential limitations must be acknowledged when embracing and integrating new technologies in the teaching and learning domain. High-fidelity patient simulation is no stranger to healthy skepticism, with acknowledgement of its apparent benefits along with realization of the relevancy and the merits for certain specialized learning situations. Advantages of a high- fidelity human patient simulator environment are purported to include: absence of real harm or threat to a live patient; increased confidence/self-esteem of the nursing student; improved critical thinking and decision-making skills; allowance of errors to occur with repetition to accommodate adjustment in individual or group performances; the recording and replaying of the simulation to facilitate critique and feedback of clinical performance as there is no issue of patient safety or confidentiality (Canadian Patient Safety Institute, 2005; Jeffries, 2005a; Lammers, 2007; Larew, Lessans, Spunt, Foster, Oovington, 2006). Barriers to consider in the development of high-fidelity human patient simulation environments are invariably related to cost. High fidelity patient simulation is one of the most time-intensive and costly teaching methods considered today. Simulation implementation literature is replete with examples of equipment and facility/maintenance costs, in addition to the faculty preparation time and continued efforts to research and apply the best practices of simulation use for small group teaching endeavors (Lammers, 2007; McCausland et al., 2004: Rauen, 2004).

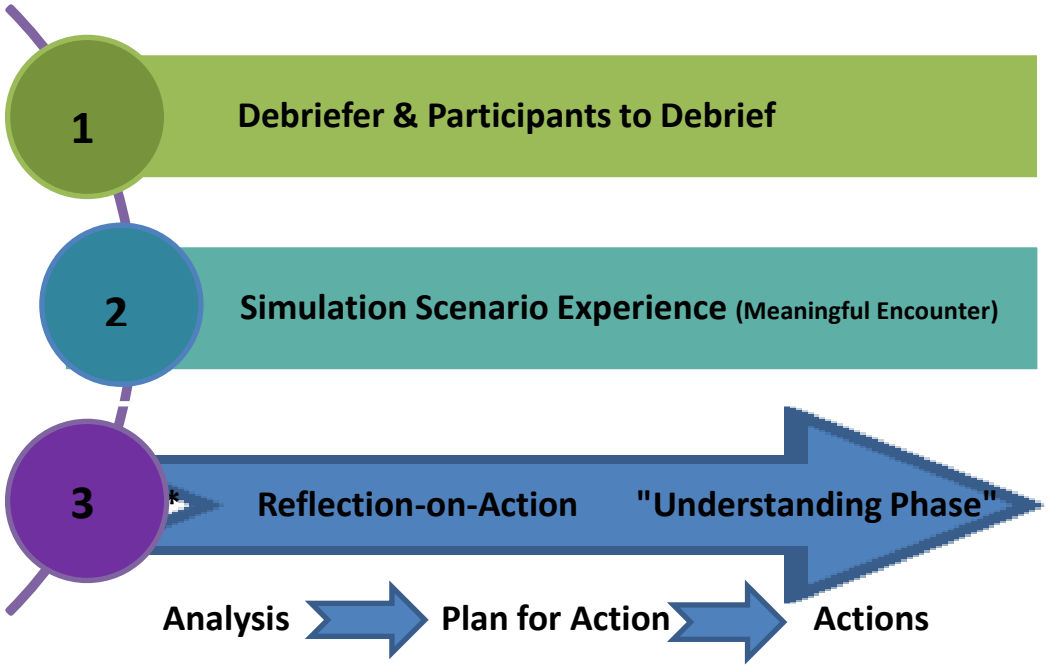
Appropriate use of the type of simulator for the teaching and learning objectives may also pose a challenge to nurse educators. An example is whether or not the HPS is the most suitable in circumstances where task trainers are adequate in acquiring basic skill acquisition. Where subtask learning components are emphasized, the cost and effort required for HPS may not be justifiable. Choosing the most amenable simulation option continues to pose debate and discussion in achieving nursing practice objectives. Deciding on low, medium or high-fidelity simulation does require careful consideration. Learning basic skill acquisition, acquiring skills within a full task sequence, and/or creating the most authentic teaching and learning in a complex healthcare environment will determine whether task-trainers, HPS, standardized patients, or a hybrid event, incorporating all of the simulation modalities, are chosen (Nehring, Ellis & Lashley, 2001; Nehring & Lashley, 2009).

Integration of HPS programs into the nursing educational environment may bring forward many potential positive effects on the teaching and learning process and, conversely, many challenges in its implementation process. Many unknowns persist in the simulation teaching and learning environment. Numerous questions need to be explored in order to ensure we are using this technology and associated educational strategies effectively in the teaching and learning process. Essential to the teaching and learning process in the simulation settings is the importance of debriefing (Dreifuerst, 2009; Fanning & Gaba, 2007; Leigh & Hurst, 2008).

Debriefing. Any teaching and learning experience can be considered a complex event that involves cognitive, affective and behavioral components.

The careful processing of such an experience, such as with immersion of a nursing student in high-fidelity patient simulator scenario, mandates some form of reflection and processing of the actual event. Debriefing is often described as the critical discussion that takes place following a simulation scenario to provide insight and determine what was actually experienced and if there was any impact on the teaching and learning episode (Gaba, 1997; Leigh & Hurst, 2008; Steinwachs, 1992).

Figure 2-1: Debriefing Facilitative Process Model



Adapted from Debriefing Reflective Social Interaction Concept (Deickmann, Molin Friis, Lippert & Ostergaard, 2009)

Figure 2-1 provides a visual adaptation of the debriefing facilitative process, involving a conversational technique between nurse educators and nursing students. Steinwachs (1992) describes the essential components of debriefing as description, analysis and application. Reflection and self-evaluation are considered vital elements of the simulation exercise, and

when done well, can create the best learning possibilities for both the nursing student and the nursing faculty (Kyle, 2004). Examining nursing students' and nurse educators' perspectives of their preparation for the debriefing, an experiential learning approach in simulation, should prove intriguing.

Debriefing using a single approach or model may not be applicable for all nursing simulation experiences. However, a systematic evaluation approach with the inclusion of critical self-reflection, or reflection-in-action, is supported as a crucial element in the experiential teaching and learning process (Schon, 1983; Jeffries & Rizzolo, 2006). As debriefing is considered an indispensable element of the simulation experience, it justifies emphasis in the preparation of the any educator using simulation (Fanning & Gaba, 2007; Jeffries, 2007, Rudolph, Simon, Dufresne & Raemer, 2006; Underberg, 2003; Wilford & Doyle, 2006; Wilson, Torrance, Shepherd, Lister & Kelly, 2004; Young & Paterson, 2007).

In summary, evidence of the increase in interprofessional and, specifically, nursing research articles related to HPS in the healthcare environment, has been exponential over the past decade. The journey of HPS in the nursing education domain continues to be documented and explored. There remains to be limited publications and research, however, specific to the teaching and learning preparatory processes, faculty development, determination of the most relevant and appropriate simulation usage as well as teaching and learning evaluation perspectives. Notwithstanding these disparities, HPS prevails in healthcare, opening the doors to many rich opportunities not only in nursing practice but in the educational sphere as well.

Chapter 3

Method

In this chapter, the following topics are addressed: a) the use of the Glaserian approach to grounded theory as the choice method of inquiry; b) the characteristics and philosophical underpinnings of grounded theory; c) the application of grounded theory analysis, including ethical considerations and practical issues, and; d) mechanisms to ensure for the rigor of this study (Sandelowski, 1993; Walker & Myrick, 2006).

Grounded Theory Method

The grounded theory method, a qualitative research method (Glaser, 1978, 1992, 1998; Glaser & Strauss, 1967; Strauss & Corbin, 1998) is considered most suitable for studying areas that have limited research of a phenomenon, and particularly on process (Allen, 2003; Annells, 1996, 2003; Backman & Kyngas, 1999; Charmaz, 2000; Glaser & Strauss, 1967). An absence of research specifically exploring the social psychological processes that occur in preparing nurse educators in the use of HPS warranted further research. Grounded theory was most fitting, therefore, as the paradigm of inquiry to research the unanswered questions on the process (Allen, 2003; Annells, 1996, 2003; Backman & Kyngas, 1999; Glaser & Strauss, 1967). Grounded theory was originally developed by two sociologists, Glaser and Strauss (1967) in their efforts to provide a new scientific approach that would better legitimize the acquisition of qualitative data (Chicchi, 2000). Although Glaser and Strauss's sociological experiences were influenced from

fundamentally diverse backgrounds, Glaser's roots were in quantitative research; Strauss was influenced by the symbolic interactionist perspectives.

Symbolic interactionism is a down-to-earth approach to the scientific study of human group life and human conduct. "Its' empirical world is the natural world of such group life and conduct. It lodges its problems in this natural world, conducts its studies in it, and derives its interpretations from such naturalistic studies…Its methodological stance, accordingly, is that of direct examination of the empirical world" (Plummer, 1996, p. 224). Both Glaser and Strauss were concerned with seeking enhanced analytical processes to attain improved theoretical explanations in qualitative research studies (Glaser and Strauss, 1967). Together, these researchers sought to generate a conceptual theory that was not only based on the data, but where the data were systematically extrapolated during the research process, leading to elucidation of the reality by the research subjects. The resulting conceptual theory, therefore, was grounded in the interpretation of the social psychological processes and understanding of the reality in the social world of the participants. Grounded theory method is "discovered, developed and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon" (Strauss & Corbin, 1990, p. 23). The roots of grounded theory are based on the notion of symbolic interactionism (Blumer, 1969; Schreiber & Stern, 2001) which, in this study, involves exploration of a process that occurs in the world of nursing simulation education and cogitates

on the human interactions within the sociocultural environment of teaching and learning.

Symbolic Interactionism

An important theoretical underpinning to the grounded theory method is symbolic interactionism as it reflects the importance of interactions between people's social roles and behaviors (Blumer, 1969; Evans, 2001; McCann & Clark, 2003). In the simulation environment, symbolic interactionism was reflected in the active participation of the nursing educator and nursing students in the teaching and learning process and which included, but was not limited to the use of symbols, words, gestures, or interpretations to convey meaning of the simulation episode. Such information proved to be critical and further validated and enhanced what was considered essential in the preparation of the nursing educator in the use of HPS. The creation of meaning in the teaching and learning process was constructed by the social interaction of the people in the HPS practice setting (Huehls, 2005; Morse, 1995). Following is an examination of the guiding process used in choosing the method for this research paradigm of inquiry.

Philosophical Perspective

The formulation of the research question was contingent on my perceptions about the nature of reality and how to best reflect this reality (Annells, 1996, 2003). This study's research inquiry was guided by the questions: 'what is the nature of the reality?' and 'how does one go about finding this knowledge?' (Guba, 1990). The selection of the grounded theory

method, therefore, can be viewed as emerging from my understanding of the basic philosophical thinking and ideas about the inquiry. Whatever research method is chosen, the philosophical basis and inquiry concept must be congruent with the relevancy of the research problem and my own epistemological area of concentration.

Qualitative methodology was considered appropriate in this study as it emphasizes the social processes and human understanding rather than quantitative measurement. Understanding and discovery were imperative in this inquiry; therefore, the grounded theory method was warranted for exploration of the interactions and social psychological processes, in this instance the preparation of nurse educators in the HPS environments. In searching for meaning and understanding of the nurse educators' behavior and 'what actually was going on' in preparing their practice, new areas of knowledge development in conjunction with insight into the nature of the reality in question occurred (Glaser, 1978, 1992, 1998).

Thus, the grounded theory method, providing a systematic analytic approach to the qualitative studies, was chosen as the fitting methodological approach for this research study (Morse, 2001; Speziale and Carperter, 2007). Grounded theory, specifically the Glaserian approach, was chosen as the study design to explore the process involved in preparing nurse educators as they were exposed to the teaching and learning settings using HPS.

Study Design

Grounded theory was used for this study design as it "best analyzes processes and identifies complex and hidden processes" (Schreiber & Stern, 2001, p.13). The complexity of the process was captured by a series of semi-structured interviews carried out with the 17 nurse educator participants. The grounded theory method, as outlined by Glaser, allowed me to examine nurse educator preparation central to the use of the innovative tool as well as explore their teaching strategies that go hand-in-hand with HPS. As interview data were collected and transcribed, themes began to emerge. Relevant supplemental data were also obtained including recent research literature documentation, journal articles and editorials, notes from informative conference speakers, and website HPS development initiatives. I also recorded personal reflections throughout the data collection and analysis process. In addition, I documented field notes on any observations or thoughts that occurred before, during and after the interviewing process. The additional 'snipits' obtained contributed to the formulation of additional thoughts and clarification on the data that may not have been captured in the digital recordings or any of the data collection resources. Observation and analysis of three independent teaching and learning events within the actual HPS environment, involving three nurse educators engaging three separate groups of nursing students augmented the findings. The observation and analysis process provided a picture of 'what people do, what their prime concerns are, and how they deal with these concerns" (Crooks, 2001, p.125).

Observational data allowed me to gain insights into the behaviors of the nurse educators and nursing students in the requisite and natural HPS teaching and learning environment. An underlying focus of grounded theory encompasses what is actually occurring, examining what transpired between the 'people' who, in this specific study, were the nurse educators and nursing students in the HPS educational domain. Crooks (2001) identifies this process as the fundamental goal of what grounded theory is all about. The Glaserian approach unites this premise with the emergence of a theory about the common social patterns and socially constructed meanings. The social psychological 'picture of the process' involved in preparing nurse educators in the use of HPS, became the core of the research.

Theoretical sampling and constant comparative analysis were pivotal to the grounded theory research method (Glaser & Strauss, 1967; Schreiber & Stern, 2001). Constant comparative analysis was conducted to explicate a ***core variable*** derived from the entire data analysis process. Budding variables were coded and categorized and served as the central concepts in the creation of an emerging theory. This understated interpretation of an intensive, careful and vigilant data collection process, with rich data in interpretations, explanations, and conceptualizations of the categories and concepts, created a theory that was deeply 'grounded' in the data.

The comprehensive literature review was initially delayed until "emergence versus forcing" occurred (Glaser, 1992, p. 33) and an emerging theory resulted. This process prevented the distorting effect of using literature

at the beginning of the grounded theory inquiry (Heath, 2006). In conducting grounded theory research, however, a preliminary review of the healthcare literature, examining the nurse educator preparation process in the simulation educational environment, was carried out to enhance the theoretical and academic sensitivity of the study and to justify the actual need for this type of exploration (Strauss & Corbin, 1998). Theoretical sensitivity, referring to my own personal insightful qualities (Strauss & Corbin, 1990), was considered crucial in the emergence of the theory grounded from the data. Conceptually 'real', understandable and well substantiated themes create the grounded theory (Strauss & Corbin, 1990).

Setting and Population

This study was undertaken with nurse educators experienced in working with nursing students in a university undergraduate nursing degree program in which the use of HPS was integrated throughout the curricula. Individual one-to-one interviews were conducted with the nurse educator participants at a mutually agreed upon time and location. Observations of the teaching and learning episodes involving the nurse educator and the nursing student groups were prearranged, also at the consenting nurse educators' convenience for date and time and with the consent of all members of the respective nursing student groups. The observation of the teaching and learning HPS events were conducted at a mutually convenient time in the experiential learning environment within a university setting.

Recruitment of Participants

With Faculty of Nursing administrative approval, the recruitment of research participants commenced. The research study information was initially conveyed through the email process and on strategically located posters for interested participants to contact me at my office or via email. Ultimately, I provided Letters of Information (Appendix A & B) and the consent forms (Appendix C) to nurse educators and nursing students who were currently in undergraduate nursing courses utilizing the Simulation Centre, Faculty of Nursing, in the university environment. My office, phone number and email address were included on all Letters of Information. Nurse educators and nursing students who wished to participate had the option to contact me at their convenience. Anonymity of potential participants was assured as best as possible with this type of recruitment process and given the very nature of data collection in this grounded theory study investigation. To reach data saturation, I also sought out study participants through another contact process, that is, utilizing the snowball sampling process. Snowballing was a successful sampling technique, whereby one research participant informed another and through the word- of-mouth referrals, other research participants were located (Speziale & Carpenter, 2007). Once the written consents were individually signed, meeting arrangements were confirmed with the nurse educators at a convenient date, time and location. A copy of the consent form was provided to the nursing educators for their own personal files. A copy of the consent form

for the nursing students participating in the HPS observation groups was offered if they so desired.

Prior to commencement of the data collection, I requested demographic data (Appendix D, E) from the participants. All nurse educators were female with an age range of 34 to 58 years of age and held between five to 25 years of teaching experience in nursing education. The number of years specifically teaching in the HPS domain was between one to nine years, providing further evidence to the freshness of this innovative tool used in nursing pedagogy. Fourteen of the 17 nurse educators were Masters prepared. Three nurse educators held a Bachelor of Science in Nursing degree.

The nursing students participating with their nursing educators in the HPS observation groups were from the four year and after degree baccalaureate nursing programs. The majority of the nursing students were female. Only one group included two male participants.

Sample. A final purposive sample of 17 nurse educators and three groups of nursing students was selected from a Faculty of Nursing program within the university setting. The groups ranged in number from nine to 13 nursing students per group. Purposive sampling involves specific representatives of a desired population as study participants. In this study, nurse educators with experience teaching in the HPS environment and currently teaching in the undergraduate nursing program at the Faculty of Nursing in the university setting were recruited. A total number of 34 nurse educator interviews were conducted (See Table 1). In addition, three independent nurse

educators who were part of the initial research interview group, also agreed to being observed while engaging their students in the HPS environment on condition that approval was confirmed from their nursing groups. The main criteria for nursing student inclusion was their prior consent to being observed during engagement in an HPS teaching and learning event, scheduled and arranged through the respective nurse educator. Schreiber and Stern (2001) suggest that good quality grounded theory is based on more than one set of data sources to provide a diverse perspective on the phenomenon of study.

Table 1 ***Number of Interviews per Participant***

Nurse Educator	***Nurse Educator***	***Nurse Educator***
One Interview	**Two Interviews**	**Three Interviews**
	01-two interviews	
		02- three interviews
	03- two interviews	
	04- two interviews	
	05- two interviews	
		06- three interviews
		07- three interviews
	08-two interviews	
	09- two interviews	
	10- two interviews	
11- one interview		
	12- two interviews	
13- one interview		
	14- two interviews	
15- one interview		
	16- two interviews	
	17- two interviews	

Ethical Considerations

Ethical approval was confirmed with the submission of this research study to the Faculty of Nursing, Associate Dean, Research in the Graduate Nursing Program, in addition to the Health Ethics Research Board. There were several actions that I instituted to ensure participant understanding and

confidentiality (See Appendices A, B, C). I was able to provide both verbal and written instructions to each confirmed participant in an endeavour to fully explain the purpose and potential benefits of the research study. A written informed consent document was included to request and confirm the participants' consents for participation in both the interview/audio taping and observation process as part of the research study. In addition, it was emphasized that participation was entirely voluntary, and there would be no repercussions if a participant was unable to continue in the research study. No reason had to be given for the withdrawal of voluntary participation in this research study. Three nurse educator participants did not participate in more than one interview. Although the reasons were not warranted, scheduling inconveniences, difficulty in contacting the study participants, and/or inability to continue at the time were cited as the explanations for not remaining in this particular research study.

To also ensure confidentiality, randomly assigned code names selected by the participants were used in lieu of surnames for all of the interview/audio-taped recordings, written transcripts and any relevant field notes as a result of this research study. In addition, all data were kept locked in a secure cabinet within the Faculty of Nursing dissertation supervisor's office, with the consent forms stored in a separate, secure location in the same vicinity where they remain for the required ethics time frame of five (5) years. Basic ethical principles of non-malfeasance, autonomy, beneficence and justice were

addressed as part of critical considerations in a qualitative research inquiry (McPherson et al, 2004, Speziale & Carpenter, 2007).

Data Collection

Semi-structured tape-recorded interviews, direct observations of research participants in the human patient simulation setting, field notes and researcher journaling comprised the primary data (Speziale & Carpenter, 2007). In addition, relevant secondary sources such as recent scholarly literature or materials disseminated in simulation-focused conferences, and personal reflections of interview data were considered and incorporated as deemed necessary in the data collection and analysis process. The evolving journal of personal reflections in reference to the observational field work and interview process comprised a data source. Secondary data sources also involved review of relevant documents related to the experiential teaching and learning process that occurred in the Simulation Centre. Examples of these also included: course outlines, course learning objectives, simulation preparatory packages, and powerpoint materials of simulation brown-bag teaching sessions. Through this rigorous, multi-method approach, indicative of Glaser's grounded theory method, an expansive and inclusive data collection process resulted (Bailey, 1997; Chicchi, 2000; Coyne & Cowley, 2006; Creswell, 2003; Stern, 1994).

For each interview, the nurse educators were provided with a reiteration of the interview pre-package materials they had received, including a verbal explanation of the interview procedure and the purpose of the research study. The participants were also asked to sign the written consent form prior to

actually being interviewed and audiotaped. In addition, the participants were apprised of their right to refuse to answer any questions and that they were free to withdraw from the study at any time without fear of reprisal.

Emphasizing confidentiality and anonymity, all nurse educators were identified by their selected code names. “Anonymity occurs when even a researcher cannot link a participant to his/her data” (Polit & Beck, 2004, p. 149). Although the very nature of qualitative data collection makes anonymity impossible at all stages, the principles of beneficence apply to providing confidentiality and anonymity for the research participants (Polit & Beck, 2004, Speziale & Carpenter, 2007). All participants throughout this research study were promised confidentiality and informed that no one with the exception of me and my thesis supervisor would have access to the raw data collection material. The raw data materials, including the tape recordings, transcriptions, and any field notes, were retained in a locked cabinet in the my office. Anonymity was also assured by removal of any names or personal characteristics from the research data. The participants were also informed that upon completion of the study, all demographic information and coding documentation would be destroyed. “A promise of confidentiality is a pledge that any information participants provide will not be publicly reported in a manner that identifies them and will not be made accessible to others” (Polit & Beck, 2004, p. 150). Following through on these research principles provided evidence of adherence to the ethical guidelines in qualitative research (Merrell & Williams, 1994; Speziale & Carpenter, 2007).

Three nurse educators agreed to introduce the initial research study information to their respective nursing student groups to begin the process of authorizing and endorsing my specific request to observe their HPS teaching and learning event in real time. I assumed the role of 'observer as participant' (Speziale & Carpenter, 2007, p. 42), watching the nurse educators and her nursing students in action during each of their HPS events of approximately 3 hours duration. An 'observer as participant's role' is designed primarily to observe and potentially to interview the participants, although the majority of the time is spent on observation, rather than in participation (Merrell & Williams, 1994; Moore & Savage, 2002). When the nurse educators were provided with a sense that their nursing groups were agreeable to being observed, I confirmed a scheduled observation time in the clinical simulation setting. All nursing students observed were known to be orientated to the HPS setting prior to commencement of the teaching and learning session. No videorecording of the HPS educational sessions occurred during these observational sessions.

For each session involving the HPS observation of the nurse educators and their respective nursing student group, I provided an introduction and a verbal explanation of the purpose of the research study, reiterating the importance of examining a HPS teaching and learning event as it actually unfolded. At this time, the nursing students were again apprised of their right to refuse my role observing their session without any fear of reprisal, addressing the potential issue of coercion. At the outset, I also clarified that if any one of

the nursing students were not comfortable and/or would not consent to the observation of the HPS live educational session, no observation session would be conducted at that time and there would be no reprisal as a result. All three groups, fortunately, consented to the my role of 'observer as participant' during their HPS educational event in real time. On completion of each of the observation sessions, I also provided an opportunity for questions and etiquette and closure followed.

Semi-structured interviews played a key role in the data collection process of this grounded method study (Schreiber & Stern, 2001). The decision to use semi-structured interviews for this study was guided by the nature of the research question and the chosen method (Glaser, 1978). The inductive nature of the study, seeking to identify the process that nurse educators used to prepare for HPS teaching and learning, required an indepth and multidimensional approach that would be best served by the semistructured interview method. Perry, Thurston and Green (2004) assert that in the process of entering into the semistructured interview, the researcher must be aware that the result of the interview is an understanding of the meaning of the experience. I gleaned meaning from the nurse educators who willingly provided their perceptions of their own preparatory experiences in the HPS environments. Therefore, as Dilley (2004) states:

> meaning is not 'just the facts' but rather the understanding one has that are specific to the individual (what was said, how it was said,

> what the listener was attempting to ask or hear, what the speaker was attempting to convey or say) (p. 128).

The semi-structured interviews proceeded as 'conversations' with the nurse educators and were conducted at a mutually agreed upon date, time and appropriate, comfortable location (Campbell, Schwier, Kenny, 2006). Each interview was audio tape-recorded and lasted between 40 to 110 minutes. The interview guide questions were derived from the preliminary literature review. The dissertation supervisor, who is an expert in the area of grounded theory research, checked the content validity of the proposed questions. In addition to this critical research component, the dissertation supervisor provided ongoing guidance, invaluable feedback and posed insightful questions throughout the challenging and meaningful research journey.

A range of open-ended questions facilitated the interview process for the nurse educators (Appendix F, G). The participants were provided the opportunity to describe their preparatory experiences and express their opinions and feelings about their actual experiential teaching and learning encounters within the HPS environment from their own personal perspectives (Ploeg, 1999). The interview process allowed for the acquisition of rich, complex data collection and provided opportunities for clarification of ambiguity if required. The semistructured interviews also allowed me to probe further if necessary about the nurse educators' experiences. As the interviewing process evolved, capturing the content also seemed to progress. Further into the interview process, I felt I became more comfortable to ask questions, achieving further

depth in the interview discussions. Glaser (1978) refers to the evolvement of interview assemblage and data analyses as an imperative endeavor to reach saturation in the data collection process.

Data Management and Organization

Tape recordings from each interview and any additional relevant data such as field notes and memos, were manually transcribed, documented, and analyzed as soon as possible after each interview or event (Glaser, 1978; McCann & Clark, 2003). As coding progressed and categories emerged in the data collection process, each category was filed into a Theme folder. For example, the category *Feeling Lost* encompassed sub-categories such as *bewilderment, feeling directionless, isolation, and coping*. Through the process of constantly comparing the interview data, a number of folders were created, developing from the representation of the categories and sub-categories that emerged. A rigorous reading and re-reading of the transcripts for familiarity and theoretical sensitivity to the data prior to coding was the consistent path I endeavored to follow (Glaser, 1978; McCann & Clark, 2003). Constant comparative analysis progressed, with an in-depth analysis of each transcript involving examination, comparison, and reexamination of the context. Through this rigorous and time-consuming process, all the data and the variations led to a theme. The theme, in this case was the process involved in preparing nurse educators in the HPS teaching and learning environment, essentially linked all the data from those categories (Glaser, 1978). At the completion of the coding and analysis process, the identification of three main categories with a range of

four to six sub-categories resulted. The core variable, *Finding Their Way*, was central to the findings in this study, evolving from examination, reflecting upon and merging all of the context related to the categories and their characteristics.

Analysis of the data from this research study was initiated as soon as the data collection process commenced. The ongoing analysis directed the study from the outset by using theoretical sampling before the selection or focusing on a specific theme with the data collection process (Glaser, 1978).

Data Analysis and Synthesis Process

Theoretical Sampling. Central to the grounded theory data analysis process is theoretical sampling. Unlike many research sampling methods, theoretical sampling does not pre-determine the size of the sample population from the beginning of the study. The theoretical sampling process relies on the applicability of the location and the specific study participants within the study and could be altered somewhat, thus confirming it was not a prearranged plan, characteristic of the grounded theory process (Glaser, 1978).

Theoretical sampling was used to develop emerging categories by identifying the conceptual boundaries to eventually create more definitive and relevant categories reflective of the data. Theoretical sampling is considered the active and purposeful way of data collection to formulate categories that fit, work and are relevant (Glaser & Strauss, 1967). Examination of the theoretical data provided the evidence required to determine if further exploration with additional interviews or observations was needed. As coding was created with the goal of reaching a point of data saturation, I considered additional

modifications, including additional nurse educator interviews, as the study progressed. Thus, sample size was determined by this sampling process, therefore, was considered to be theoretically informed (Glaser, 1978). Eventually no new data emerged in the theoretical sampling process. It was at this point that I was satisfied that data saturation in the data collection process was achieved and no further interviews or observations were required (Glaser, 1978).

Theoretical saturation is the term used to imply the point of diminishing data return and may sound straightforward. The process found in this study, however, involved considerable analysis before a core concept became apparent (Morse, 1995). Data saturation occurred when the categories and subcategories had no new data emerging and all variations in categories were filtered and appropriately rationalized (Coyne & Cowley, 2006; McCann & Clark, 2003; Strauss & Corbin, 1998). Therefore, theoretical saturation in this study was identified as the point at which any continuation in data collection yielded only repetitive theoretical material and no further relationships or characteristics of the categories were generated from the data (Glaser, 1978). Theoretical saturation signified that coding for the determination of the final core categories, namely *Muddling Through, Introspecting, and Questing to Evoke and Enrich,* was concluded.

The primary aim of data analysis in the grounded theory method was to reveal the core variable, *Finding Their Way,* which was found to elucidate the central theme for the preparation of the nurse educators as they became

immersed in their HPS experiential teaching and learning process. This core variable emerged as the recurring dimension in the data (Glaser, 1978). Characteristics of the core variable related to all of the categories and sub-categories and their properties and provided the 'soul' of the generated theory (Glaser, 1978). The search and emergence of this core variable was paramount to the development and generation of a grounded theory.

There were two essential methodological approaches in the constant comparative analysis used in this study: coding and memoing. The coding process will now be addressed.

Coding. Coding refers to the fundamental analysis process that involved categorizing, with the intent to conceptualize the data into patterns (Strauss & Corbin, 1990). In accordance with the tenets of grounded theory, coding refers to: a) *substantive coding* (including both *open* and *selective* coding); and b) *theoretical coding* (Glaser, 1978; Glaser, 1992; Glaser & Strauss, 1967).

Substantive Coding. Substantive coding refers to the sense of connection to the essence of the research entity in question, in this case being nurse educator preparation in the HPS environment. This stage of coding involved deconstruction of the data into smaller pieces in order to classify relevant categories (McCann & Clark, 2003). Single or multiple words or phrases were selected, highlighted and labeled as codes throughout the transcribed data (Glaser, 1978). Substantive codes were formulated based on the nurse educators' self-descriptions and/or perceptions of the experiential teaching and learning process in simulation education. During this process, I

was guided here by the open-ended questions that simultaneously helped to focus the study and allowed for nurse educators to report freely to best describe what was actually going on in their efforts to prepare for using HPS in the educational environments. These codes were substantive in that they derived from the nurse educators' own words, referred to as in vivo (Stern, 1980). Therefore the substantive codes "conceptualize the empirical substance of the area of research" (Glaser, 1978, p. 55). For analytical purposes, substantive coding was divided into two types of coding: *open* and *selective*, and I will examine these separately.

Open coding, the initial phase of substantive coding, involved analyzing each line of data with the goal to identify similar patterns or configurations to assist in conceptualizing the data. This preliminary level of analysis helped to guide the direction of this study by utilizing theoretical sampling before selection and focusing on what seemed to be an emerging enigma (Glaser, 1978). Through the course of coding, I was consistently asking questions about the data, constantly comparing the data, and grouping the data into identifiable patterns. I commenced the process of coding by tentatively classifying various facets of the data that were perceived to be important. A list of concepts from the nurse educators' world were initially extracted by me through examination of the line-by-line and word-by-word type of analysis. The initial step in conceptualizing the data was to code these patterns; thus, the data formed into conceptual 'labels' or themes (Glaser, 1978; McCann & Clark, 2003). This open coding was guided by open-ended questions. The first question posed

was: What precisely is reflected in this research data? What emerged was the actual process involved in preparing nurse educators for their HPS teaching and learning role? Further questions arose directly from the data. These included but were not limited to: What specific themes are represented in the data? To what category do these themes belong? Are they discrete or do they fit elsewhere for example in another category? What exactly is the social psychological process reflected by these themes/categories? How do these themes relate to the interaction between the nurse educators and the students? These and many other questions emerged from the data analysis process, generating a focus towards development of a core variable (Glaser, 1978).

Open coding allowed for single units or groups of phrases that were identified and labeled as codes, thus beginning the process of scrutinizing and comparing the data in every possible way. Through this process of deconstructing and constructing the data into separate entities, emerging themes derived from the nurse educators' experiences and conceptualizations were generated (Glaser, 1978). The intensive process of analyzing and linking these substantive codes that "conceptualize the empirical substance of the area of research" were in contrast to theoretical codes which "conceptualize how the substantive codes may relate to each other as hypotheses to be integrated into the theory" (Glaser, 1978, p. 55). Substantive codes are classified into two categories (Glaser, 1978): 1) those using the participant's own words (referred to as in vivo codes), for example, "*feeling lost/isolated," "barely coping," "winging it", "spinning wheels;"* and 2) those constructed by me to represent

the meaning of the data. I strove to uncover as many categories as possible for the purpose of developing meaningful interpretation that emerged directly from data. As the data process progressed, codes were continually reviewed to ensure reliability in their relationship to the data and unrelated codes were rejected. Throughout the data collection process, the perpetual question remained: What is truly going on in the process involved in preparing nurse educators in their HPS environment? As a result of this coding process, conceptualizing of the data began.

Selective coding. The integral and next level of substantive coding was the selective phase in which the core variable emerged. Selective coding involved the filtering or reduction process of the data analysis in the quest for the core variable (Glaser, 1978; Myrick & Walker, 2006). Questions that guided the course in describing the basic social psychological processes in this phase included: What was actually going on in the data? What was truly the focus of this study? What was the actual relationship of the data in this study? How did nurse educators actually prepare for the HPS teaching and learning events? What were the distinguishing phases and/or attributes that nurse educators' reflected in their HPS preparatory process? This analytic phase delimited classified coding only to those categories related to the core variable (Glaser, 1978; Myrick & Walker, 2006; Stern, 1980). It was during this stage of the research process that contemporary literature was drawn on to affirm more data sensitivity to the concepts grounded in this research study.

Finally, by way of a thorough filtering and comparison process, the core variable, *Finding Their Way,* was identified. I continually re-examined the data to ascertain the appropriateness of the core variable. With the core variable evident, I revised and amalgamated some of the diverse categories and subcategories to ultimately assimilate the theory with the respective groupings.

Theoretical Coding. Theoretical coding, the second level of analysis in the substantive coding process, resulted in the ordering and emerging of interrelating substantive categories "which fit, work and are relevant for integration into a theory" (Glaser, 1978, p. 56). Theoretical coding, examined the relationships among the substantive categories to establish the conceptualizations of a potential theory or dominant theme (Schreiber & Stern, 2001). It was during this process that I compared new data with emerging clusters of data to determine the individual category that fit the grouping of substantive codes. Flexibility is a characteristic of this analysis process as there were adjustments to finalizing the central themes as dictated by the data. The evolution of constantly comparing data, including new data and emerging clusters of data, ensured that the categories determined were mutually exclusive (Glaser, 1978). Again, the substantive codes were delimited and theoretical coding resulted in higher-level conceptual abstractions (Morse, 2001; Myrick & Walker, 2006). During this coding stage, accordingly, I was being guided by a theoretical pattern that emerged. Delineation of the number of categories were finally considered as it became apparent that no new categories emerged from the data, confirming saturation was evident. Thus, I collapsed the substantive

codes into the prominent themes of *muddling through*, *introspecting and questing to evoke and enrich.'* The conceptually complex core variable that emerged, *Finding Their Way*, resonated from all the linkages between and among the substantive codes and resulting themes (McCann & Clark, 2003). (See Appendix J for Table 2: Summary of Findings).

Memoing. Memoing, an essential component to the grounded research method, concluded the methodologic approach used in this study. Memoing included my inductive notes recorded throughout the research process. Memo writing also deductively helped to assess the conceptual inter-relational fit of the codes and categories and further explained the developmental process of the emerging theory (Glaser, 1998; McCann & Clarke, 2003). Memo writing was a means of collecting and storing analytical ideas as they occurred throughout the study. At the commencement of the research process, I sat down and reflected upon the pre-existing assumptions and reflections of my own preparation with the integration of HPS in the teaching and learning environments. Self-awareness of the process and the possibility of influencing the data collection process was an important analytical consideration at the outset of this research study. Vigilance to '*being true to the data*' was foremost in the my mind. A placard with this phrase was created as a reminder and kept nearby throughout the entire data collection and analysis process. I then also consistently jotted down ideas and notions down throughout the process. Through memoing, I was more diligent to ensure the ideas were not lost in translation and expounded on relevant gaps in the theoretical sampling process. Questions that emerged

during the memoing process of coding and categorizing included: What was actually going on in the coding process? How did the codes relate to one another? Were the individual codes independent or could they be inclusive in another thematic code? What were the interrelationships that influenced the code distinctions? How were the autonomous codes determined? The memoing data enabled further conceptualization of the entire analysis and led towards a clearer understanding of the evolving theoretical process. Memoing served to elevate the data with deeper analysis of categories to a conceptual level, resulting in a more accurate interpretation of the developing categories.

Stern (1980) indicates that the process of memoing 'preserves emerging hypotheses, analytical schemes, hunches, and abstraction' (p. 22). Throughout this research study, memoing, as a crucial tool in the grounded theory coding process, served to fill in the gaps, tying up or removing loose ends in the abstraction and theory development process (Glaser, 1978). The substantive theory development was guided by the inductive method processes.

Mechanisms to Ensure for Rigor

The underpinnings of rigor and logic, critical in the qualitative research process, were addressed throughout this grounded theory study. Theory development was based on the systematic and rigorous analysis of the captured data that resulted in an emerging theory. The four criteria espoused by Guba (1990) and Guba and Lincoln (1994) were used for the appraisal of rigor and trustworthiness in this research endeavor. These criteria included: a) *credibility* for the assessment of truth of the participants' experiences; b) *fittingness* for the

evaluation of applicability and transferability; c) *auditability* for the assessment of consistency; and d) *confirmability* for the assessment of neutrality. Mechanisms were instituted to ensure that these criteria were achieved and that rigor was strengthened in this study (Sandelowski, 1993).

Credibility. The concept of credibility, a criterion that reflects the truth-value of the findings, was achieved through several activities. Firstly, the individual nurse educators' experiences and how they related to the study's findings and eventual emergent theory offered credibility to this research study (Charmaz, 2000; Schreiber & Stern, 2001; Speziale & Carpenter, 2007). Further, I had the nurse educators corroborate the data through the member checking and member validation process. Member checking, considered the single most important technique for the establishment of credibility, involved returning the transcripts to the informants to verify whether or not their input truly reflected their experiences (Guba & Lincoln, 1994; Yonge & Stewin, 1988). By providing an understanding of the context of the study and engaging the nurse educator over time in the data collection and analysis process, I made the effort to develop rapport and establish trust. The act of actively engaging research participants over time is also considered a means of establishing credibility (Lincoln & Guba, 1987).

Another method of member checking to determine accuracy of the grounded theory findings was taking the final themes back to the nurse educators to determine their accuracy (Creswell, 2003). Only time will tell if future discourse by nurse educators in diverse HPS teaching and learning

environments recognize these findings to be true to their own experiences and could potentially contribute to further evidence of credibility.

Finally, the credibility of a qualitative study also depends on the credibility of the researcher (Lipson, 1994). The qualitative researcher serves as the instrument through which the flow and analysis of data occur. To ensure credibility and transparency, researchers should explicitly disclose their qualifications and experiences.

My professional and personal repertoire of experiences had a definite influence on the selection of the research topic. Having served in both leadership and clinical practitioner roles as an administrator, consultant, educator and novice researcher in the HPS environment for well over a decade, I have had personal experiences in the preparatory process of a nurse educator in this evolving clinical healthcare simulation environment. Throughout this study, I continued to be actively involved in numerous committees and projects related to initiatives in HPS accreditation, education and research as a current member and/or co-chair within the internationally recognized Society for Simulation in Healthcare (SSH). SSH is a broad based, multi-disciplinary, multi-specialty society with ties to all medical specialties, nursing, allied health paramedical personnel and the healthcare industry that promotes improvements in simulation educational methods, HPS practitioner assessment, and patient safety.

Fittingness/Transferability. Fittingness or transferability refers to the likelihood that the study findings have meaning *and* are transferable to similar

contexts and situations (Speziale & Carpenter, 2007). I conferred with other independent experts, including other healthcare disciplines, to confirm the fittingness of this study for future potential users. Specifically, content experts from a medical specialization and the paramedical education field concurred that these research findings may also have meaning and transferability to their own situations and environments.

The fittingness and transferability for this study is yet to be determined as implied by Lincoln and Guba's quote (1987):

> 'It is …..not the naturalist's task to provide an *index of transferability*; it is his or her responsibility to provide the database that makes transferability judgment possible on the part of potential appliers.' (p. 316)

Auditability. Concrete evidence of an audit trail, to replicate the path that I took on this research endeavor, provided auditability for the interested external populations, that is, external readers and researchers. The mapping of all the relevant and inclusive written materials (including memoing, field notes, personal reflections, and audio tape-recordings) on this research journey, leading to the code and core variable development, provided evidence of this process criterion (Lincoln & Guba, 1987). I made a concerted effort to maintain accurate written documentation and a tracking system was executed in the effort to ensure audibility. Future researchers could straightforwardly follow the pathway provided to arrive at similar, perhaps more enriched, results and conclusions (Yonge & Stewin, 1988).

***Confirmability*.** Together, credibility, auditability and fittingness/transferability demonstrate the confirmability of the findings (Guba & Lincoln, 1994). The process is said to be comparable to a fiscal audit (Lincoln & Guba, 1987). Clearly, with the evidence and thought processes leading to the core variable and emergent theory, I diligently collected the data, became immersed in the data and confirmed the findings. I endeavored to include numerous direct quotations from the research data in the final dissertation as this also is considered an important measure of confirmability (Lincoln & Guba, 1987). Another strategy to enhance confirmability is to include any negative instances that contradicted prior observations in the data collection and analysis process. Negative case analysis is another critical component of theoretical sampling (Strauss & Corbin, 1990). Finally, only replication by another researcher to determine whether or not the matter of saturation has been reached could produce another view of this process criterion (Lincoln & Guba, 1987: Morse, 2001).

The dissertation supervisor provided guidance and feedback during regular meetings throughout the research journey. This mechanism ensured the criteria of *credibility*, *fittingness*, *auditability*, and *confirmability* were achieved and maintained to enhance rigor of this study.

Chapter 4

FINDINGS AND DISCUSSION

> ***"Diversity can never be fully addressed to the satisfaction of all involved. There are just too many variables to be accounted for, too many choices, too many contradictions. But neither can we just throw up our hands in bewilderment and refuse to acknowledge that we are working in increasingly diverse 'classrooms.'"***
>
> **(Brookfield. S. 2006, p. 170)**

Nurse Educators Preparing for the Use of High-fidelity Human Patient Simulation: A Process of Finding Their Way. This dissertation journey principally involved the in-depth interviewing and analyses of 17 nurse educators' personal perspectives vis-à-vis what transpired in preparing for the teaching and learning process within the HPS environment. *Finding Their Way* emerged as the core variable or the social psychological process that occurred as the foundation for the nurse educators' preparatory pathway into the world of health simulation education. My ongoing deliberations and reflections ensued throughout the entire investigative endeavor. The research pursuit was also augmented by the in-depth simulation observation of three independent groups of undergraduate nursing students, facilitated by three individual, autonomous nurse educators. These teaching and learning groups were immersed in the unfolding of diverse, experiential HPS learning episodes. Through the observation of the nursing students and nurse educators in this process, I garnered further evidence and thoughts on the spectrum of what actually occurred within the teaching and learning HPS process. The grounded theory method allowed for legitimizing the examination of the process to determine *what was actually going on* within the HPS experiential teaching and learning

environment and *not what ought to have been going* on (Glaser, 1998, 1999, 2005; Glaser, 2002, p 14). Recurrent themes subsumed in the data emerged in the transitioning collection process.

Three key variables integral to the social psychological process of nurse educators *Finding Their Way* while preparing for the HPS environment included: (a) *muddling through* the teaching and learning spectrum; (b) *introspecting* on the teaching and learning challenges, experiences, and requisite skills; and (c) *questing to evoke and enrich* within the dynamic HPS milieu to arrive at the desired destination: a learner-centered focus. A diagram depicting this complex transitioning process of *Finding Their Way* is revealed in Figure 3-1(Page 63 and Appendix K). *Finding Their Way* was found to encompass the entire social psychological process intrinsic to which are three ambient characteristics, namely: *Muddling Through; Introspecting; and Questing to Evoke and Enrich.* These subthemes are represented by smaller generated categories derived from each characteristic which emerged in the developmental process, resulting in a multifaceted whole. Thus, the interrelated characteristics result in an evolving whole process, representing, ultimately, arrival at a destination.

The complex social psychological processes that emerged as the nurse educators were *Finding Their Way* is represented in the three additional diagrams (Figures 3-2, 3-3, and 3-4) to separately represent each major theme. The nurse educators progressed through stages of gradation as they increasingly became more acquainted with the teaching and learning process involved in

HPS education. Each of the three ambient characteristics depicted in the schematic transpire into the broader context resulting in *Finding Their Way*.

Findings from this study provided nurse educator revelations as they advanced through several phases in their HPS educational journey. Their progressive quest for insights and illumination, indeed, exposed many personal disclosures throughout the entire interview process. As unique and diverse as nurse educators can be in their experiences and education, their individual discoveries and developments naturally occurred at different stages within the process of *Finding Their Way*. What was conventional from the onset was that the nurse educators in this study were found to begin the preliminary phase of the journey in a sense of bewilderment or *muddling through* and, often, were faced with confounding challenges and questions. Through the process of *introspecting*, nurse educators came to terms with their role while immersed in their transition by reflecting, clarifying and evaluating (Prion, 2008). Generally, nurse educators appeared to assume a proactive approach regarding their own self-improvement in the HPs educational schemata. The process of introspecting led to the quest for evoking and enriching their educational roles, striving for excellence and best practices in the HPS teaching and learning environment. The questing process in this study revealed an enduring pathway, one that would continue to be a lifelong pursuit in the world of education. ‘The sky’s the limit’ (Syracruse Herald, 1911) may be considered to portray this actualization.

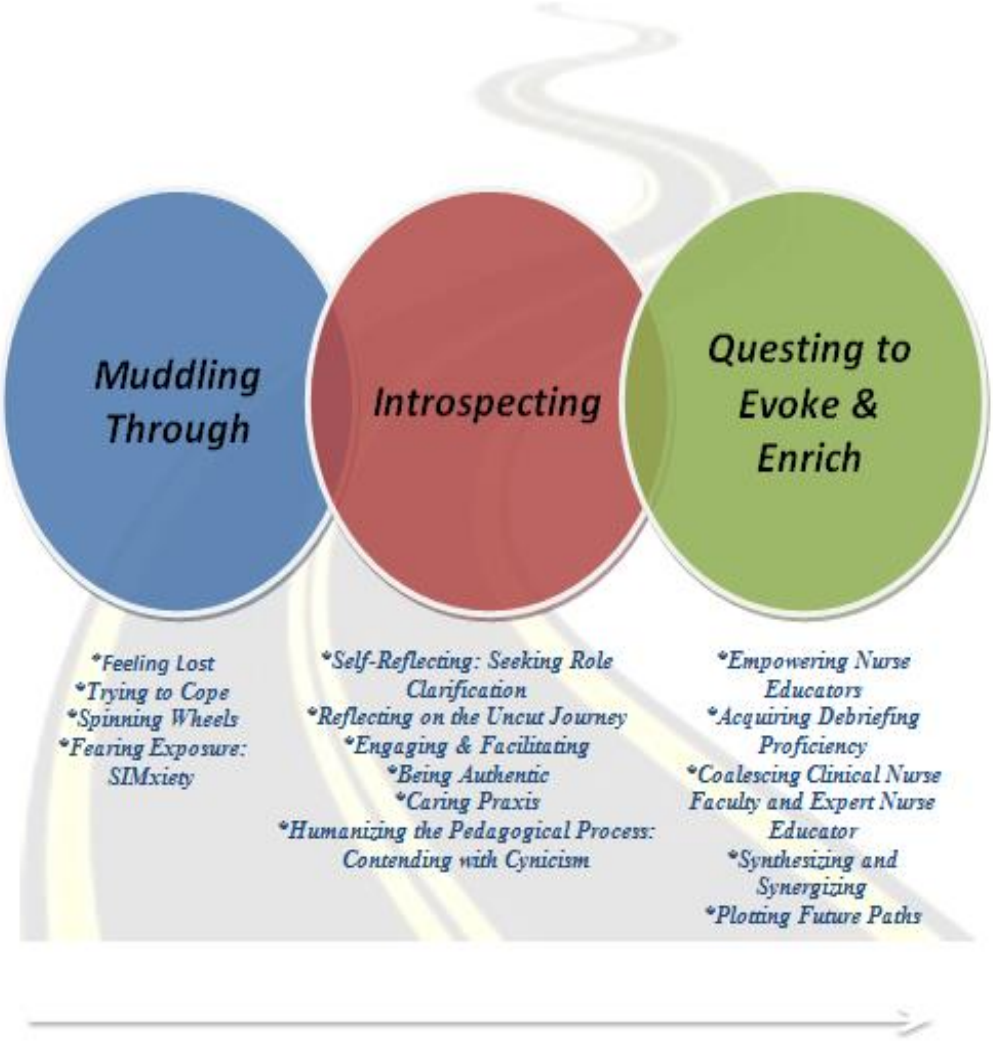
Significance of the diagram representation. The interrelated and multifaceted relationships of the themes are depicted in the diagram (Figure 3-1, p. 63) that represents the conceptual model. This model was created as it best represents the advancing processes that occur in this research study. The phases were found to be overlapping and also emphasize the gradual growth and progression of the social psychological processes that are interpreted from the nurse educators' journey in *Finding Their Way*. *Finding Their Way,* symbolically, is also depicted in the study's diagrammatic representation with inclusion of a pathway image. This pathway signifies the nurse educators' insights and progression as they journey through their preparatory process.

Nurse educators' viewpoints of their experiences, in the preliminary exposure to HPS, provided prolific data for the social psychological process of *Finding Their Way* in preparing for HPS integration. The participants clearly and repeatedly articulated key emotions, introspective thoughts, challenges and potential solutions, throughout the entire process. For the purpose of confidentiality, anonymity and sensitivities each nurse educator was provided with a pseudonym to protect their identity and viewpoints.

Muddling through, as a key dimension on initial exposure to simulation in nursing education, was manifested by *feeling lo*st, *trying to cope*, *spinning wheels* and *fearing exposure*, ultimately causing what could feasibly be considered undue nurse educator stress.

Figure 3-1

Nurse Educators Preparing for the Use of High-fidelity Human Patient Simulation: A Process of Finding Their Way



We begin with the first characteristic, *muddling through*, in the nurse educators' developmental process of *Finding Their Way* in preparing for high-fidelity patient simulation in teaching and learning.

Muddling Through

The initial exposure of nurse educators to the HPs environment triggered characteristic expressions and revealed a diversity of emotions. The interpretation of compelling expressions were manifested in confusion, perplexity and anxiety. These characteristics appeared in both the analyses of the interviews and during the observations of the nurse educators and their student groups in the simulation environments. Study participants clearly articulated a pervasive feeling of *muddling through* the new approaches required in this unique psychosocial teaching and learning environment (See Figure 3-2, p. 67).

Feeling Lost. Integrating unfamiliar teaching techniques and acquaintance with this HPS tool currently being embraced exponentially in many clinical education settings, clearly posed challenges for the nurse educators throughout the process (Gaba, 2004; Leigh, 2011: Lupien, 2007; Nehring & Lashley, 2009). More often than not, nurse educators relayed a muddled perception of how to effectively augment and integrate their teaching sessions using HPS. Frequently, they expressed *feeling lost*, as indicated by the several nurse educators (Violet, Colts, Mary and Taylor) and concisely articulated by one nurse educator:

> There was no direction really.....it was learn as you go. Just going in and winging it...I was lost...Bigtime! (LeeLee, Interview #17, Lines 10-11)

Another nurse educator expressed her view, reinforcing the lack of formality as well as questioning the emphasis on the technology and not the teaching and learning process:

> Originally it was all technology focused…You know….how do you turn it on….don't be afraid of the compressor sound. Here's how you use it and turn it off. That was really the first sort-of *formal* education that I received. But there was a lack of essence of how to you actually teach with it (HPS). I thought…how do I really use this? The pedagogy was originally missing from the orientation to the simulation (HPS environment)….(Cricket, Interview #1, Lines 10-14).

For some, more than others, it was an immense struggle, muddling through, or coping, with the use of new technology and integrating simulation as an effective and valid teaching method. There were also countless questions as to what was the best way to engage the learners in the entire process of the nursing simulation educational event. At times the nurse educators conveyed many misconceptions and expressed that they were often mystified with the integration of the different high-fidelity simulation computerized manikins created to bring life to the teaching and learning process. Simulation, presented as a new educational and entertaining opportunity for a bona fide, relevant and useful teaching/learning experience (Jeffries, 2007; Lasater, 2007) seemed so

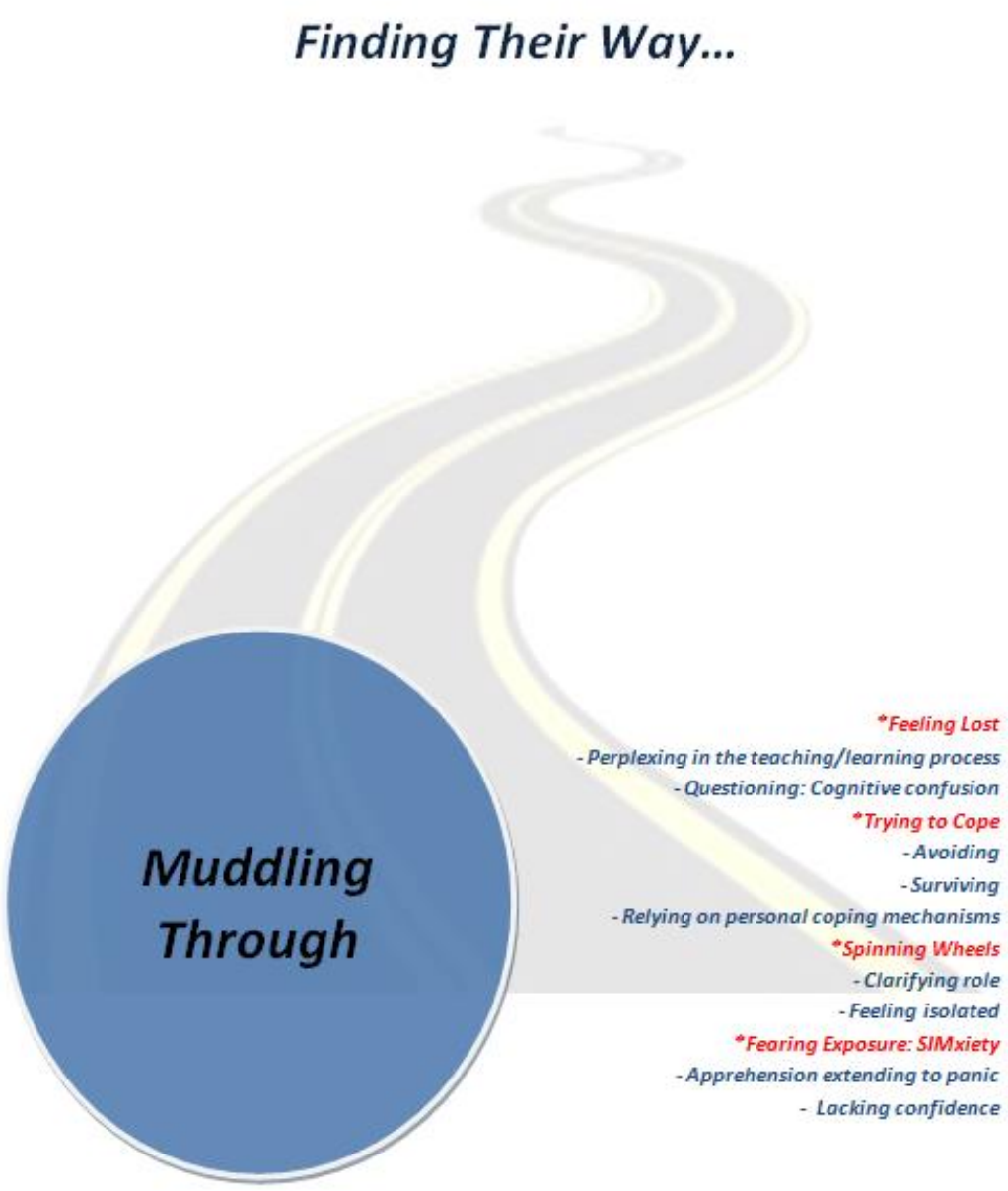
foreign and somewhat outlandish to some nurse educators in the tutoring of the undergraduate nursing population. This perspective was identified by two nurse educators who, following the initial installations of the various human patient simulators in the clinical lab environment, were skeptical, unconvinced, and vocal regarding of the value of HPS. One nurse educator stated: "Who on earth would believe *that* was a patient? It doesn't look real…it's almost comical! I've never seen something so unreal looking……Do you actually think we can convince our students that this is a real situation…..when *they* look like that!" (Ivy, Interview #4, Lines 56-58)

Simulation was not a new concept, as there was a wealth of evidence indicating how integrating low and medium fidelity models proved beneficial in accomplishing learning objectives (Decker, Sportsman, Puetz & Billings, 2008; Gaba, 2004). Increased opportunities for nursing students to obtain practical clinical hours that were diminished or non-existent, were also created as a result of integrating the HPS tool into the teaching realm (Leigh & Hurst, 2008; Nehring, Lashley & Ellis, 2003; Nehring & Lashley, 2009). Consequently, to some degree, receptiveness to the use of HPS as an adjunct technique in nursing education, was thus precipitated. As indicated earlier, however, endorsement was not always the case, as reflected in a senior nurse educator's poignant comment:

> Not everyone buys in....you need to be passionate and creative, willing to think outside the box in simulation ....and be open to naysayers. You need to be strategic about how you bring those educators into the fold.

Figure 3-2: Muddling Through

Nurse Educators Preparing for the Use of High-fidelity Human Patient Simulation: A Process of Finding Their Way



> You have to be *Totally* thick skinned! If I walked into the staff room and talked about simulation (I was *Totally* into it) there was silence.....nobody wanted to come forward and support it. And...it was like ….looking at me.....like I had a third eye." (LeeLee Interview #17, Lines 42-44).

Not so very long ago, HPS did not attract the growing interest in nursing that was evident in other professional healthcare disciplines (medicine, pharmacy) and allied healthcare programs (paramedicine, respiratory medicine) (Gaba, 2004, Nehring & Lashley, 2009). Despite the mounting evidence that simulation was producing better outcomes by integrating critical thinking into the undergraduate nursing education programs (Saucier, Stevens, & Williams, 2000), there was not the corresponding impetus of nurse educator support. Notwithstanding evidence of improved patient care as a result of simulation integration (Nehring, Lashley & Ellis, 2003; Seropian, 2003; Seropian et al. 2004a, 2004b), lack of infrastructure support was repeatedly identified as a fundamental challenge. A comprehensive educational foundation required to provide the pivotal acceptance, initiation and ongoing faculty development required for integration and imbedding HPS techniques within the nursing curriculum was found to be woefully lacking (Leigh, 2011).

The greatest challenges acknowledged by nurse educators in this study were often not the technological aspects of what is often referred to as a technical revolution in nursing education (Axley, 2008). Rather, it became evident that it was the need to adequately prepare nurse educators in the use of

this new approach to nursing instruction. Moreover, it was the ongoing necessity to explore the nuances and practices to make the experiential, immersive learning process the best it could be. After all, the trends of critical thinking, as an impetus to new, effective teaching modalities, was pivotal to creating the most well-prepared nursing professionals who would advocate for their future patients' care. HPS was less of a didactic teaching method and more of a strategic, interactive, and immersive experiential teaching and learning process in the pursuit of excellence to prepare future nurses to provide safe, competent, patient care. From this perspective then, nurse educators were found to be striving to cope with the change that was occurring within the familiarity and comfort zones of their long-established and habitual teaching methods.

Trying to Cope. Nurses are required to be equipped with the knowledge and experiential learning skills to facilitate their use of 'simulation as a technique' for guided learning experiences that replicate areas of the real clinical nursing world (Gaba, 2004). What was found to prevail in the muddling process, was reliance on individual coping mechanisms. In this context, the concept of using a coping mechanism is closely related to the idea of survival. Coping refers to the capacity to respond to and recover from this type of stress. When considering how nurse educators initially reacted when confronted with incorporation of this technique, their ability to cope was found to be particularly relevant (Gaba, 2004; Jeffries, 2006, 2007). Several nurse educators, uncertain as to how they should proceed, frequently drew on their own individual coping

mechanisms. For example, in many instances, they stated that they would have appreciated some coaching or collegial help in the process.

Without the support that is required to develop competencies in the integration of using simulation technologies for clinical nursing education, nurse educators described how they coped with the sense of floundering in their educational roles. Examples of the coping strategies identified by the nurse educators in this study were: exercising self-control, positive self-talk, avoidance, compartmentalization, various relaxation techniques, 'taking a deep breath' and plunging into the challenge, and even incorporating humor (Chesney Chauvet & Hofmeyer, 2006) into their teaching.

Representative responses of how nurse educators revealed their coping follow:

> I don't even really recall clearly how we were prepared for the debrief. We just did it all together and took on the challenge. The way it was set up, we initially only ran one group of students at a time. Basically I just gave the chosen simulation scenario ahead of time to the nurse educators and that they were welcome to participate in the debrief. But they (nurse educators) were primarily there as observers at first. So there was no real 'formal' preparation as such. I think that was it. We coped together. They just watched me do it, and I was new at it…..Luckily, we survived…… (Lily, Interview #6, Lines 62-69)

Another candid nurse educator indicated her approach as follows:

I coped by going into this with an open mind……(Snowy, Interview #3, Lines 293- 294)

Coping seemed to be a strategy that was at play with the sense of isolation found to permeate the initial encounter by nurse educators as they struggled to incorporate simulation education into their teaching.

Spinning Wheels. Intrinsic to a sense of *spinning their wheels* in an effort to transition to their more 'unique' clinical nurse simulation educator role, participants articulated a feeling of isolation. In addition, the perception of added responsibility was identified by those nurse educators with more experience in simulation. Many of the novice nurse educators in simulation education expressed a sense of continued struggling and questioning the perceived nuances using this strategy. Those who were considered the 'experts' or 'champions' were clearly identified and had added pressure of being known as the 'ones to go to' although these more seasoned nurse educators in simulation were also relatively new to using HPS.

All interviewees were seasoned nurse educators with five to 35+ years of teaching experience in undergraduate nursing education. These nurse educators indicated that they possessed the necessary skills required for teaching including knowledge, experience and preparation for their faculty role; a varied range of exposure to curriculum/course development; and, evaluation and testing. Ostensibly, they possessed the requisite skills for nurse educator faculty, as espoused by the deans and directors in a large national survey (American Association of Colleges of Nursing, 2008).

Those experienced educators, however, who expressed feelings of isolation indicated this state of mind also contributed to some of their discomfort and lack of confidence in their preparatory role using HPS as a novel technique within their curriculum. As stated by one nurse educator:

> I was just out on my own…..I had really no support. It was kinda like treading water when you first learn to swim….trying to figure it out on my own….and this added to the stress in not being confident or really prepared…..(Lily, Interview #6, Lines 90-92)

As a result of these feelings of isolation, initially nurse educators seemed to focus more on their individual teaching techniques and styles within the HPS environment. Consequently, some nurse educators verbalized the lack of self-assurance on the learning results of the students (Beres, 2006). One nurse educator specifically commented on experiencing a kind of professional isolation. She elaborated that it "feels like you have nobody to turn to" (Snowy, Interview #3) immediately or following the class to discuss and share concerns on the educational challenges or issues such as ideas on how to address potential confrontations by the students or students that belittle the educational opportunity. This nurse educator went on to say:

> And some students, especially in our program…. students are very straightforward. It can be intimidating sometimes. Some students blatantly questioned me "So why did you say that? That's not what I read…" related to the context of the scenario.

> So I felt really challenged in that situation. It would have been nice to have a simulation colleague there my first time….. I didn't get any mentorship….No…I just kind of…SimLab…Here We Go! (Snowy, Interview # 3, Lines 232-248)

Asking professional colleagues and/or mentors for assistance or buddying by the novice nurse simulation educators was indicated as not being the norm. Nor were other nurse educators easily accessible during their individual HPS scheduled teaching times. Moreover, faculty were preoccupied with their own individual teaching assignments. A potential strategy conveyed by a number of nurse educators was having a designated person to buddy them in the first few HPS educational sessions. In order to help increase the nurse educator's level of comfort and self-confidence in this initial process of *muddling through,* especially during their first HPS experiential sessions, many suggested that it would have been beneficial to have had ongoing support from an experienced colleague. As one nurse educator so poignantly stated in her initial teaching and learning session with her nursing group:

> It was the blind leading the blind..(Bleep, Interview #8,Line 16)

Muddling through encompassed a sense of: *feeling lost, trying to cope, spinning wheels* in addition to often feeling isolated thus causing the nurse educators anxiety. All these emotional states were conveyed by the majority of the nurse educators in this study as contributing factors to their feelings of anxiety and a lack of confidence. In the culmination of the *muddling through* process, another relevant sub-theme emerged that involved a fear of exposure.

In addition, pervasive feelings of anxiety surfaced in which I identified a link to the fears perceived by the nurse educators and described this as *SIMxiety*.

***Fearing exposure and SIMxiety*.** Not only was coping and a feeling of unease voiced by nurse educators in the *muddling process,* it was discovered that '*SIMxiety*' was also experienced and articulated by the nursing groups, a term I coined to describe the anxiety response participants experienced (both nurse educators and undergraduate nursing students in this study) as they engaged in the simulation educational process. Many of the nurse educators interviewed as well as some of the nursing students expressed a sense of feeling threatened and unsafe in the simulation environment. Some students also identified being poorly equipped to deal with the angst as they anticipated an 'impending and stressful teaching/learning event' for which they were not entirely prepared. One nursing student, prior to actualization of the simulation scenario, stated: "I didn't sleep all night in anticipation of this…..I hope my nerves settle down."

There was also an extenuating circumstance cited by one nurse educator who encountered a student phobia of manikins. The nurse educator, who admittedly had limited experience dealing with phobias, was faced with an acute phobic reaction by the nursing student in the HPS event and managed to effectively handle, albeit unexpectedly, dealing with this unusual and acute teaching and learning situation. Unusual circumstances, not only dealing with psychiatric disorders, but awareness in general of the potential for graphic imagery and/or acute recent upsetting personal experiences (for example, recent

personal encounters with deaths, traumatic events) of the students may need consideration when proceeding with certain HPS disturbing scenarios (Jones & Hegge, 2007).

The descriptive term *SIMxiety* was coined to capture the expressive feelings and physical signs of anxiety that predominated the analysis. Nurse educators' and undergraduate nursing students' sentiments in their initial exposure to HPS were prevalent throughout the analysis of the interviews, anecdotal notes, observations and memoing. There was overwhelming evidence of '*SIMxiety*' found in this study such as expressions of 'trepidation' by some students expressing 'my heart was just pounding,' to apprehension articulated by nurse educators such as 'I worry as to how is this scenario going to unfold and will I make it a good experiential session' (Mary, Interview #11) to foreboding concern and worry by both nurse educators and nursing students on what to really expect about the actual learning that would happen. The initial exposure integrating the HPS into the clinical teaching and learning process in clinical nursing education was, in essence, often reflected as daunting by both nurse educators and nursing students. As a result, the common fear of exposing oneself, often expressed as 'everyone is watching me' and therefore exposing what one doesn't know through fear of the unknown via the HPS teaching and learning environment, was found to be pervasive in both the interviews and the observation sessions. What was proclaimed to be a 'safe environment' for teaching and learning and making mistakes without risk was not necessarily considered safe at all by the nursing students. 'Being watched', expressed by

many nursing students and 'being challenged and defied' by some of the nurse educators were examples found in this study demonstrating the pressures that appeared to manifest psychosocial tensions involved in the teaching and learning process. *Muddling through* this initially intimidating process eventually led into a period of introspection.

Introspecting

The internal self-analysis, recognized as the *introspecting* theme in this study, emerged as a part of the reflection process that appeared to inevitably occur post HPS teaching and learning events. Nurse educators revealed a multitude of sub-themes evolving from the introspecting process and included: *self-reflecting***;** *reflecting on the entire journey*; *engaging and facilitating; being authentic*; *caring*; *and humanizing the pedagogical concept.* We continue on, vicariously living the nurse educators' process of *introspecting* (See Figure 3-3, p.77).

***Self-Reflecting: Seeking Role Clarification*.** Ambiguity of the nurse educator role in simulation resulted in many pondering and seeking out ways to ensure they were 'on the right track' in terms of figuring out what their educational role was in this unique learning environment. Through this introspecting, or what may also be referred to as personal reflection (Bulman & Schutz, 2008), the nurse educators were seeking role clarification. In accordance with the 'reflection' definition by Bulman and Schultz, 2008, the nurse educators were "reviewing experience from practice so that it may be described, analyzed, evaluated and consequently used to inform and change

Figure 3-3: Introspecting

Nurse Educators Preparing for the Use of High-fidelity Human Patient Simulation: A Process of Finding Their Way

future" (p.2). Self- reflecting was a critical part of the process in seeking nurse educator role clarification in simulation environments. It is considered an essential attribute for competent nurse education professionals (Mann, Gordon, & MacLeod, 2007; Schon, 1983, 1987). For example, one nurse educator described how she initially perceived her role in simulation education in this way:

> Reviewing back on my role, and reiterating the philosophy behind the simulation lab environment, it was my intent to create a supportive learning environment for the students. So just to focus on that….that should be my role as nurse educator in simulation….(Snowy, Interview # 3, Lines 11-14).

In the early stages of HPS integration, the nurse educator role appeared to be multi- tasking, thus performing many roles, including scenario developer, simulation technician, and debriefer. Simulation technician training was essential to ensure proper operation of the simulators. However, if the nurse educator's focus was on the operation of the equipment, this seemed to play a part in creating anxiety and lack of teacher/learner focus within the simulation educational episode, according to several nurse educators in this study. Although there were mixed views on the role of nurse educator acting as the simulator patient, the majority indicated there was a lack of continuity and effectiveness in focusing on the student learning outcomes if this 'distraction' took precedence. Performing dual roles as simulation technician and educator

was described as ‘cumbersome’ and ‘unmanageable’ by several nurse educators describing their teaching role within the HPS scenarios.

The other variance that appeared to be a challenge was that of the simulation technician healthcare experience. If the simulation technician had the technology ability but lacking in healthcare knowledge, understanding and experience, nurse educators recognized that the students may not have received as valuable an education learning outcome. As a result, the learning outcomes were found to be both intended and unintended. If the voice of the simulator patient was not an experienced healthcare provider, there were occasions of murkiness in the interpretation of what was the intent of the learning objective in the simulation event. For example, one nurse educator described this deficiency:

> The technician did not have the background knowledge to create a valuable learning scenario. Initially, the value of the faculty being the patient was most beneficial. Being the patient (nurse educator voice through the simulator), actually experiencing what the simulator should be feeling (nurse educator as the patient), what they are doing (the patient)…being able to provide appropriate cues to your students without giving the whole thing away….. faculty could better replicate those subtle variations in patient responses. They did a better job than those who are actors/technicians without the (clinical) knowledge. (Lily, Interview #6, Lines 354-370)

Another nurse educator eloquently spoke about the potential confusion created by a 'SimControl Operator':

> There is also this concept of signal and noise that you have when using technology. That is why I think you have to have an understanding of pedagogy and technology. How many times have we seen where the tutor goes into the situation and the technician, as effective as he/she is, doesn't have enough training throws all of these 'noises' at the students and the students will look perplexed…and then the students' heads are spinning. No wonder the students don't perform well. It's because they had too many things thrown at them! (Cricket, Interview # 1, Lines 408-423, 429-432)

In terms of role ambiguity, another nurse educator stated:

> So we educated ourselves on the simulators and learned the system. And we, nurse educators, were all operating as well as doing…..even after we actually got going, we started to run debriefing workshops. So we were operating the manikins and helping other educators to learn how to debrief simultaneously….We didn't have the luxury of time…. (LeeLee, Interview #17, Lines 163-170)

Self-evaluating, intrinsic to the introspecting process, was reported to have far-reaching effects on many of the nurse educators. Self-evaluating was considered an important phase in the nurse educator teaching and learning reflective process to further refine their role. This ultimately, would serve to

improve their self-confidence knowing what to actually do within their educational role, as reported by several nurse educators. Self-evaluation was also found to stimulate an openness to the planning of changes for improvement and effective simulation teaching and learning outcomes.

To best serve the students, it was determined early on that there was a need for nurse educators to acquire preparation in terms of readings, workshops, seminars, and ideally shadowing other 'champions' as identified earlier-those educators who had more simulation experience-, as groundwork for their roles in this inimitable environment. Self-reflections were initially found to be more intensely focused on the immediate difficulties and uncertainties of the nurse educator role. However, the complexity of the entire teaching and learning purview, especially in reference to the distinctions in the teaching strategies required in clinical simulation education, led to more broadly concentrating on reflection of the entire spectrum of HPS journey.

Reflecting on the Uncut Journey. Upon deeper reflection by the nurse educators in this study, it became very apparent that in order to ensure the best initial exposure and readiness for simulation education was to follow through the entire course of a simulation event and see it in action, from beginning to end. As one nurse educator articulated:

> The most important thing to do to prepare yourself as an educator for simulation is to see it happen…..to be able to visualize how simulation happens, from start to finish, to see how it actually takes place. That's when it really hits home. I saw a pre-brief. I saw an

> intra-simulation….a simulation un-fold and then I saw the debrief. I got it. (LeeLee, Interview #17, Lines 138-147)

Schon's (1983) concept of the 'reflective practitioner' is adapted in this aspect of the simulation teaching process as it expounds on the nurse educator's reflection of revisiting her experiences to not only learn from them but to frame the muddled concepts and challenges that are often inherent in the nursing educational settings. The nurse educators are learners themselves from the start, exploring their own understanding of the actions, reactions and experiences in the teaching and learning simulation environment. It was found that there were many unanswered questions as nurse educators became more immersed in this experiential teaching and learning process. One seasoned simulation educator described some of the questions posed on her reflection journey in this dynamic environment :

> What's the best way to take a group of 8 students through this simulation event? What's the best way to prompt? How do you debrief? That whole aspect was missing initially. And then how do you facilitate the experience for the students? When is it OK to let them make mistakes? How far do you let them go making the mistake? What if the students do something that is going to cause harm to the simulator patient? Do you stop or do you not? When do you debrief? Can you stop and debrief right at that point or do you wait til the scenario is done? Is it better to debrief in a pair/trio or involve everyone in the whole group?

> You know all those kinds of questions…..there was never any answers to…. (Cricket, Interview #1 Lines 233-252)

In addition to the countless queries, many nurse educators emphasized that Simulation Lab scheduling was more effective when scheduled near the end of the students' course. With time to get to know the students, engaging in simulation appeared to be a more facilitative learning opportunity. As one nurse educator underlined:

> Near the end of our time together with the students is *best*. So we know our students a bit better. There is a bit of trust there…..that the relationship/bond has been established. So it's more supportive. (Purple, Interview #7, Lines 429-432)

Engaging and Facilitating. Engagement in the simulation process was unanimously considered pivotal to the teaching and learning process. Actively engaging the students in a simulation event allowed for reflection and extension of knowledge, learning about new problems and situations, a thinking-in-action approach to understanding and refining knowledge through the interactive process. How nurse educators in this study prepared for the students in the simulation environment varied. It became evident that HPS preparation required pre-planning and participation by everyone involved, either directly or indirectly, if it was to be delivered effectively and received with positive enthusiasm by the nursing students. One nurse educator described her methods of engagement to focus on the best student learning outcomes as follows:

> I always tend to engage them by letting them know what the scenario is, what the theme and the main points are about. So the students can choose to prepare independently….The other thing I advocate and strongly focus on is engaging the students who are watching the simulation scenario as opposed to the students in the SimLab actually doing. I ask them to do care plans, develop questions-plus deltas, where they all contribute to giving feedback. I may also bring in low fidelity simulators to practice the skills or specific things they have to look for in the SimLab. No just sitting, watching…(Cricket, Interview #1 Lines 138-170)

It is well documented that a safe and non-threating environment is critical to the success of 'learner-centric' simulation education (Lamb, 2007, p. 34). Creating a safe environment in simulation not only meant student and patient safety but also emphasized trust (Gaba, 2004; Bezyack, 2007, Hovancsek, 2007). Another nurse educator underscored this element by stating:

> It was very difficult for the students to trust we were not going to evaluate them in the simulation experience as they were evaluated in simulations at other institutions. Their past experiences in Sim were very difficult…because the trust factor was just not there. They didn't believe us. It was very, very difficult to regain that trust.....(Purple, Interview #7, Lines 107-113)

Nurse educators (Violet, Colts, Taylor) adamantly commented on the trust issue, captured by one nurse educator who conveyed her thoughts on trust as:

> I also tell them that I'm not going to leave them dangling….I will support them so they are *Safe*. Mistakes are OK. All that is really important in making the students feel SAFE and Positive! And (reassure them) that it's going to be a 'Good Learning Experience' (Purple, Interview #7, Lines 155-158)

Intrinsic to setting the stage and engaging the students in the simulation endeavor was creating the atmosphere of truthfulness. Realizing the simulation environment was ideally replicated to craft the realism of the healthcare setting as closely as possible, it was also critical for the nurse educators authenticity to exist. The data indicated that nurse educators felt it was important to create a trust atmosphere that would influence the students' engagement, enthusiasm and commitment from the beginning of their HPS learning events. Striving for legitimacy in the environment and genuineness by the nurse educators will now be discussed.

Being Authentic. Authenticity, described as "being true to (onself) and (one's) own particular way of being" (Taylor, 1995, p. 177) was noted to be significant to the nurse educator engagement process in simulation educational endeavors. The concept of "engaging in authentic nursing practice" (Myrick et. al, 2010, p. 84) appeared to be quintessential, as this created the vital atmosphere of genuine trust between the nursing students and nurse educators immersed in the simulation environments. One nurse educator declared "the connection (between the nurse educator and student) is a vital honest part of the

preparation for the simulation experience…" (Lulubelle, Interview #16 , Line 553-554).

Being authentic was found to be necessary in creating trust and true belief in the value of the simulation teaching and learning moments. The nurse educators' dialogue about authenticity related to the two main concerns: the teaching/learning simulation environment as well as the nurse educator and student dynamic. Authenticity, therefore, was intrinsically revealed in two specific approaches by the nurse educators: 1) emphasis on creating a safe, realistic teaching and learning simulation environment without risk to the students' learning outcomes and ultimately the evaluation process, and 2) establishing rapport in the dynamic interactions between the students and nurse educator. Suspending disbelief, a phrase originating in 1817 from philosopher Samuel Taylor Coleridge in reference to infusing belief in narratives that may seem unrealistic and improbable, is often used in the simulation educational domain. This phase applies to halting judgment on the implausibility of the healthcare scenario when incorporating a manikin. One nurse educator addressed her role in 'suspending disbelief,' commenting on the challenge of incorporating realism with the technology as follows:

> My job as an educator, in relation to that idea of 'suspension of disbelief' was helping the students recognize that the technology is there and supporting the experience but that it is not the focus of it (the learning experience). And having clear expectations and guidelines for the students helps minimize the impact of the

> technology itself. This helps prevent adverse outcomes. You can't ignore the impact that technology plays in the simulation experience. (Cricket, Interview #1, Lines 354-360)

Another nurse educator emphasized establishing authenticity in the following way:

> When it comes to the students, you have to be authentic…I think it goes back to your own educational philosophy. You have to believe in your students; you have to believe they want to be there and learn; you have to believe they care about doing their best. You have to try to make a connection….to find common ground with them and kind of bond initially and engage them on a positive note. You provide them a full orientation to the simulator and environment and that you are not just there to trip them up. You have to be honest about your intentions and how the simulation experience is used and then talking about the learning that is going to go on….. for me (as a nurse educator) as well. (LuLuBelle, Interview # 16, Lines 541-552)

What also emerged from the nurse educators' dialogue was the honesty in divulging the reality of the personal risk-taking in teaching and learning embedded in the simulation experience. Much of the literature addressed the idea of learning in a safe, non-intimidating HPS environment (Comer, 2005; Lasater, 2007; Patow, 2005; Treadwell & Grobler, 2001), when in fact it was conveyed by the nurse educators in this study, in sincerity, that they believed there were elements of simulation education that were not safe at all. The intent

was to provide a safe and authentic teaching environment in which the nursing students could learn. However, as one nurse educator so eloquently acknowledged, the simulated environment was not necessarily perceived as a 'safe' reality for the nursing students, as indicated by the following response:

> You are in front of your peers. You are on the line. You're in front of people who are there watching you. No matter what we (nurse educators) say to our students in terms of wanting to create a safe and authentic environment and trying to make them feel it's like a safe environment, there are definitely parts that are not 'safe' at all. (Lulubelle, Interview #16, Lines 570-576)

It was also found that some nurse educators felt that the perception of authenticity and safety in the simulation environment included mitigating damage, especially when powerful and sensitive scenarios revealed the nursing students with lack of knowledge and practice or skill deficits. The key strategies reiterated by nurse educators in this study to contend with the challenges of teaching in these intense learning situations often perceived by some as painful included: 1) begin with the basic stance of expressing sincere belief in their students' abilities; 2) emphasize that mistakes in the HPS environment were acceptable and expected; 3) reassure the students that making mistakes would not result in reprisal as it was a learning activity; and 4) role model and discuss the best clinical practices to provide sound and moral nursing responses and actions. Illuminating the value of the simulation context was of paramount importance. Learning from mistakes in the teaching and learning simulation

process was considered acceptable and fundamentally useful, according to the majority. Essential to the authenticity and safety elements in the simulation environment was student awareness that the simulation learning event, in most cases, was not used as an evaluative tool. As one nurse educator suggested:

> The fact that we don't assign marks to simulation and that we emphasized to them that it is a non-evaluative session….it's *HUGE*! And that the learning episode recording is eventually expunged. (Lulubelle, Interview #16, Lines 607-609)

As another nurse educator stated, the underlying belief in the reciprocity and a dependable dynamic between the student and educator was conveyed in the following example:

> I believe I have to role model. I always talk about excellent nursing practice. And that has to be role-modeled for them. The students don't necessarily know that. They don't see that and they need to. So I have a responsibility to role- model that so it's reciprocal. I do tell them I set very high standards and expect best practices (from them) but that we do that together. We work together and that I am there to support them. I believe in all of those things because it is so important to me. (Purple, Interview #7, Lines 203-213.)

Role modeling and reinforcing accepted behaviors and actions by the experts in nursing education for learner benefit is known to improve student performance (Aronson, 2012). To ensure a successful dynamic in role-modeling between the nurse educator and student, transparency and trustworthiness were

also cited by several nurse educators as essential principles to uphold in the simulation educational process.

Further to authenticity was the valuable quality of humor. Humor is described by Astedt-Kurki (1994) as the "joie-de-vivre which is manifested in human interaction in the form of fun, jocularity and laughter." Humor is known to play a role in coping with everyday life. On occasion, humor was witnessed to be an effective strategy to release the 'tension in the air' known to occur in the initial exposure to nursing simulation occurrences, as observed by one nurse educator's casual and engaging introductory style in a HPS teaching and learning event. Coping and relaxation strategies, such as humor, were cited as being incumbent upon the nurse educators to encourage dialogue and increase unreserved participation in the simulation learning process. However, humor was also perceived as inauthentic if a nurse educator appeared unnatural in projecting the meaning of the humor, as in creating an ineffective witty introduction and not being clearly purposeful, as was perceived in one HPS observation session. I actually witnessed 'rolling eyes' and what may be perceived as 'darting glances' by several nursing students when the nurse educator attempted to use humor to initially engage them. Although intended to lighten the mood in a robust simulation event, it was obvious that the nursing students in this circumstance, appeared to interpret the insertion of humor quite differently. Unintended results thus may occur. Humor, as a complex facet of human communication, may be interpreted in diverse ways in like situations by different people. Therefore, humor in nursing simulation education could be

considered both a high-risk strategy and a useful tool if performed thoughtfully and executed well (Penson, 2005).

Authenticity and humor as characteristics found to be integral to the nurse educator role in the simulation teaching/learning process were also found to embody the moral imperative of caring as described by Watson (1988). Watson states that caring is 'the heart of nursing' (Watson, 1988). Watson further asserts that "caring involves the humanity of the nurse, expands to embrace the humanity of the other, and seeks to preserve the inter-subjective human-to-human relations between nurse and other as a process of mutuality and trust" (p. 3). We will now discuss the relevance of caring in the context of the interrelationship between the nursing educator and nursing student in the HPS nursing educational process.

***Caring Praxis*.** Demonstration of caring appeared to be integral to the success of the nurse educator and nursing student relationship. The role of caring behavior in nursing education is inherent to a positive teaching and learning relationship (Watson, 1988). As caring is considered a central component of nursing, it was not surprising that nurse educators exhibited and expressed caring as a primary thread throughout their simulation educational roles. One nurse educator voiced her perspective in the following way:

> In my mind, teaching is a social process. It involves the caring interaction between the student and the teacher and that is critical. I don't even think it really matters what content you are teaching….it is the caring interaction between the student and the tutor. If that is

> not felt as genuine from the student perspective, I think the learning may not be as enriching as it can be. (Snowy, Interview #3, Lines 193-200)

Nurse educators not only teach the value of caring; they must exhibit caring as an important component within the practice of nursing education. Many nurse educators in this study reinforced the caring concept, considering it a central value in the nursing students' affective development (Krathwohl, Bloom & Masia, 1964). Caring in the nursing educational environment demonstrates respect to student individuality and commitment to the integrity of the teaching and learning process and the creation of dynamic relationships. Facilitating caring was noted in several nurse educator transcripts. It was not clear, however, how caring was fostered within the HPS environments. Some nurse educators internalized and communicated they cared about their students and their learning. Only a few, however, actually demonstrated their personal 'human-to-human relation between nurse and other as a process of mutuality and trust' expressed as a role of caring in the nursing educational process (Watson, 1988). When probing nurse educators further on their caring roles within the simulation learner-centric environment, one nurse educator stated "a good simulation teaching and learning experience would be enhanced through the caring imperative, but I'm not sure the students really know we care as much as we do" (Ivey, Interview #4, Lines 88-90).

Watson's theoretical framework for caring alludes to transpersonal caring, defined as "a going beyond the self and a recognition that relationships

are mutual and reciprocal" (Watson, 1988, p.5). Applying this notion, nurse educators voiced connecting with nursing students, in the HPS teaching and learning environments (Watson, 1988). This teacher/learner caring connection was demonstrated by a nurse educator in the following passage:

> If your students feel they can trust you in every situation, I find they feel really comfortable, no matter what the challenge in simulation. That is so important and one of the most important characteristics. I've been really fortunate in lab where they (the students) said to me 'We really feel comfortable telling you' and it's all good. Because *I care* to know how they are feeling about their learning experiences and the whole process. No matter what individual differences we have as tutors, we need to support each other and the students…no matter what. And they (the students) feel it….(Snowy, Interview #3, Lines 419-436)

One nurse educator asserted the simulation education experience should be a transformational learning experience that requires active participation and reciprocal caring from both the students and the tutors. Others discussed that the transformative simulation experience should involve all parties in thinking about what they are doing, involving caring about teaching and learning together. Owen-Mills (2008, p.1192) succinctly reinforces this perspective by asserting that the "caring imperative is central in all student-educator-clinician relationships when the purpose of the curriculum is to emancipate students to become nurses who care for individuals, families and communities in a

transformative way." Several of the nurse educators indicated that this transformative learning process was certain to create fertile ground to question and reflect on what was actually happening during the HPS scenarios. In conclusion, a nurse educator self- evaluating her teaching presentation, avowed the importance of active participation and addressing assumptions as a two-way street:

> I really look back and think about all the things that were happening to me at the time…whether it's influences by my attitudes, values or beliefs. To really pull apart the thinking and feeling and what's unfolding during the simulation scenario. To have the students experience an *epiphany*…and me, as the facilitator, to remain open and caring about the process and relationships. It's fascinating to see and hear that the students will share things that you never thought in a million years as to what was actually happening….teaches us all about assumptions. (Lily, Interview #6, Lines 932-938)

***Humanizing the Pedagogical Process: Contending with Cynicism*.** In the early acquisition days of HPS technology, the *appearance* of the HPS manikins was considered somewhat unrealistic. This posed the challenge of creating the desirable authenticity to foster realism in the teaching and learning scenarios, often expressed as 'bringing life to the educational process' (Lunce, 2006). Some nurse educators, mocking the plausibility of fidelity of HPS, verbalized their aversion to using simulators as tools in their instructional

methodologies. Initially, nurse educators admitted to their skepticism of HPS in the pedagogical process. On one occasion, a faculty member vehemently expressed "that looks nothing like a baby. Why on earth would our students take this seriously?" (Mary, Interview #11). The primitive tethering and creation of the infant and child features lacked scale and, therefore, were considered contemptible to some faculty. At the outset, the challenge of integrating HPS as a new technology into the curriculum warranted developing approaches to overcome the challenge of misbelief and containing the ridicule of this tangible tool used in the simulation events.

'Suspending the disbelief' (Gaba, 2004) presented a priority concern when discouraging and negative initial reactions were articulated by faculty members. An initial primary challenge was to get buy in from the nurse educators and create legitimacy of using HPS as a strategy in the fictitious healthcare environment. If not, what could potentially transpire would be nursing students' lack of respect for the authenticity of the teaching and learning process. Teacher behaviors and teaching styles are known to influence student behaviors (Liu & Schonetter, 2004). Several nurse educators posed the question as to what were essentially considered effective teaching behaviors and qualities when working in the HPS environment.

In addition to the appearance, the *performance* of the computer-generated manikins, although revolutionary in providing similar physiologic parameters and capabilities, were also not up to par with the reality of a true patient. Yes, they mimicked breathing, etc. However, there were limitations.

This further compounded the initial cynicism in the early adoption phases. The visionary inclusion of the mannequins as a tool to augment the educational process was far from acceptable. Perhaps these issues spawned the initial dehumanizing responses and triggered alarms, hampering the early adaptation and adoption of HPS manikins in the healthcare teaching environment.

In addition to the physical appearance and physiological limitations of the HPS manikin, however, the most predominant factor exhibited by many faculty members who did not accept the inclusion of HPS in the early days of integration, was fear. There was fear of the technology, fear of how to actually stage the educational encounters in the teaching and learning process, fear of how to provide adequate feedback- essentially fear of the unknown in the use of simulation as a potential method used towards excellence in health teaching. It was clear from inception that there would be a great deal of cultivation required to enhance nurse educator use of HPS as a teaching and learning method. The following words from a seasoned simulation educator illustrated the apprehension and distress, contributing to the reluctance by nurse educators in the initial phases of mannequin integration:

> As I was hired in the newly created position as a resource person in the SimLab, I realized very quickly I needed very simplistic, straightforward and a clear set of directives to diminish the anxiety level of faculty. Because the anxiety level was really high. People were daunted by it (HPS). And they were *very* verbal about it. Just absolutely *not* happy campers about doing simulation at all. Some

> were just absolutely terrified. They conveyed that they didn't sleep the entire night in anticipation of doing their session in simulation. (Lily, Interview #6, Lines 258-270)

Another nurse educator expressed her preference for the more traditional approaches and the strength is what is known:

> It's too out of the box for me….I would rather have more structure. I'm not going to get involved…….(Sarah, Interview #11, Lines 144-145)

Nurse educators perceived the HPS environment to be unique. They also supported the prevalent feelings of lack of support and time devoted to the teaching and learning aspect of HPS, that there was a lack of insight and planning to the essential initial orientation, development and assimilation in the early days of simulation use in nursing education. This perspective appeared to be somewhat pervasive in the healthcare literature as well (Rhodes & Curran, 2005; Rothgeb, 2008).

The significant key variables of '*muddling through'* and '*introspecting*', within the broader context of nurse educators *Finding Their Way* actually paved the way for the evolution of the nurse educators. Despite some of the initial skepticism, the majority of nurse educators in this study, nonetheless, proceeded to embark on their journeys, *questing to evoke and enrich* (See Figure 3-4, p. 98) while incorporating the use of HPS into their nursing curriculum and into their teaching and learning roles.

Figure 3-4: Questing to Evoke and Enrich

Nurse Educators Preparing for the Use of High-fidelity Human Patient Simulation: A Process of Finding Their Way

Questing to Evoke and Enrich

The apprehension, awareness, and insights from the initial themes of *muddling through* and *introspecting* culminate and derive into the final emerging theme of *questing to evoke and enrich.* At the outset of embarking on their teaching journey in simulation, nurse educators in this study were in pursuit, or *questing,* for information to further develop and enhance their educational roles using this creative approach in the nursing education process. Intrinsic to *questing* by the faculty also precipitated seeking out ways to *evoke*, or generate critical thought, reasoning, and ultimately determine clinical decisions from the nursing students. This third essential theme evolved from the persistent realization that the integration of HPS in nursing clinical education required the need for supplementary education, unanimously expressed by the nurse educators in this study. Questing involved individual faculty self-learning about the underlying pedagogy and best teaching practices when assimilating HPS in the nursing curricula. Questing also involved finding ways, thus evoking students to deepen their learning experiences in the simulation environment. Thus, from the stance of the nurse educators in this study, *questing to enrich and evoke* ultimately involved an altruistic, learner-centric approach in the nursing simulation educational process (See Figure 3-4, p. 98)

Resolutely, the final theme of *questing to evoke and enrich* is elucidated by the four subthemes: 1) *creating empowered nurse simulation educators; 2) acquiring debriefing proficiency; 3) coalescing clinical nurse faculty and expert nurse educator; 4) synthesizing and synergizing;* and 5*) plotting future*

paths. Integrated in this final theme, I will elaborate on the data that also embody the situated cognition and cognitive flexibility learning theories (Brown, Collins, and Duguid, 1989; Graddy, 2001; Spiro, Feltovich, Jacobson, & Coulson, 1991), knowledge specific to educators using technology in and outside the healthcare domain.

***Creating Empowered Nurse Simulation Educators*.** Nurse simulation educators in this study described their need for *autonomy* and *empowerment* as necessary conditions to help them prepare nursing students in the clinical simulation setting. It is important, therefore, to firstly explore the meaning of empowerment and the relationship of autonomy to empowerment vis-a-vis nursing education.

The word "empowerment" has long been considered an elusive concept in the organizational context (Lincoln, Travers, Ackers & Wilkinson, 2001). According to the *Oxford English Dictionary*, the noun is defined as "the action of empowering: the state of being empowered." The etymon of the verb "empower" is actually comprised of derivations from the Old French "em" which was used interchangeably to mean "in" denoting space, and the Latin noun "power." The actual modern interpretations of empowerment, such as "to bestow power upon or make powerful" as stated by the *Oxford English Dictionary*, are now actually considered obsolete which is quite astounding. This has prompted educational theorists to question how exactly does education empower. In the educational realm, the context of empowerment is used to substantively denote a change from an individual's or a symbolic societal

perspective (Lincoln et al., 2001). Mulligan and Griffin (1992) links empowerment with experiential learning, but is at odds as to whether it is more than the individuals' educational perspective of change, and not necessarily a social, societal transformation. As Mulligan & Griffin (1992) expound:

> Assuming that empowerment is intended to convey a sense of politics, I want to suggest that whereas the capacity for experiential learning is very real, as practitioners know full well, its capacity for social change, or transformation, is very limited indeed. (p.31)

Empowerment, as reflected by the participants , was represented more by their quest for efficacious delivery of their teaching abilities which, in turn, would provide more empowerment or meaningful knowledge. The nurse educators' often referred to this as the 'ah ha moments' of the learners, thus gaining a sense of meaning from the simulation educational process. Whether by effective teaching techniques or 'gaining 'a sense of their own power as learners and meaning makers,' it was evident in the data that empowerment was an inextricable concept in the simulation teaching and learning process (Courts, 1991, p. 148).

Nursing faculty who claim autonomy and who are active participants in their teaching roles and responsibilities, vis a vis curricular, instructional and overall logistical influence, distinguish themselves as empowered in the nursing educational process (Hawks, 1999). It is also known that the educational development of nursing students requires active participation in the process, and that this responsibility requires confidence and competence from those who

assume the nurse educator role (National League for Nursing, 2005). Nursing leadership, adaptability, critical reasoning and relational team-building are some of the key competencies required of nurses in today's transforming healthcare environment. These core competencies are fostered by nurse educators in their multifaceted roles within the clinical environments. In the simulation educational environment, this process is particularly complex. In addition to using the familiar, traditional teaching approaches to facilitate knowledge translation and synthesis within the clinical experience, the nurse educator incorporates the novel tool of HPS, bringing the clinical experiences to life. Thus, this approach to teaching and learning requires additional preparation, especially in relation to the debriefing phase of the process. This view was reflected in the following nurse educator's comments:

> We have the [simulation] technology. The investment is done. I'm really encouraging administration to realize…. that there must be release time to help faculty learn how to work with this….this will go a long way in making faculty more independent and critically reflect in their educational practice when facilitating simulation…and then there's the room for the debriefing side of it…..the *HEART* of what's really going on [in the educational process]…… There may be all these resources, but no one is taking charge and carrying it Forward promoting it really. (Cricket, Interview #1, Lines 1054-1062/ 1084-1086)

Another nurse reflected on her initial experiences as an educator in simulation:

> Unless faculty feel that they are supported in this, and unless they receive proper education and training….there's such a level of understanding that needs to come in using simulation. You need to feel supported ….education and training. Because I've learned, that unless you have those things, your people [educators] who are championing this effort and being empowered to do so……your simulation program will not move forward. (Lily, Interview #6, Lines 695-703)

A third nurse educator reported her exposure to the initial educational content support, but claimed there were a lot of unanswered questions about how to most effectively conduct the simulation scenarios:

> We had a fair number of inservices presented to us from different groups of people…I know METI also came. The Lab Coordinator also, along with the Lab Tutors, and we did some reading. We generally did run-throughs, just as a group of tutors ourselves, experiencing simulation as the students would….and the Lab Coordinator leveled the METI case studies according to the different years of the undergraduate nursing program…..then doing them. Then the questions… Where we do we stand? Am I in the SimRoom or the SimOperator Room? If I was in the SimRoom, the students were always looking at me for confirmation. What about the Debriefing Room? So I'm finding it depends on the situation

> ….and I've varied. I float about. It's hard to know exactly what's best.(Purple, Interview #5, Lines 23-29/ 289/297)

In this study, the majority of nurse educators expressed deficiencies that would contribute to their empowerment in the following ways : 1) providing an adequate introduction to the technical HPS resources; 2) shadowing and mentoring from senior colleagues (described by the participants as 'champions') for satisfactory launching into the HPS teaching and learning environment; 3) allowing and acknowledging sufficient time to consolidate the HPS information as an adjunct to their roles in nursing education. As a result, most of the nurse educators expressed profound disappointment and/or frustration with their initial experiences in the simulation education environment. As one nurse educator/leader powerfully expressed:

> Nursing educators don't usually have the time to just do simulation….unless they are incredibly underloaded. Simulation is *VERY* resource heavy….it takes time to create scenarios, time to learn the mannequins, time to develop themselves [nurse educators] in this teaching and learning endeavor….nurse educators need support in that…. or they are discouraged….you can't do this as an island on your own if you don't know this speciality area….you would just fall flat on your face… (LeeLee, Interview #17, Lines 283-294)

In this study, it was found that key to empowerment of the nurse educator was the ability to confidently and effectively debrief during or

following the teaching and learning moments. Debriefing was defined as the "formal, reflective stage in the simulation learning process whereby educators/instructors and learners re-examine and reflect on the simulation experience" (Certified Healthcare Simulation Educator Handbook, 2012, p. 33). The debriefing process, originating from the military, emergency/disaster service, and psychology fields, was modified and designed as an approach to primarily enhance development of clinical reasoning, judgment and critical thinking underpinning the clinical practice skills within the health educational domain (Fanning & Gaba, 2007; Neill & Wotton, 2011; Schumacher, 2005). As debriefing was identified as a significant component in the nursing simulation educational process, we will examine what the participants discussed and revealed in their quest for debriefing proficiency.

Acquiring Debriefing Proficiency. Validated by nursing and interprofessional research articles related to simulation (Archer, 2010; Dreifuerst, 2009; Moule, Wilford, Sales, & Lockyer, 2008; Schaefer et al., 2011), the importance of debriefing vis-à-vis the educational process in clinical simulation setting was identified as a major factor in the success of the teaching and learning experience. Unanimously, nurse educators in this study cited debriefing as a principal aptitude they initially researched and tried to grasp early in their preparatory process for the simulation educational experience. As one nurse educator stated:

> I wanted to be adept at DB (debriefing)…and it's unrealistic to be an expert in the beginning. We absolutely need direction and

> practice…. And you have to be able to debrief in a way so the students see the relevance to the clinical situation…it has to be as realistic as possible and they [students] have to see the linkages and understand *why* it is important in the teaching/learning process. For a basic example: when you take the patient's temperature and it's 38C, what does that mean? You have to be able to take the student to a higher level of thinking….to that critical thinking piece. Yes, the patient has a higher temperature, but what is that from? Have they looked at the blood work? What's the patient's chest like…their wound…their urine. What's happening here? You want to look at that *meaningful* practice. This essence is captured in the immediate debriefing….. (Purple, Interview #5, Lines 460-461; 473-488)

As varying factors may often be involved in a debriefing role to facilitate the learning process in simulation, it can be a perplexing function to assume if one is not familiar with the overall HPS experience. Despite exposure to the research literature and provision of written materials, the lack of scheduling or follow-up 'real time' support created feelings of apprehension and concern on the part of many study participants. These participants were often left fumbling and to rely 'on their own teaching laurels.' Realistically, these nurse educators were relatively novice in their efforts to manage the variety and complexity of the debriefing that transpired in their HPS teaching and learning events. Many nurse educators cited that during the process of

reflection occurring in the debriefing sessions, defensive responses by the students were often evoked, resulting in inhibiting conversation. Nurse educators often felt ill-equipped in their responses and teaching techniques to support the learning for difficult debriefings. These were illustrated as one educator subsequently expressed her wish for support as follows:

> I just wish I had someone to follow….to shadow. There are so many ways to do things to link things together… So to get suggestions on how to make things work in simulation……How to set up the students to succeed in the room and then do what you do as tutor to facilitate all that happens. What's the purpose of debriefing…because debriefing is *really, really important*. Without the debriefing, I'd say you've lost ¾ of what you are trying to attempt there. The Debriefing is *HUGE*! How does it all relate to what is learned? The *linkage* piece is very important in the debriefing……What do you as a facilitator do this…how do you bring all the components together…and what if the students are upset, resistant or defensive? (Purple, Interview #5, Lines 351-377)

Observing the participants as they engaged in independent HPS teaching and learning scenarios, I was also privy to witness different styles and demeanors of the nurse educator faculty. On one occasion, I vividly remember memoing information that provided a description of perceived 'tenseness' as the nursing students initially assembled in the classroom adjoining the HPS suite in anticipation of their experiential learning event. The silence and tension

was palpable. In contrast, in another independent HPS teaching and learning occasion, laughter and joviality by the student participants were observed by me at the outset of the session, which appeared to have a relaxing, calming effect. For every HPS session that was observed, there was no pre-discussion of vital assumptions vis-a-vis reinforcement of a safe and trusting learning HPS environment by the nurse educators. Many simulation centres now adopt the process of a preparatory discussion and the formality of signing a confidentiality agreement by the students to promote a safe and confidential HPS environment (Arundell & Coiffi, 2009; Jeffries, 2007). All student groups observed in this study, however, had been working directly with their nurse educator for several weeks and were already exposed to the respective nurse educator's style, behaviors, and mannerisms of teaching and debriefing in the acute care clinical and simulation educational settings.

Observed in autonomous HPS educational situations, each nurse education was unique in their debriefing practices with their respective student groups. When queried on an individual basis directly after the post simulation teaching and learning episodes, each nurse educator, respectively, voiced a different response as to their choice and rationale regarding their best teaching strategy used in creating a positive and effective HPS debriefing session. One nurse educator stated it was beneficial for her to begin with the 'this is a safe environment for teaching and learning' talk, enhanced by some initial humor, to create a more calming genuine atmosphere. The other nurse educators exhibited more 'traditional' and forthright approaches, and the atmosphere in these

situation could be perceived as more authoritarian with a stern manner. The students in these latter cases were observed as quiet and reserved. The nurse educators who appeared more conventional, emphasized efforts to being organized for the simulation scenarios, with specific agendas, questions to achieve the identifiable learning objectives derived directly from the HPS scenario; the atmosphere and approach could be distinguished as more serious with a mandated agenda. Although the first nurse educator also demonstrated she was prepared and efficient, the relational rapport with her students was described in my memoing as 'down-to-earth' and 'relating well with the students.' How the teaching style and behaviors affected the learning outcomes was not addressed in this study. However, observing the HPS classroom as a microsystem, characterized by many interpersonal relationships and a diversity of unique activities in preparation for the debriefing sessions, generated further questions on teaching style and rapport with students.

The debriefing demeanor that produced the most positive effect on the students' learning can only be speculated at this point. However, the studies of Cantrell (2008) and Lasater (2007) reported a supportive demeanor by nurse educators had positive impact on students' perception of the teaching and learning environment during the debriefing sessions. Supportive engagement by nurse educators was reflected in their verbal and non-verbal encouragement. This encouragement involved candid, earnest critiques on whether favorable or unfavorable students' actions occurred during the HPS events. This was

considered useful and welcome information by the student participants in Lasater's (2007) exploratory study.

Debriefing in the nursing simulation education vernacular was also referred to as 'reflection time' or analogous to 'post-conference time' by some of the more novice nurse educators. A usual practice in the clinical nursing environment is to convene, recap, and allow the opportunity for discourse on any issues at the end of the student nurses' clinical practicum day. The nurse educators in this study had clinical expertise related to the HPS scenarios they taught. However a minority number of nurse educators had limited experience in the academic teaching role (less than 5 year). Nurse educators who were strong in clinical experience but considered less experienced in pedagogy was identified as an issue by those who possessed clinical content in addition to teaching education and experience. The more proficient nurse educators, in other words those who possessed knowledge, skills, and practice experience in teaching and learning, were keenly aware of the ultimate blend of clinical and educational content experience. I will now explore the nurse educators' views regarding the cultivation of pedagogical practices in simulation environments, incorporating the best of both worlds: clinical nursing and simulation education proficiency.

Coalescing Clinical Nurse Faculty and Expert Nurse Educator.

Identified by the nurse educators in this study was the important sub-theme of *coalescing clinical nurse faculty* with *expert nurse educator faculty* for excellence in simulation education (Rhodes & Curran, 2005). The nurse

educators suggested particular characteristics and expertise were necessary to teach students within the novel clinical simulation environment. The perception for success as a nurse educator teaching student nurses in simulation ideally required both actual, current clinical experience *and* educating experience. One nurse educator adamantly supported this duality concept by stating:

> Educators who are *True* educators, and who have been in nursing education, I think, bring a different perspective [in simulation education]. Simulation is an educational initiative….it's a tool. It's not the panacea. And, I think, what happens is that sometimes you get clinical people who are really current, but they aren't educators, and so it's all about the manikin and the bells and whistles and stuff the mannequins do…versus the educational principles and creating learning sessions for really specific learning outcomes. That takes an *Educator*. The clinicians just don't have the educational expertise. (LeeLee, Interview #17, Lines 299-313)

Most of the nurse educators suggested that clinical background was important but not enough of a foundation when teaching in the simulation/technological realm. Understanding educational theory and principles, working with adult learners, and comprehending the nuances of experiential and active immersive ways of learning with simulation were considered essential aptitudes in the HPS educational process. As another nurse educator vented:

> I really struggled with how this technology changed my teaching….or if it actually did? When I did my thesis, I looked at this concept of technological/pedagogical content knowledge…to be an effective educator you needed to have an understanding of the content. And you also had to have an understanding of the teaching and learning. And effective education and teaching came when you met-those two little circles overlapped. THAT's where effective teaching occurred. And now the third circle…the technology side of it, and that we have to recognize that technology changes the content. And that there's pedagogy to the technology. And so, you know, I want to say it does change things…..and, No, it doesn't. For me, I approach it from the pedagogical perspective. (Cricket, Interview #1, Lines 318-334)

Anecdotal and secondary literature sources support the impression that nurse educators in the past decade were generally not educationally prepared for the integration of simulation as a developing exemplar in nursing curricula (Jeffries, 2007). Limited research in the past decade has also revealed that lack of pedagogical or philosophical foundation to direct its profound use in nursing education programs (Parker & Myrick, 2009, 2010; Peteani, L, 2004; Peters, 2000; Romyn, 2001). It appears HPS as a paradigm shift in nursing education in the last decade has ruefully neglected and is only on the fringe of creative developments to address the need for nurse educator faculty development (Cantrell, 2008; Kardong-Edgren, Starkweather, & Ward, 2008; Montgomerie

et al, 2006). Arising from the findings of the nurse educators' challenges are *synthesizing and synergizing* concepts, instigated from the collective thoughts of the nurse educators about what factors and beliefs should be considered for the future preparation of clinical nurse educators in HPS environments.

Synthesizing and Synergizing. Previous themes revealed nurse educators' thoughts on their lack of both empowerment and proficiency in specific skills and abilities while preparing themselves for the role of nursing simulation educator. Despite the unstable and uncertain origins of incorporating simulation, nurse educators in this study generally adapted and adopted the use of HPS as an innovative clinical model. Through the synthesis of these nurse educators' reflections and viewpoints, a synergism of notions, design structures, and a diversity of approaches to nursing simulation education were elicited.

This study uncovered that nurse educators were initially in 'survival' mode when they incorporated HPS into their curricula. Thus, there was little opportunity to examine what was actually happening within their own experiential teaching and learning process. Through the synthesis of these nurse educators' thoughts and viewpoints, the concept of 'synthesizing' surfaced. According to the *Oxford English Dictionary*, the verb synthesis has its origins in chemistry, implying a 'combination of things that eventually transform into a coherent whole.' Specifically, the definition of synthesis (of something) is "the act of combining separate ideas, beliefs, styles." Synthesizing information on the use of HPS as an innovative educational approach appeared to be creating new meaning and understanding for the participants in this study. Nurse

educators' were eventually reflecting on their own teaching practices and, when possible, fusing the available resources and literature with their preparatory teaching experiences to create their own individual insights, understandings and perspectives on the HPS educational process (Darling, Parry & Moore, 2005).

Inherently, through this synthesizing process, more queries resulted. One nurse educator demonstrated this synthesizing process by retelling her own HPS teaching encounter in the following way**:**

> I tried to minimize the fact that the focus was not on the technology. I can't throw students into the simulation lab and just expect learning to occur. It just doesn't happen. So I approach it like clinical, like seminar, like lab, because to me, it is another, albeit unique, learning experience and it's my job to facilitate it. I just happen to be using a technology to do it…should it be any different? (Soccer, Interview #2, Lines 339-343)

Another participant cited how she aligned her simulation teaching and learning approach:

> In principle, I don't think [teaching in the simulation setting] changes the importance on feedback and evaluation. My approach was to ask questions to evaluate their knowledge level regardless of the teaching setting (classroom, lab, or simulation suite). I developed critical thinking questions to ask. And it's just five basic simple asking questions: ' What, When, Why, How, and Who?' So when I made a note, [on the student(s) in HPS} for example, 'forgot

> to….student missed a key point…' I would refer to my notes in the debriefing session and ask, 'Remember when you did….' to bring them back to their simulation activity performance and ask….'Now what were you thinking when you asked that question of the patient? Why did you do that?' So, as an educator, I'm trying to understand….how to make it the best learning environment in terms of evaluating their learning in the big picture. (Snowy, Interview #5, Lines 619-631)

Nurse educators' often expressed concern on how they were to prepare their students for what could potentially be interpreted as very complex situations. The major learning objectives in the HPS environment were to create various scenarios in order for the students to understand the healthcare situations and problem solve using their knowledge and skills to attain safe, patient outcomes. What the nurse educators' appeared to lack was a learning framework to guide the HPS pedagogical approach to achieve these objective. As one seasoned nurse educator reinforced:

> There is no teaching or learning pedagogy actively 'happening' in simulation…so building in the pedagogy is a must to guide us [in HPS]….(Cricket, Interview #1, Lines 1038-1040)

The complexity of the adult teaching and learning development, irrespective of the environment, is addressed by many learning theorists. My memoing highlighted 'experiential learning' as the familiar model that indeed seemed to be occurring simultaneously in the process of this HPS teaching and learning

study (Kolb, 1984). The experiential learning theory provides a "holistic model of the learning process and a multilinear model of adult development " (Baker, Jensen, and Kolb, 2002, p. 52) with the transformative reflection of one's experience constructing the learners' knowledge. In actual real-time within the HPS teaching and learning setting, I witnessed the recurring experiential learning process that incorporated the cognitive, emotional and physical characteristics of the nursing students' learning, as described in the simulation and education research literature (Arundell & Cioffi, 2009; Schoening, Sitner, & Todd, 2006).

While Kolb's theory demonstrated merits, probing further into the research literature on 'ill-structured' experiential teaching and learning experiences led to *situated cognition* (Paige & Daley, 2009) and the *cognitive flexibility* theories (Brown, Collins, & Duguid, 1989; Spiro, Coulson, Feltovich & Anderson, 1988; Spiro, Feltovich, Jacobson, & Coulson,1991;1995). These distinct theories seemed a more natural fit for the complexity of emergent learning that actually occurred in the HPS educational environment. I made the choice to address these theories separately to further posit the rationale for incorporating these theoretical perspectives into the HPS teaching and learning process.

Cognitive Flexibility Theory. We know the mind is complex and has the capability to adjust to a variety of situations. In HPS case scenarios, there can potentially be a myriad of responses and actions by the nursing student. Nurse educators generally stated the major goal for HPS education was to

facilitate the nursing students' ability to understand and respond to various situations or encounters, comparable to the dynamic, experiential framework known as the *cognitive flexibility theory*. This theory, building upon other constructionist theories, focuses on the nature of learning in complex and ill-structured domains, such as those experienced in the HPS mileau (Spiro, Feltovich, Jacobson, & Coulson, 1991, 1995). Cognitive flexibility was originally formulated as a result of interactive technologies, thus, seemed a natural match for the HPS teaching and learning environment to me. Spiro & Jehng (1990) defined cognitive flexibility as "the ability to spontaneously restructure one's knowledge, in many ways, in adaptive response to radically changing situational demands….This is a function of both the way knowledge is represented (e.g., along multiple rather than single conceptual dimensions) and the processes that operate on those mental representations (e.g., processes of schema assembly rather than intact schema retrieval)"(p.165). The HPS learning environment has the potential to present a multiplicity of perspectives, situations, as well as actions by the learners in response to the clinical nursing content.

Applying the cognitive flexibility theory to an HPS event, nursing students individually are thought to adapt and learn in this highly unstructured teaching and learning environment. The nature of the learning is further developed based on the nursing students' unique representations of experiences, knowledge and skills. The HPS focus is on the students' experience learning and developing their own representations of knowledge. What transpires within

the HPS episode is intended to accomplish the students' learning objectives. With the emphasis on context dependent materials and learners' individual representation of the information provided, I posit that the cognitive flexibility theory supports the design of HPS teaching and learning possibilities. Further, with the impending integration of other technologies into the HPS environment (for example: multimedia physiologic screen representation, video applications, Mobile App technologies) it would appear the cognitive flexibility theory instructional framework.

Situated Cognition, also known as situated learning theory, is another theoretical concept that involves learning knowledge and skills in contexts that nursing simulation education could benefit from the exploration and testing of reflect the way they are used in real life settings (Collins, 1988, p.2). Depending on the source, Collins (1988) and Lave and Wenger (1992) are credited with fostering the situated cognition movement. However, the ideals seem to be rooted in learning theorists Dewey (1916) and Vygotsky (1978). John Dewey's advocacy of situated approaches to learning is also rooted in HPS education as teaching and learning is especially defined within the social context. Situated cognition is based on the theory that activity, knowledge and perception are situated and evolve over time and experience (Brown, Collins, & Duguid, 1989). It is suggested that learning doesn't just happen. Rather "knowledge is situated, being in part a product of the activity, context, and culture in which it is developed and used" (p.32). The clinical experiences within the simulated HPS environment situate the nursing students within a social context, learning

how to respond to healthcare scenarios. Paige & Daley (2009) also espouse the principles of the situated cognition learning framework as a guide to enhance the HPS pedagogical method in nursing education. Situated cognition framework involves learning in a social context that incorporates the interactions of the mind, body, activity and tools (Lave & Wenger, 1991; Paige & Daley, 2009). This framework also shows promise in directing, designing and the grounding sought by nurse educators in this study to facilitate the teaching and learning process using HPS.

Evolving from the situation cognition model is the cognitive apprenticeship model (Brown et al., 1989). Utilizing this model, the nursing students would exercise their skills, patterning after the expert coaching/mentoring, and eventually incorporate their experiences and abilities from the HPS settings to the real-world of healthcare Nurse educators in this study, using HPS methodology to prepare their students entering into practice environments, were questioning and seeking learning frameworks to assist them in moving the learning from the traditional perspective to the real-world experiential exemplar. The cognitive flexibility theory and the situated cognition frameworks conceivably may assist in providing a foundation to serve this purpose. More nursing educational research, utilizing these experiential learning perspectives, is required to critically analyze the potential for these frameworks in the uniqueness of the HPS teaching and learning settings.

Most often, the final comments by the nurse educators in this study revealed that they were afforded the opportunity to reflect and potentially contribute to new knowledge and ideas for the future preparation of nursing simulation education. By synthesizing the concepts and allowing for the opportunity of self-reflection in the research process, the participants formulated a synergistic path towards improvement for the future of nursing education. The perception of commitment to the imminent advancement of HPS in nursing education, both individually and cohesively as a group, appeared as a prevailing synergistic theme among the majority of the nurse educators in this study. We will now address *plotting the future path.*

> "Tell me, and I will forget. Show me, and I may remember. Involve me, and I will understand." (Confucius circa 450 BC)

Plotting New Paths. How can we propagate a safe, progressive and caring praxis if we don't fully support our nurse educators embarking in new approaches and techniques in nursing simulation education? What actions are required to direct us towards designing a more successful teaching and learning HPS environment? How do we best prepare ourselves towards engaging, interactive experiential learning that encompasses the best clinical teaching involving observation, participation, and debriefing encounters? These rhetorical questions contributed to key action planning requests that would appear to direct the future *plotting new paths* towards ensuring excellence in teaching and learning by the nurse educators. The analyses of the process in preparing nurse educators using HPS provided much food for thought.

Throughout the study, it was evident that the data suggested the need for further research and action to discover the most effective teaching strategies and evidence-based pedagogy for the teaching and learning that happens within the HPS environment.

We know that HPS is one of the evolving and successful tools that will be used across the nursing undergraduate and graduate curriculums to replicate realistic patient-care experiences in nursing practice. It has also been asserted that education has a significant impact on the knowledge and competencies of professional nurses (American Association of Colleges of Nursing, 2008) in the healthcare spectrum. In response to the nurse educators priority questions at issue in this study, review of their data and recognizing that education is key to the future of a well-prepared and competent HPS nursing profession, *plotting future paths* for advancement was inherent. I further posit, based on nurse educator data, that the progressive role of the nursing simulation educator be primary in advancing the development of critical thinking/ reasoning, interprofessional teambuilding and fostering leadership be foremost when plotting these paths for the future of HPS nursing education.

Where do we begin? The nurse educators repeatedly pointed to the quest for effective feedback via the essentials of debriefing for teaching and learning in HPS education. Yet the attributes and strategies of debriefing were not fostered nor fully established during their teaching development process in simulation (Dreifuerst, 2009; Seropian, Brown, Gavilanes, & Driggers, 2004a; van Heukelom, Begaz & Treat, 2010). The nurse educators acknowledged

debriefing as a critical element that allowed for the indepth analysis and explicit, facilitative and guided reflection of the students' contextual learning. Towards developing best practices in debriefing, one seasoned educator noted:

> We need debriefers who are good at the inquiry…who are excellent at enhancing the learning for the student. The best ones are those that allow for reflection and emote the feelings and then direct the debriefing towards integration of the case that was experienced. We need SIMeducators who are proficient in socratic questioning and dialogue. And then finally, one who combines all the elements to summarize what just happened….that final framing of the entire experience. That's what we need….. (LeeLee, Interview #17, Lines 839-844).

The role of the debriefer is paramount to ensure the best possible teaching and learning experience (Fanning & Gaba, 2007). Therefore, it was strongly suggested that education in facilitating this role is vital to the success of HPS experiential learning.

In addition, the labor intensive nature of HPS education was recognized and nurse educators questioned what further strategies could be used to increase the efficiency, effectiveness, and successful pedagogical outcomes within this dynamic healthcare teaching environment. It was based on the majority of nurse educators' rhetorical questions that a priority plotting be required of nursing educational institutions towards a comprehensive and streamlined plan of action. Efforts towards the assimilation of HPS within clinical healthcare

education was recognized as deficient. From the repeated nurse educator requests for mentoring, coaching and/or shadowing in the HPS domain, it was a strongly suggested that establishing a mentorship plan could prove advantageous. This evolving recommendation could serve as one solution towards building capacity and sustainability in clinical nursing simulation education.

Chapter 5

Summary and Conclusions, Scientific Merit and Implications, Dissemination Strategies, Limitations and Recommendations

Summary and Conclusions

Grounded theory (Glaser, 1978, 1992, 1999, 2005) was the qualitative method chosen to conduct this rigorous study. The underpinnings of 'symbolic interactionism' (Blumer, 1969) were indicative of this analysis whereby the participants gained meaning and understanding from one another in a socially constructed environment. The response of human beings when they interact with one another, such as in carrying on a conversation or noting gestures and/or specific actions or expressions, results in the understanding of "one another's actions or remarks and then reacting on the basis of the interpretation" (Blumer, 1969, p. 71). Blumer's (1969) premise is based on the notion of symbolism which generally takes the form of language in our culture. Symbolic interactionism, thus, guided this grounded theory study. I learned about the participants' behaviors, meanings, interpretation of their world and more about their interpretation of self as they interacted in the HPS teaching and learning process. (Chenitz & Swanson, 1986). In whatever manner the social psychological process was occurring, nevertheless, the symbolic interaction of the nurse educators and their students revealed expressive and often illuminating behaviors and communications. A social psychological process that had not yet been uncovered, emerged from what was actually going on in the data. Specifically, through this study, I was able to identify the social psychological process involved in preparing nurse educators for their role in the

HPS clinical educational environment. Through this grounded theory process of inquiry and analysis, I determined the core variable of *Finding Their Way*. Emanating from the core variable were three ambient conditions: 1) *muddling through;* 2) *introspecting, and* 3) *questing to evoke and enrich.* Appendix J provides examples of themes that also disclose the subthemes and thematic phrases. Appendix K provides a visual representation of the ambient conditions and sub-categories. All these findings provide evidence of the process, meaning and conceptualization of the socially constructed HPS environment.

A substantive model emerged that reflected what *actually* was occurring when nurse educators were preparing for the HPS teaching and learning process (Glaser, 1978). The findings uncovered nurse educator perceptions about their understanding of their educational process in simulation. These insights could, indeed, help facilitate ways to evoke and enrich future strategies to inform the evolving role of nursing simulation educators.

The persistent questions pivotal to this research study included: 1) what actually occurred as the nurse educators were preparing for the HPS teaching/learning process in undergraduate nursing education; 2) how were the nurse educators facilitating, guiding and influencing the teaching/learning process; 3) how was the HPS educational climate conducive to fostering student learning; 4) how did the nurse educators enhance the ability of the students' learning in the experiential simulation environment, and if so, how so; 5) how were the nursing students prepared for their experiential learning events in HPS?

The first phase of the *Finding Their Way* process, *muddling through*, may be described as the period of bewilderment and often confusion. Nurse educators identified *feeling lost* and isolated, *spinning wheels*, *trying to cope* and often *fearing exposure*, triggering *SIMxiety*. This phase led to *introspecting*, a process whereby the nurse educators' ability for 'being still' and 'self-reflecting' fostered self-examination of their own personal feelings, identified challenges, and a recognition of what was most significant for creating the best possible learner outcomes. In addition to *self-reflecting*, emerged the subthemes of *being authentic*, *caring*, *engaging and facilitating* and addressing the fidelity of HPS by *humanizing the pedagogical process*. These sub-themes evolved from the nurse educators' expressing an internalization of their preparatory roles, leading to a more learner-centric focus. This facet of the process appeared to allow for the introspection necessary to move towards evaluating best educational practices, evoking potential solutions for enriching the teacher and learner dynamic in the HPS educational environments.

The final dimension involved the process of *questing to evoke and enrich,* whereby the nurse educators were becoming more edified, seeking explanation and solutions, questing towards their own personal advancement and empowerment in the HPS realm. *Acquiring debriefing proficiency*, *merging paradigms* and *posturing, synergizing and synthesizing*, and *recognizing the coalescence of clinical nurse faculty* and *expert nurse educator* as an ideal were sub-themes leading towards plotting future paths in their HPS teaching and learning world. Plotting future paths evolved from the concerns, deliberations

and reflections of the entire process in preparing for the HPS teaching and learning environment.

Scientific Merit and Implications

The goal of this dissertation was to generate a substantive theory that emerged from the extensive data collection and analysis process. The intent was to contribute to the understanding of what was actually occurring in the preparation of nurse educators for their teaching and learning role within the dynamic HPS environment. The research data imparted some surprising discoveries and helped to shape significant recommendations for the future educational preparation of nurse educators in the use of HPS . Insights into the teaching/learning strategies and practices of nurse educators emerged. Further awareness of the edifying needs and supports necessary for the nursing educational process in the simulation environment resulted. The knowledge attained through this research has the potential to create improved teaching and learning environments for nursing education.

Nursing is still a relative newcomer to the HPS educational domain and continues its quest to integrate of HPS curricula in a diversity of environments (Cant & Cooper, 2009; Jeffries, 2005, 2007; Nehring & Lashley, 2009; Sullivan-Mann, Perron & Fellner, 2009). In the pursuit of accessible and improved teaching and learning outcomes, however, it is the observation of many simulation researchers that more aggressive and proactive commitment is necessary to equip the nursing educational simulation model (Jeffries, 2005a, 2005b, 2007). Evidence supporting the effectiveness of HPS continues to be

limited in the healthcare disciplines, in particular nursing. A well-equipped and well-supported HPS program, embedded in mainstream nursing program planning and curriculum development, can be advantageous if used in the manner for which it was designed.

Inevitably, our complex healthcare system, and specifically the clients/patients, will benefit from the realistic, safe, workable and achievable solutions that HPS environments can offer to improve the learning process in nursing education. The possibility has unforeseen potential and warrants more robust consideration and research study.

Dissemination Strategies

On completion of the data analysis, findings were communicated to the research participants. Several regional, national and international conferences, including either oral and/or poster presentations, have followed. Ongoing plans for future dissemination include a talk at a Faculty of Nursing Teaching Moments session, a luncheon/brown-bag seminar, and a written synopsis of the key findings via the internet on the International Society for Simulation in Healthcare listserv site. Dissemination of the research findings will be also be shared through publications in refereed journals within nursing and other related interprofessional disciplines. Additional presentations to colleagues within the nursing academic and healthcare simulation environments, locally, nationally and internationally will also be pursued.

Limitations

It must be recognized that as the researcher in this study, I have previously acquired several years of experience as an educator and administrator of several clinical simulation centres, focusing on nursing and other interprofessional disciplines. Personal bias must be recognized as a potential underlying factor from the identification of the research question to the finalization of the study. It is essential, therefore, that I remained as neutral as possible throughout the research process. Cognizant of these principal limitations, the following were also identified:

1. The finding of this study cannot be considered applicable to all undergraduate nursing programs that integrate HPS into their nursing education curricula;
2. The length of time to complete this study may be perceived as a limitation. An interruption in the research process following data collection and data analysis required that I became re-immersed and re-acquainted with the research data and subsequent writing process. Data were collected for a total of 26 weeks. I realized that this potential constraints in the research process may predispose to analytical clarity and creativity in addition to accurate recall. The process of ongoing reflection and memoing, however, served to facilitate my recollection and recall throughout the entire research process;

3. Awareness of the potential for the researcher's bias was recognized from the inception of the study, particularly during the data collection and analysis process. An open- ended questioning design process allowed the nurse educator participants to speak unreservedly about their roles and responsibilities in the process of preparation for the HPS teaching and learning environment. In addition, the continual process of jotting down field notes and memoing allowed for spontaneity of my thought processes before, during and throughout the study activities. Assumptions, values and beliefs were inherently a potential bias by researchers. As a precautionary strategy and to increase bias-awareness, I placed a printed faceplate card with the statement ***'Be True to Your Data****.....Are these your thought biases?'* to avert any personal beliefs or assumptions during the entire data collection, interviews, observations and data analysis processes.
4. This study reflected female gender specific responses, representative of the population in the nursing profession. The difficulty in securing a male gender nurse educator for this study was challenging. Future integration of a mixed gender population would be desirable and is recommended.
5. The transcripts from the nurse educators who were Masters prepared focused more on the teaching and learning process, but the research evidence was not entirely conclusive.

Comparison of nurse educators' level of education, when incorporating the dynamics of HPS, warrants further exploration.

Recommendations

Observational and interview data in the HPS setting assisted in providing insight into the social psychological process within the domains of teaching and learning. Primarily due to time constraints and scheduling availability, there were only three periods of time for observation to reveal the activities and interactions of the teacher and learners in the HPS environment. Therefore, such observations can only be considered as a micro-analytic glimpse into the entire overview of the HPS educational process and warrants investigation for further theory development (Morse, 2001). Emerging from the findings of this study, are the following recommendations:

1. The development of a formal orientation program specifically tailored to nurse educators who use the HPS approach to teaching and learning. This program should be made readily accessible and user friendly. It should facilitate significant preparation for the specific roles and responsibilities inherent in this distinct specialization of nursing education. Through such a program, the initial sub-themes in this study: *feeling lost, trying to cope, spinning wheels* and the concept of *SIMxiety* would be, at minimum, reduced or perhaps eliminated, increasing the confidence and competence of the nurse educators in this innovative and evolving role.

2. The provision of a diversity of resources made available to supplement the formal personalized site orientations. Custom site orientations are required to primarily address the technical and troubleshooting variations that occur among different nursing programs. The personalized orientation design would also address the frequently asked questions (FAQs) that may already be compiled for the smooth transition into the simulation educational realm. Virtual delivery via web-based preparatory modules from the international centres of simulation education will facilitate this process. Consideration to the development of a just-in-time system of support via mobile app technology may be another application for future nurse educators in simulation.
3. The integration of carefully conceived, flexible *SIM*entorship strategies. We know education is key to the future of a well-prepared and competent nursing profession. As nursing is the largest segment of the world's healthcare workforce and undergoing a major transformation (Institute of Medicine (IOM) of the National Academies Report Brief, 2010), it is imperative the progressive role of clinical nursing simulation education be primary in advancing the development of critical thinking/reasoning, inter-professional teambuilding and fostering leadership. Recognizing the labor intensive nature of high-fidelity human simulation education, resourceful and creative strategems need to be considered to increase the efficiency, effectiveness, and successful

outcomes of this modality in our ever changing world of healthcare. Based upon the finding of this grounded theory study, it is my contention that *SIMentorship* be a priority consideration for nursing educational institutions, hospital faculty development departments and leadership in nursing associations.

4. The study of learning frameworks such as situated cognition and the cognitive flexibility theory to guide and provide benchmarks of excellence for future nurse educators who choose HPS as an instructional strategy for their curricula. Other identified educational theorists may also guide and support nursing simulation education and are warranted for further comparison, consideration and review. These theorists may include, but are not limited to: Benner (thinking-in-action); Schon (thinking-on-action), Dewey (functional psychology); Glasser (motivation); Knowles (andragogy); Kolb (experiential learning); Vygotsky (social development/cognition); and Bandura (social learning).
5. The availability of incentives for all nurse educators practicing in simulation education. The requirement would be to complete, at minimum, the basic and then follow-up with the advanced certification made available through the International Society for Simulation in Healthcare (SSH). The Certified Healthcare Simulation Educator (CHSE) is a recent opportunity for global accreditation that provides the formal professional acknowledgement of the nurse educators'

specialized knowledge, skills and abilities. This credit has been established from the nationally recognized SSH within North American and is also recognized from other emerging globally situated simulation societies.

6. The conducting of *SIMxiety* research and how to alleviate this challenge from both the nurse educator and nursing student perspective. Exploring a) the relationship of teaching demeanor and style and its effect on learner anxiety; and b) fostering critical thinking and caring attitudes are some examples of potential studies that could contribute to enhancing a beneficial and more comfortable teaching and learning HPS event. My preliminary glimpse into the nurse educators' behavioral influences during the critical debriefing sessions, in particular, suggests that as the assimilation of HPS is more fully integrated in nursing curricula, further research is de rigueur (Solnick, 2007).
7. The institution of an evaluation process regarding consistency in best teaching practices for a diversity of debriefing scenarios, including hybrid simulation environments. Intrinsic to this process is the application of nursing simulation evaluation tools that are currently underdeveloped and underutilized and warrant further study.

Reflections On My Research Journey

Throughout this research endeavor, exploring the process of nurse educators preparing for the use of high-fidelity human patient simulation (HPS), I experienced moments of exhilaration as well as wonderment. As a researcher for this study, I was *also* actually in a state of "*Finding My Way.*" I was delighted to have the opportunity to become immersed with the nurse educators in their world of simulation teaching and learning, and concurrently with studying how nurse educators perceived their roles in HPS. In addition to the interviews, the observation component involving live engagement of the nurse educators with their respective nursing student groups was also a pleasure. I became 'engaged' in the process while witnessing the genuine 'bringing education to life' that is known to occur in the HPS environment.

As a nurse educator in HPS, it was affirming for me to uncover some of the similarities that were experienced and expressed by my colleagues in the development of our nurse educator roles in HPS. '*You are not alone'* is the phrase that comes to mind. The findings illuminate the actual experiences and feelings that resulted in the stages of *muddling through, introspecting* and finally, *questing to evoke and enrich*. Recommendations to advance the future of the nursing role in HPS were included in the quest towards excellence in clinical nursing education.

It would be remiss of me if I did not share the moving experience I felt during and after the interview process with many of the nurse educators. It was clearly evident these educators were genuinely committed to the teaching and learning process, sharing their time and experiences with me to shed light on the social psychological process they lived during the phases of enhancing their own development in the HPS environments. I was honored to be privy to their stories and visualize a 'glimpse' into their 'real' worlds within the context of clinical simulation education.

A wonderful side-bar on this research journey was the mentorship and special peer relationships one acquires through embarking on the process of one's doctoral journey. The camaraderie and friendship, indeed, as one is supported through the trials, tribulations, and milestones, all contributed to providing a sense of contentment and fulfillment.

In conclusion, this study will contribute to further understanding the social psychological process that actually occurs for nurse educators as they are

preparing in the technique of using HPS within their teaching and learning repertoire. It is my hope that the knowledge generated in this study will 'push the envelope' to promote further discourse and action towards the authenticity, openness and reflective thinking in nursing simulation education. Hopefully, this knowledge will lead to improvement in nursing educational and clinical practice together with improved patient outcomes.

References

Alguire, P.C., Whelan, G.P., & Vijay, R. (2009). *The International Medical Graduate's Guide to United States Medicine and Residency Training*. Gettysburg, PA. American College of Physicians.

Alinier, G., Hunt, W.B., Gordon, R., & Harwood, C. (2006). Effectiveness of intermediate-fidelity simulation training technology in undergraduate nursing education. *Journal of Advanced Nursing, 54*(3), 359-369.

Alinier, G. (2011). Developing high-fidelity health care simulation scenarios: A guide for educators and professionals. *Simulation and Gaming, 42*(1), 9-16.

Allen, G. (2003). A critique of using grounded theory as a research method. *Electronic Journal of Business Research Methods, 2*(1), 1-10.

American Association of Colleges of Nursing. (2008). *Draft. Revision of the essentials of baccalaureate education for professional nursing practice.* Washington, DC: Author.

Annells, M. (1996). Grounded theory method: Philosophical perspectives, paradigm of inquiry, and postmodernism. *Qualitative Health Research*, 6, 379-393.

Annells, M. (2003). Grounded theory. In Z. Schneider, D. Elliott, G. LoBiondo-Wood, & J. Haber (Eds.) *Nursing research: Methods, critical appraisal and utilization* (2nd ed., p.163-178). Sydney: Mosby.

Archer, J.C. (2010). State of the Science in Health Professional Education: Effective Feedback. *Medical Education, 44*(1), 101-108.

Aronson, B. (2012). Geriatrics in simulation: Role modeling and clinical judgment effect. *Journal of Critical Care, 23*(4), 595-602.

Arundell, F., & Cioffi, J. (2009). Using a simulation strategy: An educator's experience. *Nurse Education in Practice, 5*(5), 296-301.

Association of American Medical Colleges. (2007). *Effective use of educational technology: Recommendations and guidelines for medical educators*. Washington, D.C.: Association of American Medical Colleges Institute for Improving Medical Education.

Astedt-Kurki, P. (1994). Humour in nursing care. *Journal of Advanced Nursing*, *20*(1), 183-188.

Axley, A. (2008). Competency: A Concept Analysis. *Nursing Forum*, *43*(4), 214-222.

Backman, K., & Kyngas, H.A. (1999). Challenges of the grounded theory approach to a novice researcher. *Nursing and Health Sciences*, 1, 147-153.

Bailey, P. H. (1997). Finding your way around qualitative methods in nursing research. *Journal of Advanced Nursing*, 25, 18-22.

Baker, A., Jenson, P., & Kolb, D. (2002). Conversational learning: An approach to knowledge creation. *Adult Education Quarterly*, *52*(*3*), 176-192.

Bearnson, C.S. & Wiker, K.M. (2005). Human patient simulators: A new face in baccalaureate nursing education at Brigham Young University. *Journal of Nursing Education, 44*(9), 429-425.

Beaubien, J.M. & Baker, D.P. (2004). The use of simulation for training teamwork skills in health care: How low can you go? *Quality and Safety in Health Care*, 13, 51-56.

Beres, J. (2006). Staff development to University faculty. *Nursing Forum*, *41*(3), 141-145.

Beyea, S., & Kobokovich, L. (2004). Identifying common errors through MedMarx, *Nursing for Women's Health*, 8(2), 130-140.

Bezyack, M. (2007). Simulators help RNs hone skills. *Nursing Spectrum: 2007 Fall Critical Care Specialty Guide,* 68-70.

Binstadt, E.S., Walls, R.M., &White, B.A. (2007). A comprehensive medical simulation education curriculum for emergency medicine residents. *Annals of Emergency Medicine, 49,* 495-504.

Blumer, H. (1969). *Symbolic interactionism: Perspective and method*. Englewood Cliffs, NJ: Prentice Hall.

Bremner, M. N., Aduddell, K., Bennett, D. N., & VanGeest, J. B. (2006). The use of human patient simulators: Best practice with novice nursing students. *Nurse Educator, 31*(4), 170-174.

Brookfield, S. (2006). *The skillful teacher: On technique, trust, and responsiveness in the classroom*. 2nd edition. San Francisco: Jossey-Bass.

Brown, J.S., Collins, A. & Duguid, P. (1989). Situated learning and the culture of learning. *Educational Researcher, 18*(1), 32-42.

Bulman, C. & Schultz, S. (2008). *Reflective practice in nursing*. Liverpool, UK. John Wiley & Sons, Ltd.

Campbell, K., Schwier, R.A., & Kenny, R.F. (2006). Conversation as inquiry: A conversation with instructional designers. *Journal of Learning Design*, *1*(3), 1-18.

Canadian Patient Safety Institute (2005). Current State Report on Simulation in Canada. Ottawa, ON. Author: CPSI National Steering Committee.

Cant, R., & Cooper, S. (2009). Simulation-based learning in nurse education: Systematic review. *Journal of Advanced Nursing, 66* (1), 3-15.

Cantrell, M.A. (2008). The importance of debriefing in clinical simulation. *Clinical Simulation in Nursing, 4*(2), e19-323.

Carter, N. (2004). Nurse-SCAPES: Implementing simulated clinical and patient event staging. Presented at the 10th Biannual North American Learning Resource Centers Conference, Spokane, WA.

Certified Healthcare Simulation Educator Handbook (2012). *Society for Simulation in Healthcare,* Columbia. MO.

Charmaz, K. (2000). Grounded theory: Objectivist and constructivist methods. In N.K. Denzin Y.S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., p. 509-536). Thousand Oaks, CA: Sage.

Chickering, A.W. & Gamson, Z.F. (1987). *Seven principles for good practice in undergraduate education.* Racine, WI: The Johnson Foundation, Inc., Wingspread.

Chenitz, W.C. , & Swanson, J.M. (1986*). From practice to grounded theory: Qualitative research in nursing*. Melon Park: Addison-Wesley.

Chesney Chauvet, S. & Hofmeyer, A. (2007) Humor as a Facilitative Style in Problem-Based Learning Environments for Nursing Students. *Nurse Education Today*, *27*(4), 286-292.

Chicchi, F. (2000). Grounded theory and the biographical approach: An attempt at integrated heuristic strategy. *International Review of Sociology, 10*(1), 5-23.

College and Association of Registered Nurses of Alberta (CARNA). Entry-to-practice Competencies for the Registered Nurses Profession, December, 2006. Edmonton, AB. Author: CARNA.

Collins, A. (1988). *Cognitive apprenticeship and instructional technology*. (Technical Report No. 6899). BBN Labs Inc., Cambridge, MA.

Comer, S. K. (2005). Patient care simulations: Role playing to enhance clinical understanding. *Nursing Education Perspectives*, *26*(6), 357-361.

Courts, P.L. (1991). *Literacy and empowerment: The meaning makers*. New York, Bergin & Garvey.

Coyne, I., & Cowley, S. (2006). Using grounded theory to research parent participation. *Journal of Research in Nursing, 11*(2), 501-515. London, UK: Sage.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative and missed approaches.* Thousand Oaks, CA: Sage.

Crooks, S. (2001). Older women with breast cancer: New understanding through grounded theory research. *Health Care of Women International, 22*, 99-144.

Darling, M., Parry, C., & Moore, J. (2005). Learning in the thick of it. *Harvard Business Review, 83*(7), 84-92.

DeAnda, A. & Gaba, D.M. (1991). Role of experience in the response to simulated critical incidents. *Anesthesiology Analgesia 72*(3), 308-315.

Decker, S., Sportsman, S. Puetz, L. & Billings, L. (2008). The evolution of simulation and its contribution to competency. *The Journal of Continuing Education in Nursing, 39(2),* 74-80.

Dewey, J. (1916*). Democracy and education: An introduction to the philosophy of education*. New York, NY: Macmillan.

Dieckmann, P., Molin Friis, S., Lippert, A., & Ostergaard, D. (2009). The art and science of debriefing in simulation: Ideal and practice. *Medical Teacher*, 31, 3287-3294.

Dilley, P. (2004). Interviews and the philosophy of qualitative research. *Journal of Higher Education, 75*(1), 127-132.

Donnelly, G. (2003). Clinical expertise in advanced practice nursing: A Canadian perspective. *Nurse Education Today*, 23, 168-173.

Dreifuerst. K.T., (2009). The essentials of debriefing in simulation learning: A concept analysis. *Nursing Education Perspectives*, *10*(2), 109-114.

Empowerment [Def.1]. (n.d.). Oxford English Dictionary Online. Retrieved January 2, 2013, from http://en.wikipedia.org/wiki/Oxford_Dictionary

Evans, Y.D. (2001). A synthesis technique for grounded theory data analysis. *Journal of Advanced Nursing,* 333**:** 654-663.

Fanning, R.M.& Gaba, D.M. (2007). The role of debriefing in simulation-based learning. *Simulation in Healthcare,* 2(2), 115-125.

Feingold, C. D., Calaluce, M., & Kallen, M.A. (2004). Computerized patient model and simulated clinical experiences: Evaluation with baccalaureate nursing students. *Journal of Nursing Education*, *43*(4), 156-163.

Field, P.A., & Morse, J.M. (1985). *Nursing research: The application of qualitative approaches.* London, UK: Chapman Hall.

Finney, L., & Olson, K. (2008). Use of high fidelity human patient simulators in Kansas undergraduate nursing programs. *Kansas Nursing Newsletter*, *21*(3), 15-19.

Fletcher, J.L. (1995). Anaesthesia simulation: A tool for learning and research. *AANA Journal*, 63, 62-67.

Gaba, D.M. (1992). Improving anesthesiologists' performance by simulating reality. *Anesthesiology*, 76(4), 491-494.

Gaba, D.M. (1997). Simulators in anesthesiology. *Advances in Anesthesia, 14*, 55-92.

Gaba, D.M. (2004). The future vision of simulation in health care. *Quality and Safety in Health Care, 13*(1), i2-i10.

Gaba, D.M.& DeAnda, A. (1988). A comprehensive anesthesia simulation environment: re-Creating the operating room for research and training. *Anesthesiology, 29*(3), 387-394.

Gaba, D.M., Howard, S.K., Fish, K.J., Yang, G. & Sarnquist, F.H. (1992). Anesthesia crisis. Resource management training: teaching anesthesiologists to handle critical incidents. *Aviation Space Environmental Medicine, 63*(9), 763-770.

Gantt, L.T. (2007). Human simulation in emergency nursing education: Current status. *Journal* of *Emergency Nursing, 33*(1), 69-71.

Glaser, B.G. (1978). *Theoretical sensitivity: Advances in the methodology of grounded theory*. Mill Valley, CA: Sociology Press.

Glaser, B.G. (1992). *Emergence vs. forcing: Basics of grounded theory analysis*. Mill Valley, CA: Sociology Press.

Glaser, B.G. (1998). *Doing grounded theory: Issues and discussions*. Mill Valley, CA: Sociology Press.

Glaser, B.G. (1999). The future of grounded theory. *Qualitative Health Research, 9*(6), 836-845. Mill Valley, CA: Sociology Press.

Glaser, B.G. (2002). Conceptualization: On theory and theorizing using grounded theory. *International Journal of Qualitative Methods. 1*(2). http://www.ualberta.ca/~ijgqm/english/engframeset.html

Glaser, B.G. (2005). Basic social processes. *Grounded Theory Review,(4),* 1-27. Mill Valley, CA: Sociology Press.

Glaser, B.G., & Strauss, A. L. (1967). *The discovery of grounded theory*: *Strategies for qualitative research*. Chicago: Aldine.

Gordon, J.A. (2004). High-fidelity simulation: a revolution in medical education. In: Dunn, W.F. (Ed.) *Simulators in Critical Care Education and Beyond.* Des Plaines, IL: Society for Critical Care Medicine Press, 3-6.

Graddy, D. B. (2001). *Cognitive flexibility theory as a pedagogy for web-based course design*. Retrieved April 18, 2007. http://www.ipfw.edu/as/tohe/2001/Papers/graddy/graddy.htm

Griffin, C. (1992). Absorbing experiential learning. In Mulligan, J. and Griffin, C. (eds). *Empowerment through experiential learning: Exploring good practice*. London, Kogan Page.

Guba, E. G. (1990). The alternative paradigm dialogue. In E.G. Guba (ed.). *The paradigm dialogue* (p. 17-27). London: Sage Publications.

Guba, E.G. & Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In N.K. Denzin & Y.S. Lincoln (Eds.). *Handbook of qualitative research* (p. 105-117). Thousand Oaks, CA: Sage.

Gururaja, R.P., Yang, T, Paige, J.T. & Chauvin, S. (2008). Examining the effectiveness debriefing at the point of care in simulation-based operating room team training. *Agency for Healthcare Research and Quality*: July 2007, 1-17. Available at: www.ahrq.gov/qual/teamstepps.

Haig, K., Sutton, S., & Whittington, J. (2006). SBAR: A shared mental model for improving communication between clinicians. *Journal on Quality and Patient Safety, 32* (3), 167-171.

Hawks, J. (1999). Organizational culture and faculty use of empowering teaching behaviors in selected schools of nursing. *Nursing Outlook*, 47, 67-72.

Heath, H. (2006). Exploring the influences and use of the literature during a grounded theory study. *Journal of Research in Nursing*, *11*(6), 519-528.

Henneman, E. & Cunningham, H. (2005). Using clinical simulation to teach patient safety in an acute/critical care nursing course. *Nurse Educator*, 30, 172-177.

Hoffmann, R.L., O'Donnell, J.M., & Kim, Y. (2007). The effects of human patient simulators on basic knowledge in critical care nursing with undergraduate senior baccalaureate nursing students. *Simulation in Healthcare, 2*(2), 110-114.

Hotchkiss, M., Biddle, C. & Fallacaro, M. (2002). Assessing the authenticity of the human simulation experience in anesthesiology. *American Association of Nurse Anaesthetists Journal, 70,* 470-473.

Hovancsek, M.T. (2007). Using simulation in nursing education. In P. Jefffries (Ed.) *Simulation in Nursing Education*, 1-9, New York: NY. National League of Nursing.

Huehls, R. (2005). An evening of grounded theory: Teaching process through demonstration and simulation. *The Qualitative Report 10* (2), 328-338. New York, NY: Springer Publishing Company.

Institute of Medicine of the National Academies Report Brief (2010). *The future of nursing*: *Focus on education*. Washington: National Academy Press. October: www.iom.edu/nursing

Jeffries, P.R. (2005a). A framework for designing, implementing, and evaluating simulations used as teaching strategies in nursing. *Nursing Education Perspectives*, *26*(2), 96-103.

Jeffries, P.R. (2005b). Designing simulations for nursing education. In M. Oermann & K. Heinrich (Eds.). *Annual Review of Nursing Education, Vol. 4.* New York: New York, Springer Publishing Company, Inc.

Jeffries, P.R. (2006). Technology trends in nursing education: Next steps. *Journal of Nursing Education 44(*1), 3-4. (Invited editorial).

Jeffries, P.R. (2007*). Simulation in nursing education: From conceptualization to evaluation.* New York, NY: National League for Nursing.

Jeffries, P. & Rizzolo, M.A. (2006). Designing and implementing models for the innovative use of simulation to teaching nursing care of ill adults and children: A national, multi-side, muti-method study. New York, NY: National League for Nursing, *Summary Report*, 1-17.

Jones, A., Hegge, M. (2007). Faculty comfort levels with simulation. *Clinical Simulation in Nursing Education, 3,* Article 1.

Kardong-Edgren, S.E., Adamson, K.A., & Fitzgerald, C. (2010). A review of currently published evaluation instruments for human patient simulation. *Clinical Simulation in Nursing,* 6, e25-e35.

Kardong-Edgren, S.E., Starkweather, A.R., & Ward, L.D. (2008). The integration of simulation into a clinical foundations of nursing course: Student and faculty perspectives. *International Journal of Nursing Education Scholarship, 5*(1), 1-16.

Katz, G., Armstrong, G., Preheim, G. (2008). *Using patient simulation in baccalaureate nursing education curricula to enhance clinical readiness*. Poster session at the International Meeting of Simulation in Healthcare, San Diego, CA.

Ker, J.S., Ramsay, J., Hogg, G., Dewar, G. & Ambrose, L. (2003). *Medical use of standardized patients.* Proceedings of the 7th Annual Conference of the Learning in Law Initiative, 1-12. University of Dundee.

Knapp, C.E., & Smith, T. (2009). *Sourcebook for experiential education: Key thinkers and their contributions*. New York, NY: Routledge/Taylor & Francis.

Kneebone, R., Kidd, J., Nestel, D., Asvall, S., Paraskeva, P., & Darzi, A. (2002). An innovative model for teaching and learning clinical procedures. *Medical Education, 36,* 628-634.

Kolb, D.A. (1984). *Experiential learning, Experience as the source of learning and development.* Englewood Cliffs, NJ: Prentice-Hall.

Krathwohl, D.R., Bloom, B.S., & Masai, B.B. (1964). *Taxonomy of educational objectives: Handbook II: Affective domain*. New York: David McKay Company.

Kyle, R.R. (2004). Technological resources for clinical simulation. In: Dunn, W.F. (Ed.). Simulators in Critical Care Education and Beyond. *Des Plaines, IL. Society for Critical Care Medicine Press, 96-113.*

Lamb, D. (2007). Could simulated emergency procedures practiced in a static environment improve the clinical performance of a critical care support team (CCST)? A literature review. *Intensive and Critical Care Nursing 23(*1), pp. 33-42.

Lammers, R.L. (2007). Simulation: The new teaching tool. *Annals of Emergency Medicine, 49(*4), 505-506.

Larew, C., Lessans, S., Spunt, D., Foster, D., & Oovington, B.G. (2006). Innovations in clinical simulation: Application of Benner's theory in an interactive patient care simulation. *Nursing Education Perspectives, 27*(1), 16-21.

Lasater, K.L. (2007). High-fidelity simulation and the development of clinical judgment: Student's experiences. *Journal of Nursing Education 46*(6), 269-276.

Lasater, K. L. (2007). High-fidelity simulation and the development of clinical judgment: Student's experiences. *Journal of Nursing Education* 46(6), 269-276.

Lave, J. & Wenger, E. (1992). *Situated learning: Legitimate peripheral participation.* Cambridge, MA: Cambridge University Press.

Leigh G. (2011). The simulation revolution: What are the implications for nurses in staff development. *Journal for Nurses in Staff Development, 27* (2), 54-57.

Leigh, G. & Hurst, H. (2008). We have a high-fidelity simulation, now what? Making the most of simulators. *International Journal of Nursing Education Scholarship, 5* (1), 1-9.

Lincoln, Y.S. & Guba, E.G. (1987). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *Evaluation Studies Review Annual, 12,* 425-435. Newbury Park, CA: Sage Publications.

Lincoln, N.D., Travers, C., Ackers, P., & Wilkinson, A. (2001). The meaning of empowerment: The etymology of a new management concept. *International Journal of Management Reviews*, *4*(3), 271-290.

Lipson, J.G. (1994). Ethical issues in ethnography. In J.M. Morse (Ed.). *Critical issues in qualitative research methods*, p. 333-355. Thousand Oaks, CA: Sage.

Liu, Z., & Schonetter, D. (2004). Teaching creativity in engineering. *International Journal of Engineering Education, 20*(5), 801-808.

Lunce, L.M. (2006). Simulations: Bringing the benefits of situated learning to the traditional classroom. *Journal of Applied Educational Technology, 3*(1), 37.

Lupien, A. E. (2007). High-fidelity simulations cited in Bradshaw and Lowenstein (Ed.). *Innovative teaching strategies in nursing and related health professions*. New York, NY: Jones & Bartlett.

Mann, K., Gordon, J., & MacLeod, A. (2009). Reflection and reflective practice in health professions education: a systematic review. *Advances in Health Science Education*, 14, 595-621.

McGaghie, W.C., Issenberg, S.B., Petrusa, E.R., & Scalese, R.J. (2010). A critical review of simulation-based medical education research: 2003-2009. *Medical Education*, 44, 50- 63.

McCann, T., & Clark, E. (2003). Grounded theory in nursing research: Part 1-Methodology. *Nurse. 11*(2), 7-18.

McCausland, L. L., Curran, C. C. , & Cataldi, P. (2004). Use of a human simulator for undergraduate nurse education. *International Journal of Nursing Education Scholarship, 1*(1), 1-17.;

McPherson, G., Rodney, P., McDonald M., Storch, J., Pauly, B., & Burgess, M. (2004). Working within the landscape: Applications in health care ethics. In J. Storch, P. Rodney & R. Starzomski, *Toward a moral horizon: Nursing ethics for leadership and practice,* p. 131-132. Toronto: Pearson Education Canada.

Medical Education Technologies, Inc, 2011. https://caehealthcare.com/home/eng/product_services/#

Medley, C.F. & Horne, C. (2005). Using simulation technology for undergraduate nursing education. *Journal of Nursing Education, 44*(1), 31-34.

Merrell, J., & Williams, A. (1994). Participant observation and informed consent: relationships and tactical decision making in nursing research. *Nursing Ethics, 1*(3), 163-172.

Montgomerie, H., Raymond, C. & Smitten, J. (2006). Use of simulation in nursing education: Exploring perspectives and practices. In T. Reeves & S. Yamashita (Eds.). *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare and Higher Education,* 790-795. Chesapeake, VA: AACE.

Moore, L., & Savage, J. (2002). Participant observation, informed consent and ethical approval. *Nursing Research, 9*(4), 58-69.

Morgan, D.A., Johnson, J.G., & Garrison, D.R. (2007). Nurses lead change. In Rebecca A. Patronis Jones (Ed.). *Nursing leadership and management: Theories, processes and practice,* 167-182. Philadelphia: F.A. Davis.

Morse, J.M. (1995). Editorial: The significance of saturation. *Qualitative Health Research, 5*(2), 147-149.

Morse, J.M. (2001). Situating grounded theory within qualitative inquiry. In: R. Schreiber, P.N. Stern, P.N. (eds). *Using Grounded Theory in Nursing* (p.1-15) New York, NY: Springer Publishing Company.

Morse, J.M., & Field, P.A. (1995). *Qualitative research methods for health professionals* (2nd Ed.). Thousand Oaks, CA: Sage.

Morton, P.G., & Rauen, C.A. (2004). Using simulation in nursing education: the University of Maryland and Georgetown University experiences. *Annual Review of Nursing Education,* 2, 139-161.

Moule, P., Wilford, A., Sales, R. & Lockyer, L. (2008). Student experiences and mentor views of the use of simulation for learning. *Nurse Education Today,* 28, 790-797.

Mulligan,, J., & Griffin, C. (1992). *Empowerment through experiential learning: Explorations of good practice*. Bristol, PA: Kogan Page.

Murray, D.J. (1998). Clinical simulation: Technical novelty or innovation in education. *Anaesthesiology 89*(1), 1-2.

Myrick, F**.,** & Yonge, O. (2005). *Nursing preceptorship: Connecting practice and education*. Philadelphia, PA: Lippincott, Williams & Wilkins.

Myrick, F., & Walker, D. (2006). Grounded theory: An exploration of process and procedure. *Qualitative Health Research, 16* (4), 547-559. New York, NY: Lippincott Williams & Wilkins.

Myrick, F., Yonge, O., & Billay, D. (2010). Preceptorship and practical wisdom: A process of engaging in authentic nursing practice. *Nurse Education in Practice,* 10, 82-87.

National Council of State Boards of Nursing (2005). Position paper on clinical education. Chicago, IL.: Author.

National League for Nursing. (2005). Hallmarks of excellence in nursing education. New York: Author.

National League for Nursing (2006). Mentoring nursing faculty. New York: Author.

National League for Nursing (2007). Simulation Innovation Resource Centre. New York: Author.

Nehring, W.M., Ellis, W.E., Lashley, F.R. (2001). Human patient simulators in nursing education: an overview. *Simulation and Gaming, 32*(2), 194-204.

Nehring, W., Lashley, F., & Ellis, W. (2003). Critical incident nursing management using human patient simulators**.** *Nursing education perspectives 23(*3), pp.128-132.

Nehring, W.M., & Lashley, F.R. (2004). Using the human patient simulator in nursing education. *Annual Review of Nursing Education,* 2, 163-181.

Nehring, W.M., & Lashley, F.R. (2009). Current use and opinions regarding human patient simulations in nursing education: An international survey. *Nursing Education Perspectives*, *25*, 244-248.

Neill, M.A., & Wotton, K. (2011). High-fidelity simulation debriefing in nursing education: A literature review. *Clinical Simulation in Nursing*, 7, e161-168.

Owen-Mills, V. (2008). A synthesis of caring praxis and critical social theory in an emancipatory curriculum. *Journal of Advanced Nursing*, *21*(6), 1191-1195.

Paige, J.B., & Dailey, B.J. (2009). Situated cognition: A learning framework to support and guide high-fidelity simulation. *Clinical Simulation in Nursing*, *5*(3), 397-3103.

Parker, B.C., & Myrick, F. (2009). A critical examination of high-fidelity human patient simulation within the context of nursing pedagogy. *Nursing Education Today*, *29*(3), 322-329.

Parker, B.C., & Myrick, F. (2010). Transformative learning as a context for human patient simulation. *Journal of Nursing Education*, *49*(6), 326-332.

Parr, M.B. & Sweeney, N.M. (2006). Use of human patient simulation in an undergraduate critical care course. *Critical Care Nursing Quarterly*, *29*(3), 188-198.

Patow, C. A. (2005). Advancing medical education and patient safety through simulation learning. *Patient Safety & Quality Healthcare*, March/April, 2005.

Penson, R.T. (2005). Laughter: The best medicine? *The Oncologist*, 10, 651-660.

Perry, C., Thurston, M., & Green, K. (2004). Involvement and detachment in researching sexuality: Reflections on the process of semistructured interviewing. *Qualitative Health Research, 14*(1), 135-148.

Peteani, L. (2004). Enhancing clinical practice and education with high-fidelity human patient simulators. *Nurse Educator, 29*(1), 25-30.

Peters, M. (2000). Does constructivist epistemology have a place in nursing education? *Journal of Nursing Education. 39*(4), 166-172.

Ploeg, J. (1999). Identifying the best research design to fit the question. Part 2: Qualitative designs. *Evidence-based Nursing* 1999, 2, 36-37.

Plummer, K. (1996). Social interactionism in the twentieth century: The rise of empirical social theory. p.223-251. In *The Blackwell Companion to Social Theory*. Ed. Bryan S. Turner. Oxford, UK: Blackwell.

Polit, D.E. & Beck, C.T. (2004). *Nursing research: Methods, appraisal, and utilization.* 7th Ed. Philadelphia: Lippincott, Williams, & Wilkins.

Prion, S. (2008). A practical framework for evaluating the impact of clinical simulation experiences in prelicensure nursing education. *Clinical Simulation in Nursing 4*(3), 69-78.

Radhakrishnan, K., Roche, J.P. & Cunningham, H. (2007). Measuring clinical practice parameters with human patient simulation: A pilot study. *International Journal of Nursing Scholarship, 4*(1), 1-67.

Rauen, C.A. (2001). Using simulation to teach critical thinking skills. *Critical Care Nursing Clinics of North America, 13*(1), 93-103.

Rauen, C.A. (2004). Simulation as a teaching strategy for nursing education and orientation in cardiac surgery. *Critical Care Nurse, 24*(3), 46-51.

Ravert, P. (2002). Does human simulator use affect critical thinking in nursing? Presented at the Annual International Meeting on Medical Simulation Conference, Santa Clara, CA.

Reed, P.G. & Runquist, J.J. (2007). Reformulation of a methodological concept in grounded theory. *Nursing Science Quarterly*, 20, 118-122.

Rhodes, M., & Curran, C. (2005). Use of the human patient simulator to teach clinical judgment skills in a baccalaureate nursing program. *CIN: Computers, Informatics, Nursing,* 23, 256-264.

Robrecht, L.C. (1995). Grounded theory: Evolving methods. *Qualitative Health Research. 5*(2), 169-177.

Romyn, D.M. (2001). Disavowal of the behaviorist paradigm in nursing education: What makes it so difficult to unseat? *Advances in Nursing Science 23*(3), 1-10.

Rothgeb, M.K. (2008). Creating a nursing simulation laboratory: A literature review. *Journal of Nursing Education, 47*(11), 489-494.

Rudolph, J.W., Simon, R., Dufresne, R.L., & Raemer, D.B. (2006). There's no such thing as "nonjudgmental" debriefing: A theory and method for debriefing with good judgment. *Simulation in Healthcare, 1*(1), 49-55.

Rudolph, J.W., Simon, R., Rivard, P., Dufresne, R.L., & Raemer, D.B. (2007). Debriefing with good judgment: Combining rigorous feedback with genuine inquiry. *Anesthesiology Clinics*, 25(2), 361-376.

Sandelowski, M. (1993). Rigor or rigor mortis: the problem of rigor in qualitative research revisited. *Advances in Nursing Science*. *16*(2), 1-8.

Saucier, B.L., Stevens, K.R. & Williams, G.B. (2000). Critical thinking outcomes of computer-assisted instruction versus written nursing process. *Nursing and Health Care Perspectives*, 21(5), 240-246.

Savoldelli, G., Naik, V., Park, J., Joo, H., Chow, R., Houston, P., et al. (2006). The value of debriefing in simulation –based education: Oral versus video-based feedback. *Simulation in Healthcare, 1*, 93-102.

Schaefer, J. J., Vanderbilt, A., Cason, C., Bauman, E., Glavin, R., Lee, F., & Navedo, D. (2011). Literature review: Instructional design and pedagogy science in healthcare simulation. *Simulation in Healthcare, 6(*7), S30-S41.

Schon, D. (1983). *The reflective practitioner: How professionals think in action*. New York, NY: Basic Books.

Schon, D. A. (1987). *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions*. San Francisco, CA: Jossey-Bass.

Schoening, A.M., Sittner, B.J., & Todd, M.J. (2006). Simulated clinical experience: nursing students' perceptions and the educators' role. *Nurse Educator, 31*(6), 253.

Schreiber, R.S., Stern, P.N. (2001). *Using grounded theory in nursing.* New York: NY. Springer Publishing Co.

Schumacher, L.B. (2005). The impact of utilizing high-fidelity computer simulation on critical thinking abilities and learning outcomes in undergraduate nursing students. Presented at the Annual International Meeting on Medical Simulation, Miami, FL. Retrieved from http://www.anestech.org/Publications?IMMS_2005

Seropian, M.A. (2003). General concepts in full scale simulation: Getting started. *Anesthesia Analgesia, 97(*6), 1695-1705.

Seropian, M.A., Brown, K., Gavilanes, J.S., & Driggers, B. (2004a). An approach to simulation program development. *Journal of Nursing Education, 43*(4), 170-174.

Seropian, M.A., Brown, K., Gavilanes, J.S., & Driggers, B. (2004b). Simulation: not just a manikin. *Journal of Nursing Education, 43*(4), 164-169.

Smitten, J., Briggs, Y. (2007) Perspectives and strataGEMS: A roadmap towards successful development of proficient nursing simulation educators. *Syllabus Abstract, Society for Simulation in Healthcare.* 2007 Annual Conference, San Diego, CA.

Smitten, J., Montgomerie, H., Briggs, Y., & Hadley, M. (2008). Making nursing mistakes without patient risk: Simulation to the rescue!. In J. Luca & E. Weippl (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2008,* p. 1138-1147. Chesapeake, VA: AACE.

Solnick, A. (2007). High-fidelity simulation in nursing education: A review of the literature. *Clinical Simulation in Nursing* 2(1), e42-345.

Speziale, H.J., & Carpenter, D.R. (2007). *Qualitative research in nursing: Advancing the humanistic imperative.* 4th Edition. Philadelphia: PA Lippincott Williams & Wilkins.

Spiro, R.J., Coulson, R.L., Feltovich, P.J., & Anderson, D. (1988). Cognitive flexibility theory: Advanced knowledge acquisition in ill-structured domains. In V. Patel (ed.), Proceedings of the 10th Annual Conference of the Cognitive Science Society. Hillsdale, NJ: Erlbaum.

Spiro, R.J., Feltovich, P.J., Jacobson, M.J., & Coulson, R.L. (1991). Knowledge representation, content specification, and the development of skill in situation-specific knowledge assembly: Some constructivist issues as they relate to cognitive flexibility theory and hypertext. *Educational Technology, 31(9),* 22-25.

Spiro, R.J., Feltovich, P.J., Jacobson, M.J., & Coulson, R.L. (1995). Cognitive flexibility, constructivism and hypertext: Random access instruction for advanced knowledge acquisition in ill-structured domains. In T. Duffy & D. Jonassen (Eds.), *Constructivism and the Technology of Instruction.* Hillsdale, NJ: Erlbaum.

Spiro, R.J., & Jehng, J. (1990). Cognitive flexibility and hypertext: Theory and technology for the non-linear and multidimensional traversal of complex subject matter. In D. Nix & R. Spiro (eds*), Cognition, Education and Multimedia*. Hillsdale, NJ: Erlbaum.

Spunt, D., Foster, D., Adams, K. (2004). Mock code: A clinically simulated module. *Nurse Educator, 29*(5), 192-194.

Starkweather, A., & Kardong-Edgren, S. (2008). Diffusion of innovation: Embedding simulation into nursing curricula. *International Journal of Nursing Education Scholarship, 5,* Article 13.

Steinwachs, B. (1992). How to facilitate a debriefing. *Simulation Gaming*, 23(2), 186-195.

Stern, P.N. (1980). Grounded theory methodology: Its uses and processes. *IMAGE: The Journal of Nursing Scholarship, 12*(1), 20-30.

Stern, P.N. (1994). Eroding grounded theory. In: J.M. Morse (ed.). *Critical Issues in Qualitative Research Methods* (p. 212-223). Thousand Oaks, CA: Sage.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques.* Newbury Park, CA: Sage.

Strauss, A., & Corbin, J. (1998). *Basic of qualitative research- Grounded theory procedures and techniques* (2nd ed.). Newbury Park, CA: Sage.

Sullivan-Mann, J., Perron, C.A., & Fellner, A.N. (2009). The effects of simulation on nursing students' critical thinking scores. *Newborn and Infant Nursing reviews, 9*(2), 111-116.

Syracruse Herald. "Then good luck, and remember the sky's the limit." September, 1911. New York. NY. Print.

Taylor, C. (1995). *The ethics of authenticity*. Boston: MA. Harvard University Press. Morse, J.M. (2001). Situating grounded theory within qualitative inquiry. In: R. Schreiber, P.N. Stern, P.N. (eds). *Using Grounded Theory in Nursing* (p.1-15) New York, NY: Springer Publishing Company.

Todd, M., Manz, J.A., Hawkins, K.S., Parsons, M.E., & Hercinger, M. (2008) The development of a quantitative evaluation tool for simulations in nursing education. *International Journal of Nursing Education Scholarship, (5)*1, 1-17.

Treadwell, I., & Grobler, S., (2001). Students' perceptions on skills training in simulation. *Medical Education, 23*(5), 476-482.

Underberg, K.E. (2003). Experiential learning and simulation in health care education. *ProQuest Nursing and Allied Health Source: SSM, 9*(4), 31-36.

Van Heukelom, J.N., Begaz, T., & Treat, R. (2010). Comparison of postsimulation debriefing versus in-simulation debriefing in medical simulation. *Simulation in Healthcare, 5*(2), 91-97.

Vozenilek, J., Wang, E., & Kharasch, M. (2006). Simulation-based morbidity and mortality conference: New technologies augmenting traditional case-based presentations. *Annals of Emergency Medicine,* 13, 48-53.

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

Walker, D. & Myrick. F. (2006). Grounded theory: An exploration of process and procedure. *Qualitative Health Research, 16*(4), 547-559.

Watson, J. (1988). *Nursing: human science and human care*. New York: National League for Nursing.

Weller, J. M. (2004). Simulation in undergraduate medical education: Bridging the gap between theory and practice. *Medical Education*, *38*(1), 32-38.

Wilford, A., & Doyle, T. (2006). Integrating simulation training into nursing curriculum. *British Journal of Nursing*, 15(11), 604-607.

Wilson, M., Torrance, C., Shepherd, I., Lister, L., & Kelly, C. (2004). Assessing recently graduated nurses' health assessment knowledge and clinical reasoning skills using low fidelity human patient simulation. Presented at the Asia-Pacific Nursing Conference, November 10-12, 2004 at Sydney, Australia.

Wong, A. K. (2004). Full scale computer simulators in anesthesia training and evaluation. *Canadian Journal of Anesthesia, 51*(5), 455-464.

World Health Organization. 2002. *Quality of Care: Patient Safety.* Report by the Secretariat.

Yonge, O. & Stewin, L. (1988). Reliability and validity: Misnomers for qualitative research. *The Canadian Journal of Nursing Research, 20*(2), 61–67.

Young, L.E. & Paterson, B.L. (2007). *Teaching nursing: Developing a student-centered learning environment.* Philadelphia, PA: Lippincott, Williams & Wilkins.

Zekonis, D. & Gantt, L.T. (2007). New graduate nurse orientation in the emergency department: Use of a simulation scenario for teaching and learning. *Journal of Emergency Nursing, 33*, 283-28.

Relevant Websites

Canadian Public Safety Institute www.patientsafetyinstitute.ca

College and Association of Registered Nurses of Alberta www.nurses.ab.ca

International Nursing Association for Clinical Teaching and Learning www.inacsl.org

Institute for Healthcare Improvement www.ihi.org

Medical Education Technologies, Inc. www.meti.com/

National League for Nursing www.nln.org

The Canadian Institute for Health Information www.cihi.ca

The Canadian Institutes for Health Research www.cihr.ca

The Society for Simulation in Health Care www.ssih.org

The Society for Modeling and Simulation International www.scs.org

University of Alberta, Faculty of Nursing www.uofaweb.ualberta.ca/nursing/

http://en.wikipedia.org/wiki/Suspension_of_disbelief

Appendix A: LETTER OF INFORMATION

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Nursing Student

Research Study: **Nurse Educators Preparing for the Use of High-Fidelity Human Patient Simulation**

Investigator:

Jayne Smitten,
BA, MEd, PhD Student

Faculty of Nursing
#6-104D Clinical Sciences

University of Alberta
Edmonton, AB
T6G 2G3
jayne.smitten@ualberta.ca

Co-Investigator:

Dr. Florence Myrick, RN,
RN, PhD, Professor

Faculty of Nursing
#6-104 Clinical Sciences

University of Alberta
Edmonton, AB.
T6G 2G3
flo.myrick@ualberta.ca

Introduction

Dear Nursing Student,

You are invited to participate in a very interesting research study. The proposed research can increase our insight and understanding of nurse educators preparing for the use of high-fidelity human patient simulation (HHPCS), an educational tool that helps prepare you, as a nursing student, for the clinical setting. The Letter of Information should give you a general idea of what the research project is all about and what your participation will involve. Please feel free to contact me for further clarification on any questions you may have. Please read this information carefully.

My name if Jayne Smitten. I have been involved in the area of educational human patient computer simulation since 1998 when I was first exposed to simulation as an educational tool within the healthcare setting. I was appointed the Regional Director of the first Patient Simulation Centre in Western Canada with responsibility to plan, implement, and evaluate the simulation programs for this new and innovative centre. Not only was I involved in program development, I was also a teacher and learner in the patient simulation process. My passion in patient simulation education continues and I am currently pursuing a PhD in nursing in the Faculty of Nursing at the University of Alberta. As a result, my dissertation focus is on further understanding and insight into what is required in preparing the nurse educator in the use of the high-fidelity human patient computer simulation.

Background/Purpose of the Study

High-fidelity human patient computer simulation (HHPCS) has contributed to changing the landscape of nursing education in the past decade. This educational tool and environment has the potential to offer an effective solution towards creating a realistic and safe method of educating students within our healthcare educational domains. The purpose of this research study is to examine how nurse educators prepare for the use of high-fidelity human patient simulation within this innovative educational setting. Exploration into this area will reveal what is necessary to prepare the nurse educators, and inevitably, making it a valuable and informative teaching and learning experience to prepare you for the reality of clinical practice and quality patient care.

Procedure

The researcher will collect data about the process involved in the teaching and learning process in the HHPCS environment. If you decide to participate, there will be an opportunity for actual observation of you and your nursing instructor's teaching and learning process within the simulation environment. Also, if you decide to participate, you will likely participate in an initial individual interview and possibly on or two follow-up interviews. The initial interview will likely last about one hour, and arranged at mutually convenient date and time with the researcher. Subsequent interviews could last anyway from 20 minutes to a maximum of an hour in length. The interviews will be tape-recorded and notes may also be taken by the researcher. Immediately after each interview, tape-recorded interviews and hand-written field notes will be transcribed and analyzed.

Privacy and Confidentiality:

All information collected will be held confidential (or private), except when professional codes of ethics or legislation (or the law) requires reporting. The researcher's observation field notes, journal notes and audiotapes will be kept in a safe area in a locked cabinet and only the researcher will have access to them. No names or identifying information will appear in any of the written information, whether it involves transcribed audiotape notes or field notes generated in the observational sessions of the teaching and learning process in the Simulation Centre. The final report of the study may include some of your own words, but your name and/or any identifying information will not appear. Coding will be used to ensure anonymity and your name will not be used in any presentation or publications that occur as a result of this study. All information provided for this study will be safely and securely stored in the Faculty of Nursing, University of Alberta, in the researcher's cabinet, located in the dissertation supervisor's research office.

Consent

It is entirely up to you as to whether you participate in this research study. If you decide to participate in this research study, you will be asked to sign a Consent form. All who participate in this study will be expected to provide voluntary consent. Also, if you decide to participate, you may choose not to answer any of the questions or discuss any subject in the interview process if you do not want to. You are a volunteer participant and, therefore, may withdraw from the study at any time without any penalty to you.

Benefits

No direct benefits are likely from your participation in this research study. However, upon completion of the study, it is possible that the research results may help improve the patient simulation teaching and learning experiences. With insight and further understanding of the preparation for nurse educators and nursing students utilizing the realistic, safe, workable and achievable solutions created by means of the high-fidelity human patient simulator educational tool, client/patient care will inevitably improve.

Risks

There are no foreseen risks or disadvantages in taking part in this research study.

Use of Data

All written materials generated from field notes, journals and transcribed audio-tape notes will only be reviewed by the researcher and the dissertation supervisor. The transcribed notes will also be reviewed by the transcriber. The audio-tapes of the research interviews will be destroyed once the study is completed. It is the intention of the researchers to publish and disseminate the research study results in professional journals and also to present them at professional conferences. A summary of the findings will be available to you upon request.

Future Use of the Data

The information gathered for this study may be reviewed again in the future to help us answer future study questions. If so, the ethics board will first review the study to ensure the information is used ethically. If you would like more information about the study, or would be interested in participating, please complete the bottom of this form and return it in the attached, stamped envelope or call me at 780-492-8913 and leave a voice message. I will contact you by phone to answer any questions you have.

Additional Contacts

If you have any further questions or comments about this research study, please feel free to contact: Jayne Smitten at (780) 492-8913 or my supervisor, Dr. Florence Myrick at (780) 492-0251.
In addition, you can contact the Associate Dean of Research, Dr. Christine Newburn Cook at (780) 492-6764.

Thank you for reading this information sheet and for your consideration.

Sincerely,
Jayne Smitten, RN, BA, MEd.
PhD Student

I would like to be contacted for further information about participation in Jayne Smitten's study:

Nursing Student

Research Study: Nurse Educators Preparing for the Use of High-Fidelity Human Patient Simulation

Name:

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Address:

Email:

Phone Number: **Home**:

Cell:

Most convenient days/times to telephone me:

Appendix B: LETTER OF INFORMATION

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Nurse Educator

Research Study: **Nurse Educators Preparing for the Use of High-Fidelity Human Patient Simulation**

Investigator:

Jayne Smitten,
BA, MEd, PhD Student

Faculty of Nursing
#6-104D Clinical Sciences

University of Alberta
Edmonton, AB
T6G 2G3
jayne.smitten@ualberta.ca

Co-Investigator:

Dr. Florence Myrick, RN,
RN, PhD, Professor

Faculty of Nursing
#6-104 Clinical Sciences

University of Alberta
Edmonton, AB.
T6G 2G3
flo.myrick@ualberta.ca

Introduction

Dear Nurse Educator,

You are invited to participate in a very interesting research study. You are invited to participate in a very interesting research study. The proposed research can increase our insight and understanding of nurse educators preparing for the use of high-fidelity human patient simulation (HHPCS), an educational tool that helps prepare you, as a nursing student, for the clinical setting. The Letter of Information should give you a general idea of what the research project is all about and what your participation will involve. Please feel free to contact me for further clarification on any questions you may have. Please read this information carefully.

My name if Jayne Smitten. I have been involved in the area of educational human patient computer simulation since 1998 when I was first exposed to simulation as an educational tool within the healthcare setting. I was appointed the Regional Director of the first Patient Simulation Centre in Western Canada with responsibility to plan, implement, and evaluate the simulation programs for this new and innovative centre. Not only was I involved in program development, I was also a teacher and learner in the patient simulation process. My passion in patient simulation education continues and I am currently pursuing a PhD in nursing in the Faculty of Nursing at the University of Alberta. As a result, my dissertation focus is on further understanding of the teaching and learning experiential process that occurs in the nursing simulation environments.

Background/Purpose of the Study

High-fidelity human patient computer simulation (HHPCS) has contributed to changing the landscape of nursing education in the past decade. This educational tool and environment has the potential to offer an effective solution towards creating a realistic and safe method of educating students within our healthcare educational domains. The purpose of this study is to examine how nurse educators prepare for the use of high-fidelity human patient simulation within this innovative educational setting. Exploration into this area will reveal what is necessary to prepare the nurse educators, and inevitably, making it a valuable and informative teaching and learning experience to prepare nursing students for the reality of clinical practice and quality patient care.

Procedure

The researcher will collect data about the process involved in the teaching and learning process in the HHPCS environment. If you decide to participate, there will be an opportunity for actual observation of you and your nursing student in the teaching and learning process within the simulation environment. Also, if you decide to participate, you will likely participate in an initial individual interview and possibly on or two follow-up interviews. The initial interview will likely last about one hour, and arranged at mutually convenient date and time with the researcher. Subsequent interviews could last anyway from 20 minutes to a maximum of an hour in length. The interviews will be tape-recorded and notes may also be taken by the researcher. Immediately after each interview, tape-recorded interviews and hand-written field notes will be transcribed and analyzed.

Privacy and Confidentiality:

All information collected will be held confidential (or private), except when professional codes of ethics or legislation (or the law) requires reporting. The researcher's observation field notes, journal notes and audiotapes will be kept in a safe area in a locked cabinet and only the researcher will have access to them. No names or identifying information will appear in any of the written information, whether it involves transcribed audiotape notes or field notes generated in the observational sessions of the teaching and learning process in the Simulation Centre. The final report of the study may include some of your own words, but your name and/or any identifying information will not appear. Coding will be used to ensure anonymity and your name will not be used in any presentation or publications that occur as a result of this study. All information provided for this study will be safely and securely stored in the Faculty of Nursing, University of Alberta, in the researcher's cabinet, located in the dissertation supervisor's research office.

Consent

It is entirely up to you as to whether you participate in this research study. If you decide to participate in this research study, you will be asked to sign a Consent form. All who participate in this study will be expected to provide voluntary consent. Also, if you decide to participate, you may choose not to answer any of the questions or discuss any subject in the interview process if you do not want to. You are a volunteer participant and, therefore, may withdraw from the study at any time without any penalty to you.

Benefits

No direct benefits are likely from your participation in this research study. However, upon completion of the study, it is possible that the research results may help improve the patient simulation teaching and learning experiences. With insight and further understanding of the preparation for nurse educators and nursing students utilizing the realistic, safe, workable and achievable solutions created by means of the high-fidelity human patient simulator educational tool, client/patient care will inevitably improve.

Risks

There are no foreseen risks or disadvantages in taking part in this research study.

Use of Data

All written materials generated from field notes, journals and transcribed audio-tape notes will only be reviewed by the researcher and the dissertation supervisor. The transcribed notes will also be reviewed by the transcriber. The audio-tapes of the research interviews will be destroyed once the study is completed. It is the intention of the researchers to publish and disseminate the research study results in professional journals and also to present them at professional conferences. A summary of the findings will be available to you upon request.

Future Use of the Data

The information gathered for this study may be reviewed again in the future to help us answer future study questions. If so, the ethics board will first review the study to ensure the information is used ethically. If you would like more information about the study, or would be interested in participating, please complete the bottom of this form and return it in the attached, stamped envelope or call me at 780-492-8913 and leave a voice message. I will contact you by phone to answer any questions you have.

Additional Contacts

If you have any further questions or comments about this research study, please feel free to contact: Jayne Smitten at (780) 492-8913 or my supervisor, Dr. Florence Myrick at (780) 492-0251.

In addition, you can contact the Associate Dean of Research, Dr. Christine Newburn Cook at (780) 492-6764.

Thank you for reading this information sheet and for your consideration.

Sincerely,
Jayne Smitten, RN, BA, MEd.
PhD Student

I would like to be contacted for further information about participation in Jayne Smitten's study:

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Nurse Educator

Research Study: Nurse Educators Preparing for the Use of High-Fidelity Human Patient Simulation

Name:

Address:

Email:

Phone Number: **Home**:

Cell:

Most convenient days/times to telephone me:

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Appendix C: CONSENT FORM

Nursing Student and Nurse Educator

Research Study: **Nurse Educators Preparing for the Use of High-Fidelity Human Patient Simulation**

Investigator:
Jayne Smitten,
BA, MEd, PhD Student
Faculty of Nursing
#6-104D Clinical Sciences
University of Alberta

Co-Investigator:
Dr. Florence Myrick, RN,
RN, PhD, Professor
Faculty of Nursing
#6-104 Clinical Sciences
University of Alberta

Description of the Research Project: Each participant will be required to engage in at least two and possibly three audio-taped interviews. The initial interview will take approximately 60 to 90 minutes. Subsequent interviews may take between 20 to 60 minutes. You will also be observed in the Clinical Simulation environment of the University of Alberta. You will not be reimbursed for participating in this research project.

To be Completed by the Research Participants	**Yes**	**No**
Do you understand that you have been asked to be in a research study?	☐	☐
Have you read and received a copy of the attached Letter of Information?	☐	☐
Have you had an opportunity to ask questions and discuss this study?	☐	☐
Do you understand that you are free to withdraw from the study at any time? You do not have to give a reason.	☐	☐
Has the issue of confidentiality been explained to you	☐	☐
Do you consent to be interviewed?	☐	☐
Do you consent to being observed in a teaching and learning activity in the Clinical Simulation Centre?	☐	☐
Do you understand who will have access to your any written materials and audio-tapes that are obtained for this research study?	☐	☐
Do you agree to have your data reviewed at a later date?	☐	☐
Do you give permission to the researcher to revisit your data-pending Ethics approval or review?	☐	☐

This research study was explained to me by: _____

I have read and understand the above information, and agree to take part in this research study. ☐ ☐

Signature of Research Participant _____

(Printed Name) _____Date:_____

Signature of Witness_____

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

Signature of Investigator _____

(Printed Name) _____Date:_____

A **LETTER OF INFORMATION** is attached to this **CONSENT FORM**.

The Research Participants will receive a **COPY** of the: Letter of Information and the Consent Form.

Appendix D: DEMOGRAPHIC FORM

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Nursing Student

Research Study: **Nurse Educators Preparing for the Use of High-Fidelity Human Patient Computer Simulation**

Investigator:
Jayne Smitten,
BA, MEd, PhD Student
Faculty of Nursing
#6-104D Clinical Sciences
University of Alberta
Edmonton, AB
T6G 2G3
jayne.smitten@ualberta.ca
Phone: (780) 909-9148 (Mobile)

Co-Investigator:
Dr. Florence Myrick, RN,
RN, PhD, Professor
Faculty of Nursing
#6-104 Clinical Sciences
University of Alberta
Edmonton, AB.
T6G 2G3
flo.myrick@ualberta.ca

Please fill out the following information:

Name: _____

Phone Number: _____ (Home) _____ (Cellular)

Email Address:

Nursing Student

1. Date of Birth: Month _____ Year _____

2. Gender: Male _____ Female _____

3. Year in Baccalaureate Nursing Program _____

Briefly describe the experience(s) you have had in the Clinical Simulation Centre-. Use the back of the page if necessary.

Appendix E: Demographic Form:

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Nursing Educator

Research Study: **Nurse Educators Preparing for the Use of High-Fidelity Human Patient Simulation**

Please fill out the following information:

Name:_____

Phone Number: _____ (Home) _____ (Cellular)

Email Address: _____

Nurse Educator

1. Code Name: _____
2. Date of Birth: Month _____ Year _____
3. Gender: Male _____ Female _____
4. Nursing Faculty Education _____Baccalaureate _____ Master
5. Education other than Nursing Education:(List if applicable)

   _____
6. Total Years of Nursing Educator Experience _____
7. Briefly describe the experience(s) you have had as Nursing Educator in the Clinical Simulation Centre.
8. Briefly describe how you were prepared for the role of a Nursing Educator in the Clinical Simulation Centre.

Appendix F: Interview Guide

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Nurse Educator

Research Study: **Nurse Educators Preparing for the Use of High-Fidelity Human Patient Simulation**

These questions will be utilized as a *guide* in the first interview to provide systematic data collection for all participants. Because it is not possible to determine *a priori* what successive interviews will include, subsequent interviews will be used to obtain explanations concerning areas that lack clarity. They will further direct questioning, which will provide a more complete description for the theory development.

1. Tell me about your experience and role as nurse educator in the Clinical Simulation environment.

2. Describe for me how you were prepared for the Clinical Simulation teaching and learning experience.

3. Describe for me the characteristics and/or skills you think you need as nursing educator in the Clinical Simulation environment?

4. How is the teaching and learning process in the Clinical Simulation environment different from your other teaching and learning experiences in the clinical setting?

5. What are your own perceptions of how helpful you are in creating an effective teaching and learning experience for the nursing students in the Clinical Simulation setting.

Appendix G: Clinical Simulation Observation Guide

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Nurse Educator and Nursing Students

Research Study: **Nurse Educators Preparing for the Use of High-Fidelity Human Patient Simulation**

These questions will be utilized as a *guide* for all observations in the Clinical Simulation setting. These questions are intended to provide systematic data collection related to all research participants.

1. How does the Nurse Educator interact with the Nursing Student? (What approaches are used?)

2. What is the Nursing Student's preferred learning style?
   What is the Nurse Educator's preferred learning style?

3. Describe how knowledge is conveyed from the Nurse Educator to the Nursing Student.

4. Describe the kinds of questions that the:
   i. Nurse Educator asks the Nursing Student.
   ii. Nursing Student asks the Nursing Educator

5. What level of questioning is involved in the interaction between the Nurse Educator and the Nursing Student in the Clinical Simulation setting?

6. What are factors in the Clinical Simulation setting that appear to be key influences on the Nursing Student and Nursing Educator relationship?

7. Using specific descriptors, describe the teaching and learning process that occurs in the Clinical Simulation setting.

Appendix H: Proposed Budget and Justification

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Research Study: **Nurse Educators Preparing for the Use of High-Fidelity Human Patient Simulation**

Item	Justification	Cost
Personal Costs	Transcriber for Interviews (Approx. $18/hr + Benefits)	$ 700..00 Subtotal: $ 700.00
Non-disposable Equipment	Tape Recorder with Microphone with Transcriber Duracell Alkaline AA Batteries Formatted CD ROM Disks $6.00 x 4 - $24.00 (Staples) Maxwell 90-minute Audio-tapes $6.00 X 30 - $180.00 (Staples)	$ 600.00 $ 30.00 $ 24.00 $ 180.00 Subtotal: $ 834.00
Other Supplies	Stationary (500 sheets) $22.00 x 8 = $ 175.00 Postage, other stationary needs $ 100.00	$ 175.00 $ 100.00 Subtotal: $ 375.00
Dissemination of Findings	Airfare, Accommodations, Meals, Registration for Attendance at 2 National and 1 International Conference	$4000.00 $4000.00 Subtotal: $ 8000.00
OVERALL TOTAL COSTS		**$ 9,909.09**

APPENDIX I: Ethics Approval

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Ethics Renewal Application has been Approved

Notification of Approval (Renewal)

Date: December 3, 2012

Amendment ID: Pro00007749_REN3

Principal Investigator: A Myrick

Study ID: MS3_Pro00007749

Study Title: Preparing Nurse Educators in the Use of High-fidelity Human Patient Computer Simulation

Approval Expiry Date: December 12, 2013

Thank you for submitting this renewal application. Your application has been reviewed and approved.

This re-approval is valid for another year. If your study continues past the expiration date as noted above, you will be required to complete another renewal request. Beginning at 30 days prior to the expiration date, you will receive notices that the study is about to expire. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

All study related documents should be retained so as to be available to the Health REB upon request. They should be kept for the duration of the project and for at least 5 years following study completion.

Sincerely, Dr. Glen J. Pearson, BSc, BScPhm, PharmD, FCSHP

Associate Chair, Health Research Ethics Board - Health Panel

Note: This correspondence includes an electronic signature (validation and approval via an online system).

APPENDIX J : TABLE 2 SUMMARY OF FINDINGS

UNIVERSITY OF ALBERTA
FACULTY OF NURSING

Nurse Educators Preparing for the Use of High-fidelity Human Patient Simulation: A Process of Finding Their Way

Themes	Sub-Themes	Sample Faculty Educator Thematic Phrases
Muddling Through	***Feeling lost***	*"There was no direction really.....it was learn as you go. Just going in and winging it. I was lost. BigTime!"* *"It was like treading water….so kind of trying to figure it out"*
	Trying to cope	*"We have to talk a whole lot about all the rumours…I had to deal with 'I hear this this is a terrible experience and we learn nothing….so why are we here? It's a waste of our time.' I coped by going into this (HPS) with an open mind…."*
	Spinning wheels	*"There was a lack of essence of how do you actually teach with it…..What works and what doesn't…how much guidance did students need at different kinds of levels…very much trial and error…..it still is…"*
	Fearing exposure: SIMxiety	*"It was very stressful for them (students). It was very difficult for them to trust…"* *"There is an immense opportunity for the SimExperience to cause harm for the students. Should they do something that causes harm to the patient; should they not perform adequately; should the peers laugh; the self-consciousness that can occur in students at that level leads me to believe that you can't ignore the impact that Sim can play in this experience."* *"I think for a tutor to be adequately successful facilitating a SimLab, they need to know where things are and need to know the scenario itself. I wouldn't want to be…the Blind Leading the Blind. The students have the right to expect that the tutor **knows** what they are doing."*
Introspecting	***Self-reflecting: Seeking role clarification*** ***Reflecting on the uncut journey***	*"I honestly needed to look at what I was doing in this process….I was teaching the way I learn. I innately discovered that with the first group…."* *"So it was a lot of me really just sort of reflecting on how do I make this the best learning experience for the students. Forget that it's a technology."* *"Still, to this point, I've never been able to find any faculty whose been able to tell me this is the right way to do it….or the evidence to support it (positioning within simulation event)"* *"To be an effective educator, you needed to have understanding of the content and teaching and learning. Effective education and teaching came when you met….those two little circles overlapped."*
	Engaging & facilitating	*"Act of engaging was a challenge…..laying out assumptions and safety at the start was critical."* *"I really strongly focus on engaging students in the simulation room observing the simulation as opposed to the students in the SimLab actually doing. Watching and debriefing, actively."*

Themes	Sub-Themes	Sample Faculty Educator Thematic Phrases
	Being authentic	*"I believe I have to role model…talk about Best Practice…that we do work together and that I am there to **support them**. And do that. I believe that."* *"It is the interaction between the student and tutor.If trust is not felt as genuine….student learning may not be as enriching as it can be."*
	Caring praxis	*"I need to know where the student is at and what the overall goal is…and when I gauge it this way, I'm always focusing on what will benefit them/what they get out of this experience."*
	Humanizing the pedagogical process: Contending with cynicism	*"Suspend disbelief….HOW? They just don't look real"* *"My job as an educator is on the idea of suspension of disbelief, helping students recognize that the technology is there and supporting the experience, but that is not the focus of it. And having clear expectations and guidelines for the students."* *"We have to look at what we know is true and go forward from that….an open mind is REALLY important"*
Questing to Evoke and Enrich	***Empowering***	*"I think what we have created is fertile ground for developing expert reflective practitioners."*
	Acquiring debriefing proficiency: Coaching	*"I want to be adept at DB (debriefing)…and it's unrealistic to be an expert in the beginning. We absolutely need direction and practice." Modeling*
	Coalescing clinical nurse faculty & expert nurse educator	*"Unfortunately our SimOperator doesn't have any teaching and learning background. She's an excellent nurse clinician from Emergency and she's the one person who is there consistently in the SimRm.. But she can't provide any guidance or input to our faculty on the T/L side- the pedagogical side of working with simulation. So I think that's a real disadvantage."* *"I lacked the clinical experience…but you see, to know that, you need experience. In nursing we have a long tradition of not supporting one another. So we need to be able to feel like we can talk about our deficits and not have other people judge us…"*
	Synthesizing and synergizing	*"So let's run a Sim, and I want you to tell me in your debrief how well you think the really valuable concepts were addressed with this experiential learning process." She(faculty) came out beaming (after the T/L event)…and said "I got it! I totally get it! So where's my lecture file going…."* *"To have each of those students have an epiphany….and me, as a facilitator…priceless."*
	Plotting future paths	*"In reality, we don't have strong enough debriefers. We don't have enough development of our faculty to do that justice, I think."* *"There needs to be some formal education where faculty understand…why and how we need to debrief. What is the importance of debriefing in the simulation?"* *"We need SIM educators who are proficient in socratic questioning."* *"Finding and building in actual training that faculty can attend and are willing to attend is a struggle."* *"I think it is very valuable for the new tutor in Sim to follow someone, shadow someone.* *"SIMentorship design strategies"*

APPENDIX K :

FINDING THEIR WAY VISUAL MODEL

Figure 3-1

Nurse Educators Preparing for the Use of High-fidelity Human Patient Simulation: A Process of Finding Their Way

Figure 3-2: Muddling Through

Nurse Educators Preparing for the Use of High-fidelity Human Patient Simulation: A Process of Finding Their Way

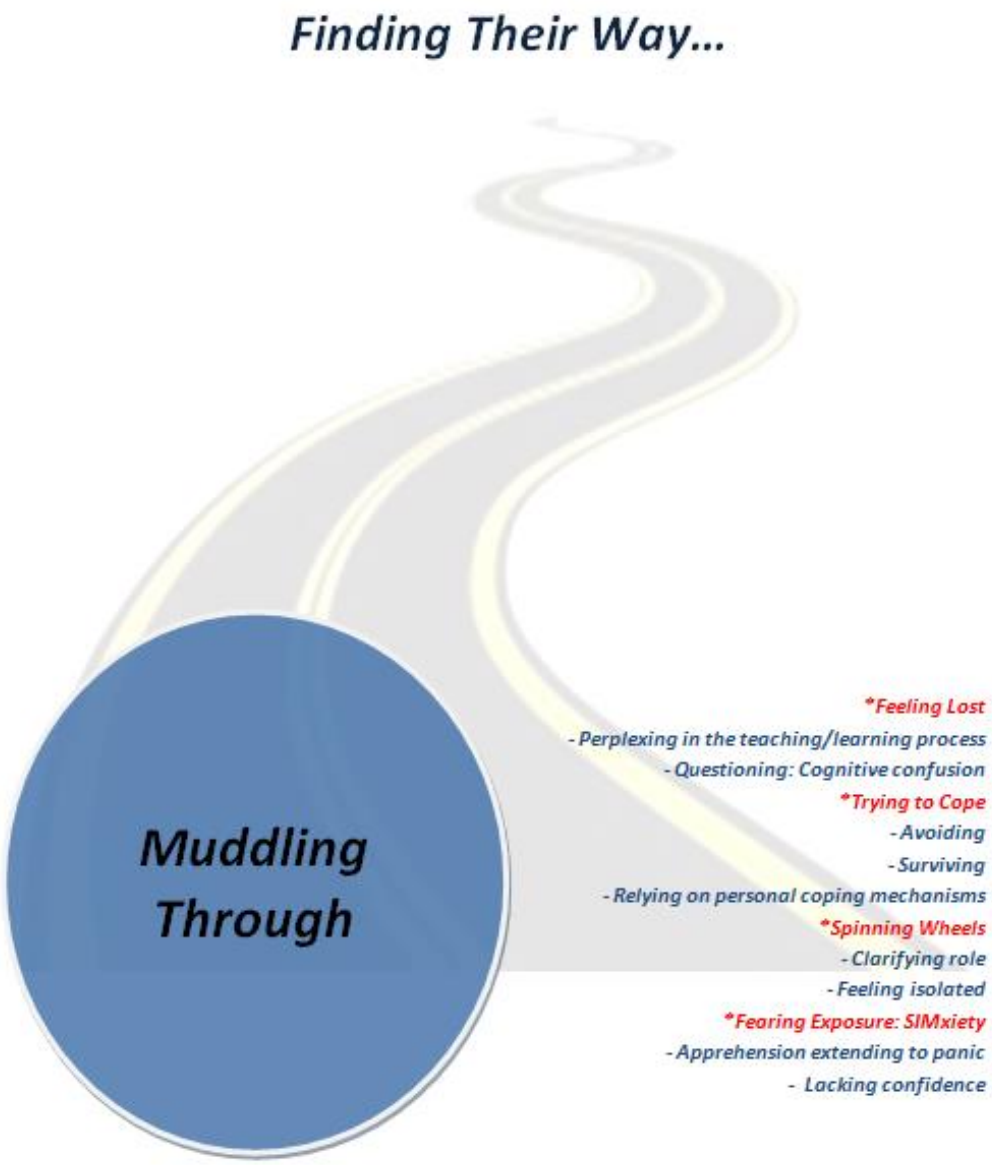


Figure 3-3: Introspecting

Nurse Educators Preparing for the Use of High-fidelity Human Patient Simulation: A Process of Finding Their Way

Figure 3-4: Questing to Evoke and Enrich

Nurse Educators Preparing for the Use of High-fidelity Human Patient Simulation: A Process of Finding Their Way