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**Exploring Simulation and Debriefing as an Educational Strategy for Preoperative Nurse Learners : A
Case Study**

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Exploring Simulation and Debriefing as an Educational Strategy
for Perioperative Nurse Learners: A Case Study

by

Debra B. Clendinneng

Dissertation submitted to the School of Graduate Studies

of the

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Abstract

Simulation and debriefing are indivisible components of an important educational strategy being used for educating healthcare professionals. Simulation provides reproducible experiences so learners acquire essential cognitive and psychomotor skills through repetitive practice in environments that mimic clinical reality but eliminate patient risk. Postsimulation debriefing, the cornerstone of this experiential process, is a structured, guided activity where learners are encouraged to collectively and individually explore and reflect upon their experiences in order to improve future performances.

The aim of this qualitative case study was to explore simulation and debriefing as experienced by a purposive sample of nine nurse learners and one facilitator while participating in a post-graduate, perioperative nursing program. Guiding questions were:

1. What are the perceptions of perioperative nurse learners participating in the simulation and debriefing process?
2. How does post-simulation debriefing impact the learning process for nurses participating in a perioperative clinical laboratory course?
3. How does the facilitator experience and explain debriefing within this case study?

Through researcher observation, video capture of multiple simulations and postsimulation debriefings, semi-structured interviews and learner journaling, common themes emerged that relate to benefits and drawbacks to learning in the simulation environment.

The study's findings are reported within participant profiles. Recommendations are made regarding the design of simulation experiences, the use of a debriefing conceptual framework to enhance experiential learning, and ways to enhance debriefer efficacy.

Implications of the study revolve around the complexity of designing and enacting simulation and postsimulation debriefing that provides all learners with a positive experiential learning opportunity. When optimal conditions exist, simulation and debriefing can result in transformative learning that is transferrable from the simulation laboratory to the clinical setting.

Areas for future research include investigating what types of simulation and debriefing experiences help learners to transition knowledge, skills and judgment from the simulation setting to the clinical environment. Researchers must also determine if simulated experiences can be considered equivalent to direct patient care and thus be used confidently in this manner for educating healthcare professionals.

CHAPTER 1

Introduction

In higher education, ubiquitous technological advances and students' expectations drive the changing face of educational delivery. Canadian healthcare education is part of this movement. Face-to-face didactic teaching in the lecture hall, combined with monitored hospital clinical experience, is being replaced by knowledge and skill acquisition through experiential, interactive learning in technology enhanced settings (Christensen, 2003; Kneebone, 1999). Learning with technology involves the integration of emerging technologies, such as mobile computing, personal web tools, and virtual and simulation environments, into the curriculum.

In both undergraduate and continuing professional healthcare education, simulation training with mannequins is being touted as a viable alternative to learning while providing authentic patient care (Kneebone et al., 2006). The reasons for shifting to the use of mannequins rather than real people in educational contexts are complex. First, due to budget constraints, there is decreased access to patients due to fewer hospital admissions subsequent to bed closures, the increased numbers of day surgery procedures being performed and movement of primary care to the community. Second, staff shortages, combined with complex patient conditions, requires care providers to work efficiently with few medical errors (Kohn, Corrigan, & Donaldson, 2000) thus, there is less time available to them to teach and oversee students. Last, concerns for patient safety have altered the student-patient interface. Educators and administrators question the prudence of relying on teaching technical and critical thinking skills in the clinical environment where patients may be put at risk. These factors make it difficult to find relevant clinical opportunities for nurses in training (Registered Nurses Association of Ontario, 2007).

These current healthcare and educational trends create a twofold challenge. There is the need to attract people to enter healthcare professions and provide them with consistent, relevant learning opportunities. In addition, healthcare workers need to be encouraged to stay in their professions, which may be accomplished by offering vertical and lateral continuing educational opportunities. Educational initiatives that are accessible and flexible—such as online learning—or appealing and exciting—like simulation—are recognized as important facets in healthcare restructuring (Canadian Nursing Advisory Committee, 2002; King, McCausland, & Nunan, 2001; Trypuc & Hudson, 2005; Zellermeier, 2005). Specific to this inquiry is the use of simulation and post-simulation debriefing as an educational modality.

Simulation is an educational strategy that helps learners acquire essential healthcare competencies through repetitive practice in technology enhanced environments that mimic clinical realities (Jefferies, 2005, 2006; Kneebone, Scott, Darzi, & Horrocks, 2004; Larew, Lessans, Spunt, Foster, & Covington, 2006). Students are able to engage in routine and uncommon patient care scenarios without patient risk (Henneman, Cunningham, Roche, & Curnin, 2007; Hovancsek, 2007; Miller, Riley, Davis, & Hansen, 2008).

Although simulation technology is a costly investment in healthcare education, the cost-benefit ratio is perceived as positive because simulated experiences for healthcare learners offset the lack of clinical spaces available and provide consistent experiences for all students. The ability to program mannequins and reproduce simulated scenarios allows students to have a uniform experiential base, see a representative patient mix, and learn all requisite skills (Larew, et al., 2006).

In the post-simulation phase, facilitators keep students engaged in the learning cycle by encouraging them to reflect thoughtfully on their performance (Brookfield, 1995; Estabrooks et

al., 2005; Feingold, Calaluce, & Kallen, 2004; Mainemelis, Boyatzis, & Kolb, 2002).

Opportunities for reflection and thinking occur during debriefing, a structured learning activity guided by a facilitator. As the cornerstone of active learning in simulation debriefing provides an opportunity for the learners to evaluate communications, decisions, and personal and team ability to deal with routine and unanticipated events (Brackenreg, 2004; Decker, 2007b; Jefferies & Rogers, 2007; Savoldelli et al., 2006; Tanner, 2006).

Simulation and debriefing are an integral part of my professional life as a nurse educator in an Ontario community college. The college has a prominent healthcare focus and one of the most prestigious healthcare simulation facilities in Canada. As a coordinator and educator in the postgraduate perioperative (operating room) nursing program, it is my responsibility to design and implement relevant simulation experiences for the nurses in this program. I knew that the postsimulation, structured debriefing sessions needed to integrate the theory, skills, and critical thinking that nurses transfer to the clinical environment. In order to plan the perioperative simulations and debriefing effectively I went to the literature for guidance.

Simulation is not a new educational modality in operating room training. In fact, historically, many nurses learned their trade practising in operating rooms after hours before moving to direct patient care experiences. However, what is new is the ability to plan an educational program that incorporates laboratory skills and scenarios in an authentic simulated operating room that has video recording and live streaming capabilities and perfect debriefing facilities.

Although a complete review of the simulation and debriefing literature will be presented in Chapter 2, it is important at this time to mention that the literature revealed little of import that is specific to perioperative nursing. However, more generally, research conducted in operating

rooms has demonstrated several related themes. First, operating room training during surgical procedures (intraoperative) has been shown to increase surgical time, create inefficiencies, and potentially have a negative impact on patient safety (Zellermeyer, 2005). Second, intraoperative learning is maximized when novice perioperative team members come to the operating room with a basic set of technical skills learned in a simulated clinical skills laboratory (Tanner, 2006; Wilson, Shepherd, Kelly, & Pitzner, 2005). Third, simulated operating room-based training provides levels of realism and authentic experiences that positively impact the hospital surgical setting through safer patient care and reduced teaching time during surgery, consequently creating surgical efficiencies (Feingold et al., 2004; Hunt, Nelson, & Shilkofski, 2006). Simulation has been deemed appropriate for training perianesthesia and obstetrical nurses, surgeons, and anesthesiologists (Girard, 2004; Kneebone et al., 2004; Larew et al., 2006).

Healthcare simulation and debriefing studies have tended to focus on a particular aspect of simulation. Feingold et al. (2004) and Kneebone (1999) investigated the efficacy of simulation for training healthcare professionals to perform psychomotor skills. Others described the value of simulation and debriefing in demonstrating the impact individual and group actions can have on reducing adverse events and improving patient outcomes (Clay, Que, Petrusa, Sebastian, & Govert, 2007; Dismukes, Gaba, & Howard, 2006; Vashdi, Bamberger, Erez, & Weiss-Meilik, 2007). There is no reported literature that explores relevant combination of simulations for perioperative training, such as activities for psychomotor skills training, process-centred patient activities, and integrated teamwork.

Despite the importance given to postsimulation debriefing in the generation of individual and collective knowledge (Decker, Sportsman, Puetz, & Billings, 2008; McDonnell, Jobe, & Dismukes, 1997; Savoldelli et al., 2006), debriefing best practices have not been identified for

specific simulation applications (Rudolph, Simon, Dufresne, & Raemer, 2007). To date, no qualitative studies have explored facilitators' and students' viewpoints and experiences as co-constructors of knowledge as they progress through the stages of debriefing. Further, as an educator looking for generic resources to assist in designing debriefing sessions that promote cognitive processes such as reflectivity and critical thinking, I was left disappointed by the literature. It was at this time that I became motivated to investigate the role of debriefing in the simulated learning process. I believe that understanding how students perceive the phenomenon of simulation and debriefing will help me and other educators maximize time on task, use costly educational technology efficiently, and create simulation learning experiences that are transferrable to the clinical setting.

To guide the readers' understanding of this research project, it is important to understand what perioperative education entails so the laboratory tasks and simulation scenarios that are described can be understood. However, before describing the roles of operating room nurses, it is important to note that there is a national shortage of operating room nurses. This situation is predicted to worsen as 43% of the perioperative nurses in Canada are over 50 years of age and will be retiring over the next five years (Canadian Nurses Association, 2006). The lack of perioperative nurses is due, in part, to the lack of exposure nursing students have to the operating room in their undergraduate training; it has therefore been difficult to recruit nurses to this specialty. This deficiency has recently contributed to unreasonable provincial surgical wait times. As a result, governments and educational institutions have responded by investing in high profile and expensive technology-based educational systems to entice nurses to join the surgical ranks (Zellermeyer, 2005).

Perioperative nursing entails patient-oriented care within a collaborative context of high performing teamwork where all members have specialized roles and skills (Phillips, 2007; Rothrock, 2007). However, team members are not necessarily trained how to work together effectively as a team (Entin, Lai, & Barach, 2006). To complicate matters more, team members rarely work together on a consistent basis. The continuous morphing of these action teams underlines the necessity for flexibility and skilled communication between interdisciplinary team members.

For perioperative staff, each day holds new adventures. The pace is fast in the operating room; time is money. The team switches over the room several times a day to accommodate new patients and different surgeries, which may be minor or life-threatening. In any operating room it is the preparation and detailed execution of all aspects of the surgery that ensures success, however, there are always obstacles to overcome. This time-constrained environment is replete with threats to success. Surgical teams rely on sophisticated equipment and computer-based technologies to perform their jobs. Team members may have conflicting priorities in accessing limited resources, equipment failures must be resolved quickly, and unanticipated procedural complications can occur (Entin et al., 2006). The overarching theme in the operating room is patient safety and infection control. Evidence-based practice is central to operating room nursing practice as the aseptic environment is regulated by empirically tested standards. Each surgical procedure is exclusively designed because all patients require different anesthetic preparations, special positioning, supplies, and equipment.

There are two discreet perioperative nursing roles: circulating nurse and scrub nurse. Circulating nurses are primarily responsible for the patient and the coordination of events in the operating room throughout surgery. The goal is to provide a seamless experience for the patient

which is accomplished primarily by ensuring a safe passage through the operation. This is a complex role as safety underlies many activities that impact patient outcome for example, verification of the surgical procedure and patient admission to the operating room. The nurse-patient encounter prior to surgery consists of brief, intense moments. A sense of trust must be established by the nurse in a very short period of time so these vulnerable patients are comfortable and assured prior to anesthesia induction. Assisting with anesthesia induction is followed by continued care for the anesthetized patient under conditions prone to change and risk. The circulating nurse protects the patient while positioning them for surgery, tests equipment before use, ensures all required supplies, such as tools and prosthetics are available, and accounts for items on the sterile field. During the operation, the circulator coordinates activities such as calling for radiology to take x-rays, preparing specimens for pathology, and communicating with transfusion services. Skills required for this role include excellent time management and communication, ability to prioritize, surgical material management, and an acute appreciation of patient safety issues. Circulators must be critical thinkers, demonstrate a confident, calm demeanour, and be prepared to respond appropriately in emergencies.

The scrub nurse, as part of the sterile surgical team, prepares and handles the equipment and instrumentation throughout the operation. It is essential for the scrub nurse to understand the operating room standards of practice. He/she must have knowledge of anatomy, physiology, disease processes, and surgical interventions. The most important aspect for the nurse is to learn the complexities of working in an aseptic or bacteria free environment. The principles of creating a sterile environment for the surgical patient are founded in infection control practices and empirical principles that are outlined in the national standards of operating room practice (Operating Room Nurses Association of Canada, 2009). Operating room nurses learn to work

within invisible boundaries that separate sterile items and areas from those that contain bacteria. The purpose of this is to protect the patient and the open incision from contamination and subsequent wound infection. Scrub nurses learn to move in sequential steps with a fluid economy of motion while remaining within their circumscribed sterile field. Imagine the discipline required to stand in one spot for several hours with limited movement of hands and arms, focused entirely on the operation at hand. Gaining this spatial awareness and patience takes practice and discipline and, when being taught, a lot of monitoring by expert nurses. Qualities required in this role include mental and manual dexterity, anticipatory thinking, and the ability to remain calm and effective in stressful situations.

Training for these perioperative nursing roles is conducted at a postgraduate level in community colleges. The college where this study took place offers a one year program consisting of five theory courses, 52 hours of laboratory practicum, and 150 hours of preceptored (supervised) consolidation where the student is partnered with an experienced perioperative nurse for a four week practicum in a hospital operating room. In the theory courses, students are introduced to aspects of the operating room that encompass everything from the physical infrastructure of the OR and the environmental controls required for safe surgery, to communication and collaboration within complex interdisciplinary teams.

Laboratory practicum provides the psychomotor building blocks where nurses practise procedures in a sequential fashion with monitored timelines. Towards the end of the practicum, simulated cases serve as culminating learning experiences where nurses integrate theory and psychomotor skills into a patient care scenario. Debriefing sessions help nurses assimilate their experiences and prepare them to integrate new skills and critical thinking in the operating room.

From an educational standpoint, it has been difficult to follow these perioperative students when they spend their clinical month preceptored by a senior nurse. We do not know how the skills learned in the simulated setting transfer to the surgical procedure. I believed the key was in structured debriefing. Consequently, this research was designed to explore the phenomenon of postsimulation debriefing; specifically the role of interpersonal and individual reflectivity in creating new knowledge. The study is grounded in constructivism, a paradigm that asserts that only through immersion in interpersonal activity and intrapersonal reflection does the individual learn and consequently internalize new knowledge (Davydov, 1995). In order to capture the complex communication and educational processes generated by simulation and debriefing, a qualitative case study approach was used. As I believe that each participant has his or her own beliefs, feelings, and perceptions of the phenomenon, a comprehensive understanding of simulation and postsimulation debriefing can best be achieved through individuals' reported experiences and perceptions of events (Stake, 2005). An intrinsic case study design was adopted. Stake (1994, 2005) described such studies as occurring within a contextually and socially bounded system. This fit with my desire to explore the experiences of one small class of postgraduate nurses participating in a perioperative program of study using observation, interviews, and document analysis.

Stake (2005) argued that the most important role of the case study researcher is that of interpreter. By explaining and describing the findings from this research, I have constructed a vision of the phenomenon of debriefing for others to consider. The ability to highlight multiple accounts of human experience within the context of a common phenomenon allowed me to generalize aspects of the experiences of the group while also extracting the unique experiences of individuals and giving them voice (Ayres, Kavanaugh, & Knafl, 2003; Stake).

Finally, the postgraduate nurses who engaged in the perioperative simulation and debriefing activities illuminated aspects of reflexivity and critical thinking that are valuable for educators to consider when planning transferrable learning experiences.

This research was an exploration of how nurses in a perioperative nursing program experienced simulation and debriefing. I sought to understand this phenomenon by asking:

1. What are the perceptions of perioperative nurse learners participating in the simulation and debriefing process?
2. How does post-simulation debriefing impact the learning process for nurses participating in a perioperative clinical laboratory course?
3. How does the facilitator experience and explain debriefing within this case study?

I invite readers interested in the use of simulation and debriefing in education, those dedicated to nursing and continuing professional healthcare education, and qualitative researchers alike, to explore the students' insights and learning and my investigations and ruminations that explore the transformative possibilities of simulation and postsimulation debriefing.

CHAPTER 2

Literature Review

The purpose of this research was to better understand the phenomenon of simulation and debriefing by asking the following questions:

1. What are the perceptions of perioperative nurse learners participating in the simulation and debriefing process?
2. How does post-simulation debriefing impact the learning process for nurses participating in a perioperative clinical laboratory course?
3. How does the facilitator experience and explain debriefing within this case study?

A thorough review of the literature was conducted to identify up-to-date, critical, and relevant information to inform the study. The literature review that follows focuses on three topics that are foundational to understanding simulation and debriefing as an educational strategy: experiential learning, simulation, and debriefing.

A critical review of the literature on experiential learning provided an understanding of the constructivist basis and theory of experiential learning. The literature on simulation provided an overview of the types of simulation and how they are currently used. As there is a burgeoning amount of information on simulation coming from many different specialty areas in healthcare, to ensure relevance to perioperative nursing the review focused primarily on simulation as it is used in nursing and physician training within the perioperative setting. Finally, the literature on debriefing, from its historical roots to its current use as part of the healthcare simulation framework, was synthesized to provide an understanding of how this phenomenon leads to transformative educational experiences for learners.

The review of these three topics is followed by a description of the conceptual framework for postsimulation debriefing that informs this study. The chapter concludes with a synthesis of the literature reviewed.

Experiential Learning

Constructivism

In the past few decades, constructivism has become an influential theory within educational circles. In accordance with interpretivist epistemologies, constructivists assert that knowledge is always constructed by individuals and groups based on their particular experiences and the meaning they make of those experiences (Pickford & Dixon, 2004; von Glasersfeld, 2003). From this perspective, there is no such thing as perfectly objective knowledge. People construct, or construe, their own understandings of the world based on what is personally useful and actionable (Guba & Lincoln, 2005; Klages, 2001).

Dewey (1916), viewed knowledge as contextual and socially constructed. He promoted the theory of experiential education, which proposed we learn deliberately through experience, a concept that parallels what constructivists later proposed about learning.

The social environment consists of all the activities of fellow beings that are bound up in the carrying on of the activities of any one of its members. It is truly educative in its effect in the degree in which an individual shares or participates in some conjoint activity. By doing his share in the associated activity, the individual appropriates the purpose which actuates it, becomes familiar with its methods and subject matters, acquires needed skill, and is saturated with its emotional spirit. (Dewey, 1916, p.22)

Dewey described learning as a process of inquiry that leads to cognitive development and deep understanding that requires the ability to reflect. Reflection involves deliberating or contemplating information, experience, or a situation in order to gain understanding or attach meaning to it. This reflective process serves as a basis for action.

Although cognitive processes are co-constructed at the social level, individuals make sense of new ideas, events, and activities by filtering them through what they already know and believe (Dewey, 1916; Pickford & Dixon, 2004; Schön, 1987; von Glasersfeld, 2003). A rich learning environment is created when people who experience the same activity but emerge with different perceptions share their thoughts as a group then reflect intrapersonally. Personal growth is dependent on the ability to critically analyze the consequences of actions taken and mediate personal values, beliefs, and assumptions and then develop a new perspective; one that is more open, inclusive, and improves future performance (Fanning & Gaba, 2007; Merriam, 2004; Sutinen, 2007). Mezirow (2000) called this process transformative learning.

Kolb (1984) elaborated on Dewey's ideas when he developed an experiential learning model that described learning as occurring in stages: concrete experience, observation and reflection, abstract conceptualization and generalization, and active experimentation or testing of knowledge in new situations. Jarvis (1995), elaborating on Kolb's model, demonstrated the non-linear, complex aspect and diverse permutations of the experiential learning trajectory that fits more with Dewey's (1933) notion that numerous processes can occur simultaneously and learning is not necessarily linear, orderly, and simplistic.

Experiential learning is particularly suited to education in healthcare disciplines where an inherent tension exists between theory and practice. Theory is needed to advance a profession

and create an evidence base, yet practice and experience identify the professionals within the discipline (Estabrooks et al., 2005; McAllister, Tower, & Walker, 2005).

Moving theory to practice requires an emotional and cognitive commitment to reflect on thoughts and actions in an organized fashion. Reflection then is the driving force of learning, change, and improved competence (Candy, 2004; Mezirow, 1991; Schön, 1987; Schutz, 2007). Over time, this commitment leads to clinical expertise and reflective practice (Benner, 2004; Dismukes et al., 2006; Estabrooks et al., 2005). Reflection has been widely studied. The following section reviews seminal works and describes the application of reflective practice to healthcare professionals.

Reflection

Schön (1983) proposed a pragmatic view of how adults develop work-related skills using reflection on and in action. Reflection-on-action refers to a deliberate performance review that has the intent of understanding and improving on similar situations in the future. In the simulation–debriefing process, reflection-on-action is a collaborative, discursive process guided by a facilitator to improve individual and group functioning. Learners internalize this new knowledge through their own filters in order to implement appropriate practice changes.

Reflection-in-action involves cognitively integrating past learning then self-monitoring and questioning new practice. In other words, the practitioner relates current events to past experiences in order to respond appropriately. Schön (1987) coined the term “reflective practice” to describe the practitioner’s examination of values, assumptions, and knowledge that is tempered by wisdom, intuition, and artistry. Dreifuerst (2009) elaborated on Schön’s perception of the reflective practitioner by describing the qualities of reflection as assimilation, accommodation, and anticipation. Dreifuerst described anticipation as “reflection beyond action”

a skill which leads to the ability to transfer what is learned in one situation in the past to future circumstances.

The ability to reflect is not necessarily inherent but is dependent on the autonomy and confidence of the learner. Practitioners may ignore unsatisfactory results in their practice and continue to work in a substandard fashion (Decker, 2007a; Page & Meeabeau, 2000). Rudolph. Simon, Dufresne and Raemer (2006) confirmed that people who are incapable of analyzing, making sense, and assimilating learning experiences on their own, may benefit from guidance or debriefing in their reflections of an event more than those who are more self-directed.

Within the nursing profession, nurses are charged with the professional responsibility to develop reflective practice. Benner (1984) described how nurses transition through a series of stages, starting at novice then moving up to advanced beginner, competent, proficient, and expert. Advancement from one stage to the next is reliant primarily on the experiences the nurse is exposed to and his or her ability to reflect on these experiences in order to improve and transform the way he or she practises. Benner described the transitional categories as follows:

- Novices have not had the experiences that allow them to perform adequately.
- Advanced beginners have had some experiences in the clinical setting but have not had enough recurring situations to be more than marginally acceptable in performing the skills.
- Competent nurses have enough specialized experience to be able to plan their actions ahead of time and can differentiate between what is and is not important.
- Proficient nurses understand nursing situations and know what to expect within a given situation.

- Expert nurses have profound, specialized nursing knowledge gained over years of experience. Their practise is based on intuition and expertise.

Through a longitudinal qualitative research inquiry that spanned 21 years, Benner (2004) demonstrated that the tenets of the novice to expert model are predictive and descriptive of the distinct stages of skill acquisition in nursing practice mentioned above. She identified how a nurse's comportment, articulation, and highly developed relational and practice skills are acquired over time as the nurse moves through the stages of novice, advanced beginner, competent, and proficient to expert. The findings from Benner's study are important in helping nurses articulate the experiential, relational, and perceptual aspects of practice that go beyond rational and technical performance. Competent decision-making is a result of knowledge and skill gained through experience in the clinical setting that enables the clinician to ask the right questions in order to solve the correct problems (Decker, 2007a).

Experiential Learning in Simulation Laboratories

Skills that nurses acquire in the simulated setting can be applied to direct patient care (Tapler & Johnson-Russell, 2007). Simulation laboratories provide a flexible environment where students can learn, practise, and be assessed on patient care skills and procedures prior to entering the clinical setting. The initial type of experiential learning that is relevant for training perioperative nurses to perform in the operating room is skill training.

Psychomotor skill training. Several models describe skill acquisition. Bjork and Kirkevold (2000) asserted that the theoretical rationale for performing skills must be integrated into laboratory teaching, along with effective interprofessional communication and strategies to provide the humanistic support and caring that patients undergoing surgery require. Kneebone et al. (2004) described a progressive model of skill development that recognizes the

interdependence of cognition and manipulative skill. They proposed that the learner transitions through three well-defined stages:

1. Cognitive stage: learning the steps of a procedure
2. Associative stage: learning to perform these steps
3. Autonomous stage: the actions become automatic and the clinician is no longer consciously aware of his or her actions

Lastly, Gentile's (1972) two stage model of psychomotor skill performance supports the differences between learning psychomotor skills in a controlled environment such as a laboratory and the subsequent difficulties of applying them in the clinical setting where there are more distractions.

Closed skills. Gentile (1972) suggested that skills can be performed in closed or open situations. A closed environment is one in which there are no extraneous distractions, for example, a simulation laboratory. In laboratories, learners focus on developing motor patterns that allow them to perform demonstrated tasks. This stationary environment, where conditions are the same from one attempt to the next, makes it easier to internalize the sequence of motions required to perform a specific intervention. Practising the procedure on a model allows students to detach the learning of the skill from the clinical context and concentrate on their personal learning needs (Feingold et al., 2004; Kneebone, 1999). This helps learners form motor plans or cognitive maps for performing the appropriate movements to accomplish the task. In the laboratory setting learners do not experience overwhelming stimuli, which are known to distract learners from the task at hand. Learners must receive consistent information and extrinsic feedback from the facilitators to reinforce their motor plan so they can demonstrate mastery of a skill and move on (Gentile).

Open skills. In the clinical setting, closed skills became open skills. Gentile (1972) defined open skills as skills that take place in an ever-changing environment with unpredictable stimuli and time constraints. It is challenging for novices to concentrate on their performance and reproduce skills in diversified situations, such as the operating room in the midst of distracting noise and movement and this can have learning repercussions. First, when students start performing in open environments their skill level may reach a plateau where improvement stops and performance may even recede (De Young, 2009). Second, it may inhibit some learners from integrating tasks in a fluid performance (Bjork & Kirkevold, 2000). Novice perioperative nurses may exert such intense focus on accurately sequencing tasks (De Young), that they are oblivious to other events occurring around them. This state can be dangerous in an environment where they need to react to what is going on, however, over time, this concentration helps learners develop the long-term, cognitive networks necessary to internalize skills and results in task fluency (Jefferies, 2006).

The subliminal acquisition of an open skill is an example of a transformational episode of learning. In a synaptic instant, the learner's senses have coordinated and communicated the perfect execution of the task. From that point on, the learner no longer consciously monitors the process. This type of experiential, contextual learning is relevant as it is immediately transferable from the simulation laboratory to clinical practice (Brookfield, 1995; Estabrooks et al., 2005; Rystedt & Lindström, 2001). The internalization of each open skill frees up learners to master more outstanding, complex challenges of their specialized role.

Facilitating Experiential Learning

Experiential learning can be explained using the concepts of the Zone of Proximal Development (ZPD) and scaffolding. Vygotsky (1978) described the ZPD as the distance

between the learner's actual and developmental level and what is achievable with expert guidance. Expert facilitators can progress the learner to higher levels of task performance or help them realize a cognitive change that could not be achieved independently by the learner. The ZPD bridges the gap between what is currently known and what can be known.

Psychologists Wood, Bruner and Ross (1976) elaborated on the concept of ZPD by introducing the concept of scaffolding. However, Cambourne (1988) was the first to discuss scaffolding through a constructivist lens, which is more appropriate to adult learning. He described scaffolding as a facilitator's ability to "raise the ante" by focusing on the learner's perception, challenging or extending the perception, and refocusing by clarifying and redirecting the learner to consider new possibilities (Fosnot & Perry, 2005).

Scaffolding has emerged as a method of instructor-guided participation in an activity where a facilitator provides help and concurrent feedback when needed but fades into the background when the learner becomes independent (Jefferies, 2005; Kneebone et al., 2004). As the facilitator and learner discuss and reflect on activity, they develop new interpretations and depth of understanding (Benner, 2004; Field, 2004).

The skill of scaffolding is appropriate in healthcare simulations that recreate all elements of a clinical situation in order to immerse learners in a "real-life" experience. In a full-scale simulation to train perioperative nurses, learners practice working and collaborating in a coordinated, synchronized activity (Rystedt & Lindström, 1999) in a simulated operating room with authentic equipment, instruments and supplies to perform a surgical procedure and a mannequin positioned on an operating room bed. Each learner plays an appropriate nursing role and is expected to have realistic interactions with the patient, appropriate discourse with team members, and use high levels of cognitive and technical skills during the scenario (Feingold et

al., 2004; Seropian et al., 2004; Tanner, 2006). Learning is encouraged when an expert facilitator scaffolds learners experiences by providing corrective or thought-provoking feedback meant to advance psychomotor or cognitive skills.

Simulation in Healthcare

Simulation resembles reality. In the healthcare setting, facilitators attempt to replicate essential aspects of the clinical environment or situation using simulation so learners can practise, understand, and manage events as they would in the patient care setting (Hovancsek, 2007). Realism in simulation is reflected by whether the simulation is high or low fidelity. Low fidelity simulation relies on a suspension of reality by the learners who must imagine aspects of the scenario and may not have authentic props to work with. Conversely, high fidelity simulation is a complex, immersive, and experiential activity often involving human patient simulators that are computerized, programmable, full-body mannequins that react physiologically to learner decisions and interventions (Cannon-Diehl, 2008). This type of learning is particularly suited to Generation Y learners who, since 1985, have grown up using and relying on technology for communication and education. Simulation encompasses a wide range of technologies and processes and can be considered a social process that involves active learning, rather than teacher-centered strategies (Cannon-Diehl). For a thorough overview, see the summary in Appendix A.

Evolution of Simulation

Simulation dates back to the 1960s when mannequins were used for cardiopulmonary resuscitation and cardiology training. In the 1990s, it became more prevalent as anesthesia educators started to use simulation for training purposes. The first nursing group to use high fidelity human patient simulators was nurse anesthetists but simulation practices have permeated

all aspects of nursing education from undergraduate preparation to critical care, emergency, and perioperative nursing (Lupien, 2007). It is apparent from the proliferation of recent literature that simulations are used in the training of most healthcare professionals. Empirical evidence is surfacing regarding the efficacy of simulations for individual skill and procedural training to full-blown, interprofessional, team-based, high fidelity critical response scenarios (Lupien).

Nursing is one specialty where the integration of simulation activities has been widespread. Decker (2007a) attributed this educational paradigm shift to innovative nursing educators who have created new models of learning based on the emerging technologies of the new millennium. These educators deliberately design simulation scenarios to achieve specific clinical objectives and promote timely decision-making.

Simulation Practices in Nursing

The current healthcare environment is complex and patient acuity has increased. There is a new workforce expectation that new graduate nurses will possess strong patient care skills and use well-developed clinical judgments when providing nursing care (Katz, Peifer, & Armstrong, 2010). Across North America, nursing educators are struggling with decreased availability of clinical placement sites and thus less exposure to clinical experiences for student nurses. Nurse educators are seeking alternative strategies for clinical preparation of nursing students. High-fidelity patient care simulation education offers nursing students opportunities to participate in patient situations that are comparable to what they would experience in a clinical setting. Authenticity is enhanced because the mannequins can be programmed to respond to the learner's action or inaction. Simulation technology provides safe, controlled learning of skills and realistic patient interactions.

To identify the current educational practices that support these goals, Katz et al. (2010) conducted the first published online survey to describe the current patterns of patient simulation use in nursing schools for clinical education. The study targeted Schools of Nursing that offer a Bachelor of Science in Nursing to determine the current use of patient simulation in course curricula. Of the respondents from 78 Schools of Nursing, 60 (78.9%) reported using patient simulators in core clinical nursing courses that coincide with clinical settings, such as medical and surgical nursing, pediatrics, and obstetrics. Thirty one percent reported using high-fidelity simulations in more than half of their clinical courses. Forty percent of respondents reported using patient simulations to replace clinical hours that used to be spent with live patients.

Through the analysis of the qualitative survey data, Katz et al. (2010) identified a number of themes. First, simulation helped in the preparation of nurses for role transition, delegation, and prioritization, as well as the development of critical thinking skills. Second, in some institutions, faculty time constraints did not allow for training time that would allow them to become familiar with the mannequin technology and develop and prepare simulation scenarios. Katz et al.

described this as “a paradox in nursing education, the desire to incorporate the latest technology but not dedicating faculty time to develop it to its greatest potential” (p. 48). Finally, there were several controversial comments related to the use of simulation as a replacement for clinical hours. Some educators responded that they would not use simulation to replace clinical hours while others claimed that time spent with sophisticated technology can be classified as clinical time. The authors concluded that patient simulation is relevant because all students receive consistent, standardized patient care experiences.

As evidenced by the results of the study by Katz et al. (2010), the clinical component of nursing programs is topical. The clinical setting is normally where nursing students apply and

refine their cognitive, affective, and psychomotor skills; however, entering the clinical setting can be a concern for students. Ham and O'Rourke (2004) identified the following sources of anxiety for student nurses when entering the clinical setting:

- communicating with clients, families, and other healthcare staff
- organizing tasks and managing time
- performing procedures for the first time
- administering and calculating medication dosages safely
- inexperience in developing a nursing care plan

Ham and O'Rourke then used these issues as a framework to design a scenario for a simulation for students prior to entering the clinical setting. Eighty-two student nurses completed this simulation. Subjective evaluations from the students and faculty were overwhelmingly positive and students started their clinical placements with relevant tools and the confidence to manage basic patient care.

In 2006, Larew et al. applied Benner's (1984) theory of nurse development (novice to expert) to nursing simulation. The goal for the development of the simulation protocol was to support successful performance and learning by novice practitioners, while providing challenges to higher functioning students. The simulation team developed standardized, reproducible, clinically accurate, simulated patient care experiences. They provided opportunities for students at differing levels to identify common patient problems, demonstrate appropriate interventions, and practice collaboratively.

The challenge in developing this simulation was to outline a protocol of baseline information with various levels of prompts and feedback for various levels of learners. Benner's theory (1984) predicts that nurses with higher competencies will identify problems quicker based

on subtle cues. During initial testing of the protocol, an experienced trauma critical care nurse identified multiple patient problems from the baseline cues. Conversely, Larew et al. (2006) found that these same baseline cues and first-level prompts were too subtle for many of the novice students, who often needed second-level prompts before recognizing a patient problem. One hundred and ninety nursing students at various levels of training completed simulations using this technique. Although the simulation design was successful in capturing appropriate experiences for different levels of nurses, the limitations of using such a complex protocol were the time and number of faculty needed to run the mannequins and astutely observe the learners so prompts could be provided in an effective manner. Evaluation tools also needed to be developed to assess all levels of learning through the use of simulations.

Another example of the use of simulation in nursing centres is to develop effective decision-making skills. Child's and Sepples (2006) reported on a four-station simulated cardiac learning experience designed specifically for senior nursing students to progress through a continuum of care. First, students completed an exercise on a CD-ROM to identify cardiac arrhythmias. Then, using this foundation, they worked their way through cardiac case studies with the SimMan Human Patient Simulator. Lastly, the students participated in a complex simulated code. The patient suffered a heart attack and had a cardiac arrest. Students had to react to in a realistic fashion in order to have good patient results. This type of intervention is possible with the HPS mannequins which can be programmed to react in real time to medication administration and cardiac defibrillation. Maximizing the use of simulators, learners such as these can make and detect mistakes in an authentic environment with repetitive practise and concurrent feedback and then compare themselves to established benchmarks (Childs & Sepples; Issenberg, McGaghie, Petrusa, Gordon, & Scalese, 2005). It is expected that this type of practise

can lead to safe patient outcomes in the clinical environment (Gaba, 2004; Henneman et al., 2007; Hunt et al., 2006).

Current Practices in Medical Simulation

As early as 1988, Gaba and DeAnda explored the use and benefits of simulation mannequins to train in the field of anesthesiology. At that time, they recreated a simulated anesthesia event in an operating room with as much authenticity as possible. These first simulations were provided to 17 students at various stages of anesthesia training. Students indicated the overall simulation, monitor information, and simulated incidents were very realistic. However, what frustrated them was the authenticity of the mannequin, which at the time proved awkward when performing some interventions, such as establishing an airway and ventilating the patient.

The technology used to create mannequins today has eliminated many of the earlier limitations. Although simulation is costly, it is perceived as a positive investment in healthcare education. In a meta analysis conducted by Issenberg et al. (2005), the following features of high fidelity simulations were outlined:

- High fidelity simulations are adaptable to multiple learning strategies.
- Learners can make, detect, and correct errors without adverse consequences in a controlled environment with opportunity for repetitive practice and without the necessity of clinical instructors needing to take over.
- Individualized learning occurs when learners are active participants in reproducible, standardized educational experiences with a range in level of care difficulty.

Brim, Venkatan, Gordon, and Alexander (2010) demonstrated the incontestable benefit of using simulation to educate medical students about types of myocardial ischemia, a precursor to

heart attacks. These researchers, concerned with the lack of evidence around whether simulation experiences provided valuable learning opportunities for medical students, conducted a longitudinal study spanning six years. Three hundred and twenty-seven Harvard medical students participated in a simulator-based teaching experience that exposed them to the principles of anterior and posterior myocardial infarction. Of the 327 medical student surveyed, 99% reported the myocardial infarction simulator training was valuable and preferred this experiential learning over didactic sessions. Most of the participants indicated they would have preferred more sessions. Mannequin simulation provided students with the exposure to treating “patients” undergoing myocardial infarction. On the hospital wards, 50% of the students did not encounter patients with myocardial infarction during their clinical time there. Brim et al. claimed the simulated experience allowed learners to compare and reflect on different manifestations of the same illness, thus promoting the conditions for higher level learning.

In addition to being a tool to facilitate learning, simulation is being validated as an evaluation tool. In medicine, Lipner et al. (2010) explored the ability of simulations to accurately evaluate technical and cognitive skills of different levels of interventional cardiologists. Interventional cardiology involves treating many patients with highly complex procedures that have potentially serious complications. This specialty was chosen to see if the use of simulations could help prevent medical errors. The objective of the study was to use medical simulation to assess technical and cognitive skills of physicians performing coronary interventions.

A committee of subject matter experts developed clinical case scenarios that looked at decision-making around coronary stent placement and reactions to the unanticipated complication of coronary perforation. One hundred and fifteen physicians at three levels of expertise (i.e., novice, skilled, or expert) performed one practice simulation and six test cases.

Their procedural skills were rated by clinical specialists. The results demonstrated that evaluation of performance in simulated interventional cardiology procedures could distinguish between novice, skilled, and expert practitioners. Lipner et al. (2010) suggested that simulation can be used to identify substandard performers who may not be providing appropriate patient care. Additionally, they proposed that simulations could be used as an adjunct to written examinations to allow the accurate assessment of physician ability in interventional cardiology.

Kneebone (1999) has been promoting the use of simulations to train surgical residents for over a decade. In 1999 he wrote: “Crucial components of clinical training can be detached from patient care and practiced in isolation” (p. 571). In this same article he provided seminal tips for designing simulation experiences to teach surgical skills.

Over time, Kneebone and colleagues realized that the use of simulation was not conducive to moving closed skills to open skills. In a 2004 publication with colleagues, Kneebone called for a “synthesis between simulation and clinical practice” (Kneebone et al., p. 1095). Two years later Kneebone et al. (2006) studied an integrated procedural performance instrument, where clinicians were assessed on 12 realistic clinical scenarios in a simulated clinical setting that combined simulated patients with inanimate models or items of medical equipment. For example, a real person or standardized patient with a false intravenous arm attached would present for a procedure. In this scenario, the doctor had to start an intravenous infusion while interacting with the patient. Clinical assessors rated the physician participants on their performances over the Internet using digital video technology. The simulation sessions were recorded for subsequent participant review and to aid reflection on the feedback they received.

This sophisticated evaluation process was labour and cost intensive but Kneebone et al. (2006) proved that an integrated procedural performance instrument can serve as a

complementary assessment tool for doctors in the workplace. For example, it can be used to assess a learner's longitudinal progress and retention in procedural skill acquisition. They also proposed integrated procedural performance instruments can be used by physicians to gain and consolidate skills, thus creating the bridge from closed to open learning.

Simulation in Operating Rooms

Patient safety has received much attention recently, specifically in high risk healthcare environments, such as perioperative, emergency, and obstetrical settings, where errors can have disastrous outcomes and patient safety requires team collaboration, organization, and effective communication. In 2006, the Agency for Healthcare Research and Quality in the United States awarded \$5 million in funding to 19 projects that focused on assessing and evaluating how healthcare simulation can improve the safety and quality of patient care (Clancy, 2008). Beyea (2007) reviewed three of these research studies that investigated distracters in the perioperative environment and the impact they had on the surgical teams' performance. Distractions and interruptions included the telephone ringing, a beeper going off, people coming and going in the operating room, equipment related issues, communications with external staff members, and ineffective communication.

Teaching team communication skills poses a conundrum. It is a challenging task because it is best learned in the context of realistic clinical settings. However, this may expose patients to unnecessary risk. While these skills can be effectively developed using simulation, the logistics of providing simulation-based training at remote locations for interprofessional teams are complicated. Kozmenko, Paige, and Chauvin (2008) described an innovative intervention using a high-fidelity human patient simulator in a real clinical setting creating a mixed reality environment for teaching healthcare teams communication skills. System for Teamwork

Effectiveness and Patient Safety (STEPS), an interdisciplinary team training program, was implemented with operating room teams consisting of a general surgeon, a general surgery resident, a circulating nurse, a scrub nurse, and anesthesiologist members. Training sessions were embedded in the regular operating room schedule using simulated patient scenarios with human patient simulator mannequins. Scenarios were digitally recorded and video review was used during debriefings. Debriefing focused on teamwork competencies, such as situational awareness, cross-monitoring, role clarity, anticipation, and communication. Kozmenko et al. concluded that the STEPS program provided an immersive, realistic environment for teaching effective team communication that participants perceived as convenient, realistic, and informative. Although the researchers claimed that their program could improve patient safety cultures, there were no direct data to support this claim.

Complementing this study was a modified action research project conducted by Forsythe (2009) that investigated whether simulation could be used to improve team communication in the operating room where highly functioning, hierarchical teams, create their own order. In chaotic, time constrained areas such as the operating room, there is room for discontent and communication challenges. This qualitative research study looked at three discrete interprofessional team simulation scenarios. The research demonstrated that when teams have the ability to slow down normally time-constrained processes, they have the time to discuss roles and reflect on actions. This results in the development of collaborative relationships and positive communication within team environments that can lead to improved and safer patient care.

Aside from enhancing communication, researchers have proposed that simulated training can provide levels of realism and authentic experiences that positively impact the surgical setting by decreasing teaching time during surgery and consequently creating surgical efficiencies

(Feingold et al., 2004; Hunt et al., 2006). This premise was confirmed by Gettman et al. (2009) in their mixed-methods research that taught and evaluated communication, teamwork, and laparoscopic skills to residents in urology in a simulated operating room. Nineteen urology residents participated in at least two successively difficult laparoscopic scenario training sessions that were evaluated using questionnaires, validated teamwork instruments, and video analysis. After two high fidelity simulation scenarios, results showed an improvement in surgical set-ups, appropriate instrument and equipment usage, rapport, and team performance.

Challenges of Simulation

There are a number of challenges associated with simulation. Simulation is known to be labour-intensive because its effectiveness involves more faculty and technical support than traditional learning. Further, as learners who actively and repeatedly participate in simulation activities are believed to learn more effectively, more sessions have to be scheduled to ensure all learners are given the opportunity to learn in this way. Setting up simulation facilities is expensive and not all educational facilities have equal resources. Finally, until more research is conducted to determine the effectiveness of different types of simulation with diverse healthcare learners, the uncertainty of its value may limit the implementation of simulation-based learning (Brim et al., 2010).

Debriefing

In order to understand the role of debriefing in simulation, a review of the historical roots of debriefing, as well as the current trends in various disciplines, is presented. This sets the stage to investigate the use of debriefing following simulation in healthcare education.

The definition and methodology of debriefing is dependent on its purpose, context, process, and discipline. Debriefing may be spontaneous or structured (Warrick, Hunsaker, Cook,

& Altman, 1979) and incorporate many techniques. It can be accomplished by Socratic and cued questioning, guided discussion, debriefing checklists, essay writing, questionnaires, video-based analysis, and journaling (Decker et al., 2008; Petranek, Corey, & Black, 1992; Vashdi et al., 2007). It is the responsibility of the debriefer to determine which debriefing method to use based on purpose, context, process, and discipline.

Types of Debriefing

Debriefing originated in the military and evolved to be used in psychological, organizational, and educational contexts (Lederman, 1992). The following types of debriefing will be highlighted in the ensuing sections: military, psychology, organizational, aeronautic, and postsimulation in healthcare.

Military origins. Military debriefing is an operational process used to reflect on and analyze a mission in order to strategize and improve outcomes for future missions (Fanning & Gaba, 2007). S. L. A. Marshall, Chief U.S. Army historian and combat researcher during World War II, Korea, and Vietnam, was the first practitioner and advocate for after-action debriefing. In World War II operations he devised the group-interview technique in order to determine exactly what had happened in battle and why it was a success or failure (Helmus & Glenn, 2005). In this formulation of debriefing, soldiers gathered in unit-based groups and discussed their operational experiences and subsequent reactions. Through these interactions, soldiers came to realize that each individual experienced the same event in very different ways. The goal was to develop a “historical truth” through a common coherent narrative about what occurred during the course of a mission and thus reestablish group unity. It fostered a discussion of how to improve subsequent combat effectiveness and was used to assess the individual’s readiness to return to regular duties (Williams & Canedy, 1990).

In Marshall's 1944 address at the International Combat Stress Conference, he discussed the Company interview after combat. His insights still remain relevant to many types of debriefing.

He proposed the following debriefing rules:

- All witnesses are equal during the interviews and the all-encompassing objective is to arrive at the truth.
- Participants' statements should be audible to all present.
- The record of the event should remain open so that the record can be amended if new, vital facts come to light.
- Participants should not be interrogated for longer than three hours in any one session.

Marshall (1944) further identified the following interviewer qualities:

- The interviewer should never cut a witness short or look disbelieving at any statement. Interviewers should politely terminate ramblers without embarrassing them and thank all participants for participating.
- The interviewer should praise the men for their actions; he is not there to teach battle lessons.
- When a participant freely states that he made a mistake treat him objectively. Pointing out moral lessons in front of the other participants will defeat the purpose of the interview.
- The narrative of the event should be complete with no blank spots in the report of action unless all participants are dead. When the story bogs down, develop the subject further by exploring it from a fresh angle and verify unlikely statements or accusations.

- The interviewer must remember he is there to get the facts; he is not conducting a critique. He takes no part in tactical debates nor does he become personal or emotional. He avoids any reflection on individuals.

Psychology. There are a number of ways in which debriefing is used within the field of psychology. Psychological debriefing is a clinical tool that seeks to reduce psychological distress, such as that from post-traumatic stress disorder that may follow exposure to traumatic events (Helmus & Glenn, 2005). In experimental psychology, debriefing is used as a method to reverse any negative effects in cases where participants were deceived in some manner during an experiment. Lastly, in critical incident debriefing, common to emergency services and mental health professionals, participants are encouraged to discuss traumatic incidents they experienced in order to facilitate emotional recovery (Armstrong, Lund, Townsend, McWright, & Tichenor, 1995; Lederman, Stewart, Barr, & Perry, 2001; Savoldelli et al., 2006).

Organizational debriefing. Organizations employ debriefing to detect and correct mistakes and improve performance. Individuals are asked to formally or informally share information that will allow this goal to be met. When lessons learned from an activity are incorporated into the existing organizational context it is termed single-loop learning. Double loop learning occurs when errors are identified, members of the organization examine and change underlying aspects of the context and objectives and then new, improved actions are implemented (Argyris & Schön, 1978).

Aeronautic training. The U.S. Air Force and the National Aeronautics and Space Administration realized that safe flight outcomes are contingent on team interaction, effective communication, and the ability for the crew to respond to routine and unlikely circumstances (Dismukes et al., 2006). Crew Resource Management evolved as a set of principles that help

commercial airline crews work cohesively as a team following aviation mishaps by addressing communication, coordination of work, decision-making, and taking leadership responsibility. They are trained to become aware of situational changes and manage stress. These specific skills, reinforced by continuous briefing–debriefing have demonstrated improved commercial airline safety (Dismukes et al.; McDonnell et al., 1997).

A modified Crew Resource Management approach is used for fighter military missions that are complex operations involving multiple aircraft and volatile situations. The debriefing sessions have specific educational objectives, such as the review of organizational standards, training rules, and protocols for untoward situations. The debriefing sessions provide opportunities for individual and team learning through consistent reflection on performance (McGreevy & Otten, 2007). Aspects of Crew Resource Management have been adapted for debriefing action teams in healthcare. The work of Vashdi et al. (2007), which involved the adaptation of the briefing and debriefing strategies used by the Israeli air force for use with action teams in the operating room setting, will be discussed later on in this section.

Postsimulation debriefing in healthcare. Simulation in healthcare education provides an active environment where students can practise psychomotor, affective, and cognitive skills in relevant clinical situations. Postsimulation debriefing, the basis of this educational strategy, is a structured, guided activity where learners are encouraged to collectively and individually reflect on their experiences and improve on suboptimal performances (Brookfield, 1995; Estabrooks et al., 2005; Mainemelis et al., 2002).

The Centre for Medical Simulation (2009) described healthcare debriefing as follows:

In the context of healthcare simulation, debriefing is a conversation among two or more people to review a simulated event or activity in which participants explore, analyze, and

synthesize their actions and thought processes, emotional states, and other information to improve performance in real situations. (p. 1)

As noted in the simulation literature, simulation–debriefing as an educational strategy is relevant to the healthcare setting for a number of reasons. First, it promotes learner reflection and allows for the analysis of assumptions and thinking of ways to develop more skilful practice, thus promoting reflective practice and, subsequently, competence (Rudolph, 2007). Second, it is associated with the critical thinking and reasoning that helps healthcare practitioners evolve from novice to expert (Benner, Hooper-Kyriakidis & Stannard, 1999). Third, simulation–debriefing helps learners understand how individual and group actions impact workflow and client outcomes (Decker, 2007a; Dismukes et al., 2006; Vashdi et al., 2007). Finally, postsimulation debriefing helps teams identify, analyze and, subsequently, reduce system inefficiencies and adverse patient events (Barach, Satish & Streufert, 2001; Clay et al., 2007).

Dreifuerst (2009) succinctly captured the essence of debriefing as follows:

- Reflection: a re-examination of the experience.
- Emotion: individual learning is framed by positive or negative emotion.
- Reception: openness to behavioural feedback, the educator's expert knowledge can confirm information, dispel misconceptions, and advance learners' cognitive development by helping them make connections between theory and performance (Garrison, Anderson, & Archer, 2000).
- Integration: facilitator assists the learners to place the elements of the simulation into a familiar framework (such as the nursing process) that can be easily recalled in the future.

- Assimilation and accommodation: anticipation and reflection beyond action are important for knowledge transfer and transformative learning (Decker et al., 2008; Fanning & Gaba, 2007).

It is the job of the facilitator to systematically move learners from concrete experience, to reflection on the experience, to the abstract conceptualization of events, and then, finally, to help learners build a cognitive bridge to plan for future contingencies (Kuiper, Heinrich, Mattias, Graham, & Bell-Kotwall, 2008; Rudolph et al., 2007; Schoening, Sittner, & Todd, 2006). For a comprehensive look at debriefing models see Appendix B.

Debriefing assessment tool. The Debriefing Assessment for Simulation in Healthcare (DASH[®]) tool, developed by The Centre for Medical Simulation (2009), assesses the debriefer on six sequential elements of debriefing and describes appropriate behaviours and attributes for each element. The elements are described as follows:

Element #1 – Sets the stage for an engaging learning environment.

Element #2 – Maintains an engaging context for learning.

Element #3 – Structures debriefing in an organized way.

Element #4 – Provokes interesting and engaging discussions and fosters reflective practice.

Element #5 – Identifies performance gaps.

Element #6 – Helps close performance gaps.

DASH[®] provides the most comprehensive description of the debriefing process and debriefer qualities. It is currently being used in a number of research projects to test its validity. DASH[®] can be viewed in its entirety in Appendix C.

Debriefing Research

Despite the acknowledgement that debriefing is foundational to learning in the simulation process, there is a paucity of research on the “who, what, when, where, why, and how” of debriefing. Fanning and Gaba (2007) stated that “there are surprisingly few papers in the peer-reviewed literature to illustrate how to debrief, how to teach or learn to debrief, what methods of debriefing exist, and how effective they are at achieving learning objectives and goals” (p. 1). The following section reveals how debriefing has evolved in the healthcare field.

Anesthesia. Not surprisingly, some of the earliest research on debriefing comes from the anesthesia specialists who were among the first healthcare professionals to implement simulation training. Savoldelli et al. (2006) investigated the value of the debriefing process during an anesthesia simulation designed to assess nontechnical skills such as decision-making, task management, teamwork, and situational awareness in crisis resource management.

In a prospective, randomized, controlled, three-arm, repeated-measures study, Savoldelli et al. (2006) compared the educational efficacy of oral feedback and videotape-assisted oral feedback against a control group that had no debriefing. Forty-two residents participated in the study and were randomly assigned to receive oral feedback, videotape-assisted oral feedback, or no debriefing. This well-designed research ensured an adequate sample size that was controlled for level of experience. Facilitators trained in anesthesia crisis resource management provided feedback on the participants cognitive and behavioral skills and separate evaluators were recruited and trained in the Anesthesia Non-Technical Skills behavioural marker scoring system.

Key findings identified that cognition and behaviour did not improve in the control group. However, oral feedback, with or without videotape review, resulted in statistically significant improvement in participants cognition and behavior. No differences were observed between the

oral and video-assisted oral feedback groups. These findings imply that debriefing must be considered an integral component of simulation for promoting non-technical skills. Further, video review is not necessary to achieve valuable simulation–debriefing training. Yet, exposure to a simulated crisis without debriefing appears to be of limited benefit. It is the facilitator’s guided debriefing and the learners’ self-reflection that changes perceptions. Limitations of this research relate to the lack of assessment of the long-term impact of retention of non-technical skills and group debriefing time was not controlled.

Perioperative. In the perioperative environment, Vashdi et al. (2007) conducted qualitative action research to examine the applicability of using a team-based, reflexive, air force model of briefing–debriefing in a civilian-oriented manner in an operating room of a major Israeli hospital as a means of controlling preventable adverse events and enhancing team reflexivity. Using a team-based learning model, the research was conducted in two stages.

The first stage was action research that focused on understanding briefing–debriefing in the air force so it could be modified for application in the surgical setting. Data collection and analysis produced descriptions of the phenomenon of briefing–debriefing leading to the construction of definitions and associated coding criteria. This allowed the researchers to identify and resolve problems related to the transfer of the briefing-debriefing methodology used in the air force to the operating room and to recognize possible benefits to adopting military briefing–debriefing in hospitals. One example of a barrier was in the team identify and openness to criticism. The air force is highly open to using briefing-debriefing as a non-hierarchical way to admit mistakes and comment on others’ performances with the intent to improve functioning. In the hierarchy-based operating room where communication is more status derived and fears of backlash and liability are high, there is not the openness to team discussion. The research team

worked with both air-force and surgical teams to resolve issues in order to be able to implement a researchable briefing-debriefing protocol.

With the protocol agreed upon, a semi-experimental field design was used in the second stage of the research to implement and collect qualitative data on the briefing–debriefing process as it was used in civilian operating rooms. The protocol included a briefing-debriefing system where the team set or clarified surgical objectives, roles, and strategies. After they performed the tasks, the quality of the outcomes was assessed by reviewing the extent to which objectives were met, or why they were not met. The case was summarized with what could be learned from the experience.

The researchers discovered that the briefing-debriefing process had a direct impact on quality-related team, and subsequently patient, outcomes. One example concerned patient temperature regulation under anesthesia. It was determined during the debriefing that more accurate patient temperature monitoring for that particular type of surgery should be done via the bladder. In the next case, the briefing commenced with a review of this issue and the recommendation to use bladder monitoring was subsequently adopted. Additionally, the researchers noted that weekly team meetings also enhanced team reflectivity by allowing them to test assumptions. Communication difficulties in a cardiac operating room were resolved by changing the layout of the cardiac bypass machine so surgeon and perfusionist could communicate effectively.

This unique, qualitative data led to the formulation of propositions based on briefing–debriefing that have relevance in the research, policy, and healthcare practice domains. It suggested that team briefing-debriefing may prove to be an efficient, cost-effective method to manage performances in high accountability areas but the concept must be further explored to

determine its potential in creating efficiencies in healthcare organizations. A limitation of the study was its specific Israeli context so research findings may not be generalizable.

In a second research project in the perioperative context (briefly mentioned above under the Simulation section), Kozmenko et al. (2008) described their System for Teamwork Effectiveness and Patient Safety, an interdisciplinary team training program for operating room teams. They used a mixed reality environment that used high fidelity human patient simulation in a real clinical setting for performing laparoscopic cholecystectomy. Kozmenko et al. applied postsimulation debriefing with the teams using video replay and a discussion that focused on nine teamwork competences. The debriefing was conducted in an operating room environment immediately following each team simulation scenario. The same facilitator was used throughout the study. Participants were asked to reflect on individual and team behaviours and actions. Participants' reflections were subsequently linked to specific teamwork competencies by the researcher.

Kozmenko et al.'s (2008) debriefing format followed three steps. Initially, team members talked together about the simulation events. Then, effective teamwork competencies were defined by the facilitator and learners were asked to reflect and discuss how the competencies enhanced teamwork. Learners then had to identify personal skills and behaviours that needed refining and were asked to adapt them into their daily clinical practices. The debriefings ended with a summary of the teamwork competencies. The authors concluded that the perioperative teams found this highly immersive, realistic environment appropriate for training to improve patient safety. However, there were no statistics mentioned in the research article to substantiate the claim that patient safety had indeed been enhanced.

Nursing. Decker's (2007a) doctoral research was a qualitative, grounded theory study that explored the critical and reflective thinking processes used by 154 senior nursing students during and immediately following participation in a simulation–debriefing learning experience. From the data emerged the theoretical construct of simulation as an educational strategy to facilitate the dynamics of “thoughtful thinking”, which Decker described as the seamless integration and assimilation of critical and reflective thinking processes that are applied during simulated or real patient encounters.

Decker (2007a) found the following characteristics to be important in the development of critical and reflective thinking processes: the learners' ability to integrate theoretical and experiential knowledge and demonstrate skill competency, and the learners' learning mindset. She concluded that novice reflectors need specific guidance, adjusted to the individual's learning stage, to discern the appropriate application of experiential knowledge to a situation. Further, faculty involvement in the development of thoughtful practice is instrumental to student learning.

Decker recommended that an educational strategy for simulation be developed to include specific teaching, guiding, and facilitating skills. A shortfall of this research was that Decker did not describe how the debriefing process was structured or operationalized nor did she elaborate on specific models or techniques that contributed to reflection-on and -in-action. However, her research did lead to the identification of factors that negatively impact a student's ability to reflect and think critically, namely anxiety, lack of experience, focusing inappropriately on past events, resistance to change, poor communication skills, and difficulty using and accessing resources.

Timing of Debriefing

Van Haukolom, Begaz, and Treat (2010) recognized that there were few comparisons of debriefing approaches reported in the literature. Given the importance of debriefing in the learning trajectory, they decided to compare the efficacy of two styles of debriefing: in-simulation debriefing and postsimulation debriefing. In-simulation debriefing entails the suspension of simulation activities in order to instruct and promote reflection during the simulation. For example, when a student appears unsure of patient management, fails to perform an important action, or makes an error, the facilitator suspends the simulation and points out the mistake or inaction and provides guidance as to the correct action. In postsimulation debriefing, if the students make an error in management or the students are unsure of further management they are left to make this error. If the error causes the learners to significantly deviate from appropriate management, the facilitator redirects the learners by stating the correct action and the simulation is restarted. No further teaching or explanation is provided during the simulation.

In their study, Van Haukolom et al. (2010) used a three step postsimulation debriefing with the postsimulation group:

1. The facilitator helped the students decompress, express their emotions, and discuss their general impressions of the simulation.
2. The facilitator clarified facts and concepts in the case, reviewed errors and/or student inaction, and answered students' questions.
3. The facilitator provided encouragement and challenged students to discuss how they would apply what they had learned to a real patient case.

One hundred and sixty-one third year medical students were randomly allocated to one of the two debriefing groups. Surveys demonstrated that although all medical students felt that simulation was an effective learning modality, postsimulation debriefing was rated as more

effective that in-simulation debriefing. Students in the postsimulation group learned the material more effectively and understood their correct versus incorrect actions. Van Haukolom et al. discussed two possible reasons for these results. They speculated that because students were allowed to complete the simulation without interruption, the experience may have been more realistic. As well, the comprehensive review postscenario allowed them to see the sequence of their actions in context and ask questions in a stress-free environment.

These research examples demonstrate the different ways postsimulation debriefing is being conducted. In these studies, debriefing enhanced individual and team communication, professional competencies, and promoted thoughtful thinking. The last research demonstrated that postsimulation debriefing has a positive effect on learning. This information highlights the importance of structuring debriefing sessions to achieve maximum learning.

Summary of the Literature Review

The literature review provided an overview of theories, research and current understanding on the three topics relevant to this research project: experiential learning, simulation, and debriefing.

Experiential learning is based on constructivist learning theory that envisions learners as active constructors of their own reality based on their unique perceptions and meanings they attribute to the world around them. Dewey (1916) promoted constructivism in education with his theory of experiential learning, essentially, learning by doing. Knowledge is subjective and unique, dependent on a person's perceptions of events and how they cognitively process and act on information. Rich learning environments occur when communities of learners experience an activity and share their diverse perceptions then reflect personally on events and create new personal meanings.

Kolb (1984) developed a four-stage, experiential learning model. He believed that learning started with an experience. The learner reflected and cognitively processed what occurred during the event using personal filters, then tested the resulting knowledge in new situations. In the 1980's Schön elaborated on reflective processes in learning and the attributes of the reflective practitioner; the ability to exam values and assumptions, and the creation of knowledge tempered by wisdom, intuition, and artistry. Benner (1984) described how nurses become reflective practitioners by transitioning through advanced stages from novice to experts in their practices.

In simulation laboratories, experiential learning is valuable for learning closed and open psychomotor skills and critical thinking abilities required for patient care. The facilitator is a guide and co-learner who uses specific communication skills and “knows” when and how to intervene during and after a learning event (Decker, 2007a; Jefferies & Rogers, 2007; McDonnell, et al., 1997). Facilitators use specific techniques such as scaffolding which challenges a learner's perceptions and opens up new ways of understanding. Transformative learning occurs when individuals change their cognitive frame of reference (Merriam, 2004; Mezirow, 1991, 2000) and integrate learning appropriately.

Simulation literature revealed the types and uses of simulation and the rationale for its growing popularity in healthcare education. In nursing, simulation is being widely used in undergraduate training. Aside from being useful in skill acquisition, it is also being used to prepare nurses for the clinical environment. In some instances, time spent in high fidelity simulation laboratories is replacing time spent with real patients. Furthermore, simulation activities have been developed to assist nurses in effective decision-making that helps them move from novice to expert in their practices.

Simulation has been used for medical training to teach skills, diagnose, and evaluate performance. Reproducible, standardized, simulation scenarios combined with debriefing lead to effective learning because they are adaptable to multiple learning strategies (Issenberg et al., 2005). In operating room settings, simulation can improve perioperative communication patterns that lead to workplace efficiencies, reduce adverse events and improve patient outcomes (Clay et al., 2007; Dismukes et al., 2006; Vashdi et al., 2007). Despite its many benefits, simulation remains a challenging, resource intensive and expensive learning strategy that requires further research prior to widespread adaptation across educational institutions and healthcare facilities. Although many issues are being addressed by the research community in healthcare simulation and debriefing, the studies are diverse and few focus on substantiating current findings. For example, simulation is reported to improve patient safety but there is little empirical evidence to substantiate this. Also, high fidelity simulation with human patient simulators is being used in some educational facilities as a replacement for real patient contact without supportive evidence that the experiences are equivalent.

The review on debriefing started with a look at the history of the phenomenon and an acknowledgement that the definition and methodology of debriefing is depends on the purpose, context, process, and discipline. Current applications of debriefing are in the military, in organizations and by psychologists, in aeronautic training and it is an important part of the simulation framework in healthcare education. Important concepts and various models of debriefing were explored including the Debriefing Assessment for Simulation in Healthcare (DASH[®]) tool, developed by The Centre for Medical Simulation (2009).

A concentrated look at research on debriefing in healthcare demonstrated that

- Post simulation debriefing promotes the acquisition of non-technical skills and can be used to improve patient safety and manage team performances
- Video review is not necessary to achieve valuable simulation–debriefing training
- Simulation without debriefing is not an effective learning event
- Effective debriefing facilitators have “people” skills and attributes that facilitate the critical and reflective thinking integral to new learning
- Postsimulation, structuring debriefing is a more effective educational technique than in-simulation debriefing.

Although debriefing is touted as the cornerstone of active learning in simulation, few studies link debriefing to learning outcomes, demonstrate best practices, or discuss ideal facilitator qualities and training processes to prepare them for this role. Further, learners’ voices have rarely been used to describe learning experiences in simulation and debriefing. The following case study explored the uses and efficacy of simulation and debriefing as an educational strategy through the experiences of students and the facilitator in a perioperative nursing program.

Postsimulation Debriefing Conceptual Framework

After reviewing and reflecting on the literature I integrated my own insights and suppositions about how learning occurs through simulation and debriefing strategies. I came to the conclusion that the process of debriefing was crucial and under-researched. Learning does not occur through simulation alone (Savoldelli et al., 2006). Learners must be exposed to a communication process that guides them through stages allowing time for decompression, reflection, critical thinking and assimilation of simulation activities and events.

Subsequently, I constructed a visual and written conceptual framework that incorporated ideas and relationships from experiential learning and simulation and debriefing literature, but was unique in the way that it portrayed my conception of how comprehensive, postsimulation debriefing activities should transition through four reflective phases. This conceptual framework was the foundation that guided my decision-making on the design, data collection, analysis and the reporting of the study findings.

The emphasis for this conceptual framework (see Figure 1) is postsimulation debriefing. It considers that learners and the facilitator must work together as equal partners and co-constructors of knowledge as they move through four phases of debriefing. It recognizes that learning is impacted by personal filters, prior experience, and the ability to reflect on practice (Alinier, 2003), so facilitator expertise is essential to encourage individual expression yet create collective learning. The facilitator must have excellent communication skills to guide learners through the debriefing phases knowing when and how to intervene (Jefferies & Rogers, 2007; McDonnell et al., 1997; Rudolph et al., 2007). Specific techniques such as video-review, discourse, and journaling can be part of the debriefing repertoire that encourages learner reflectivity. Transformative learning occurs when individuals change their cognitive frame of reference (Merriam, 2004; Mezirow, 1991, 2000) and integrate learning appropriately. The following is the description of the four-phase postsimulation debriefing cycle that depicts how I believe effective debriefing should occur.

Phase 1: Debriefing guided overview of simulation activity. The debriefer reminds participants of what is expected of them during the debriefing. The debriefer reaffirms what the objectives of the simulation were and provides a general review and personal reflection of what occurred during the simulation based on observation.

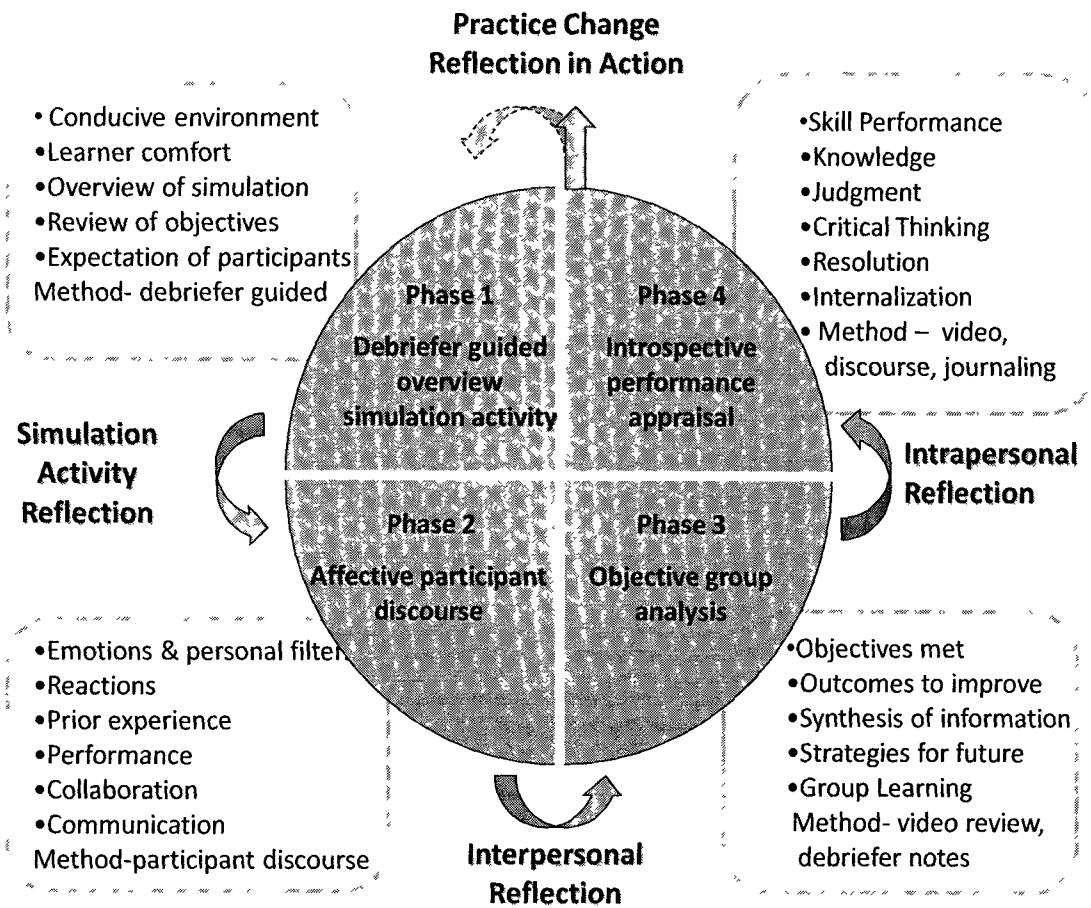
Phase 2: Affective participant discourse. Learners are encouraged to decompress and express their emotions and responses to the simulation activities based on their personal filters. This requires trust and collaboration among group members.

Phase 3: Objective group analysis. Phase three relies on collective learning that assumes shared understandings are developed within social groups. The facilitator guides the review of individual and group performances via video review or debriefer notes, and helps learners reflect upon and synthesize information, then strategize for improved performance in the future.

Phase 4: Introspective performance appraisal. The learner takes time to critically reflect and think about his or her simulation performance in a logical fashion by reviewing their skills, knowledge base, judgment, and decisions made. The intention is that the learner must determine and internalize improved ways of performing in similar situations in the future and resolve to put these revised plans into action. Strategies that assist learners in this phase are video review, discourse and journaling. This introspective phase can lead to transformative practice changes. The individual learns to reflect in action, and practice new behaviours based on the recall of optimal performances during simulation.

This conceptual framework guided my decision-making on the design, data collection and analysis and the reporting of findings in this study.

Figure 1. Debriefing Conceptual Framework



CHAPTER 3

Methodology

The purpose of this study was to explore how nurse learners in a perioperative nursing program discerned their experiences of simulation and debriefing. In seeking to understand this phenomenon, the following questions were addressed:

1. What are the perceptions of perioperative nurse learners participating in the simulation–debriefing process?

2. How does postsimulation debriefing impact the learning process for nurses participating in a perioperative clinical laboratory course?

3. How do I, as the facilitator, experience and explain debriefing within this case study?

In this chapter, the research methodology is described. The following topics are addressed: (a) rationale for the approach used for the research, (b) description of the participant sample and research setting, (c) overview of the research design, (d) data collection methods, (e) synthesis and analysis of data, (f) ethical considerations, and (g) limitations of the study. A brief summary concludes the chapter.

Rationale for a Qualitative Design

The primary rationale for engaging in qualitative research is based in my constructivist beliefs. According to Denzin and Lincoln (2005), the constructivist paradigm assumes there are multiple realities, the researcher and participant co-create understandings, and methodology is generated from substantive, real experiences that are captured in numerous ways and constructed into an interpretive text that brings meaning to the field of study. With my personal history and professional background in nursing and education on one hand and my constructivist lens in the

other, I wanted to conduct a meaningful study in the perioperative arena, a very under-researched specialty, and bring new information to the fields of qualitative nursing and healthcare education.

This research, therefore, spans the diversified fields of nursing, perioperative practice, and healthcare education creating a complex matrix of information. Denzin and Lincoln (2005) acknowledged this creates issues and concerns from one specialized field to the next. The constructivist paradigm fits with the exploration of the phenomenon of simulation–debriefing because it allowed me to understand the nuances of events from a process perspective, contextually, and socioculturally. I was able to address how events such as simulation and debriefing were “experienced, interpreted, and understood in a particular context and at a particular point in time” (Bloomberg & Volpe, 2008, p. 80) and reconstruct learners’ understandings through transactional knowledge (Guba & Lincoln, 2005).

In this study, each participant owned their beliefs, feelings, and perceptions of the phenomenon. Therefore, a comprehensive insight of postsimulation debriefing was best understood through the learners’ and facilitator’s reported experiences and perceptions of events (Stake, 2008). As the researcher, I considered the participants’ subjectivity, believing participants are the experts of their own experiences.

For the research to be personally meaningful and educational, I wanted to build a “collaborative, reciprocal, trusting, and friendly relationship with those studied” (Denzin, 1997, p. 275). Sandelowski (2000) points out that the qualitative researcher’s descriptions depend on the “perceptions, inclinations, sensitivities, and sensibilities of the describer” (p. 335). I knew that my close relationships with the learners would serve as an impetus to pay close attention to how I represented participant voices and the stories they chose to tell (Chase, 2005).

Rationale for a Case Study Approach

In any research, the method chosen must be appropriate to the inquiry. To that effect, in preparation for this research, I reviewed four types of qualitative methods in order to ensure I choose the right design. These included ethnographic, grounded theory, participatory research and case study.

Ethnographic research generally involves the researcher participating in a particular area of social life within the natural environment of those people being studied. Researchers delve into peoples' daily lives over an extended period of time with the intent of focusing on emergent, relevant issues (Atkinson & Hammersley, 2007). This definition does not fit with the intention of my research which was to explore a specific phenomenon with a diverse group of participants in the context of a learning environment.

Grounded theory commonly refers to a mode of analysis used by researchers. Grounded theorists collect and analyze data simultaneously and ongoing findings influence further data gathering. Analysis of the participants' meanings becomes increasingly more abstract until the researcher is able to make implications about participants' worlds and how they are constructed (Charmaz, 2005). Grounded theory is often used for advancing social change. My research focus was one of understanding the perceptions and learning experiences of nurses. I had been exposed to simulation and debriefing as part of my professional role and had done extensive reading prior to the research, therefore I started the project with preconceived notions on what themes might emerge. I was not conducting the research in order to critically analyze learners' experiences or to deliberately generate theory.

Action research involves a collaborative process of doing research with people who are interested in exploring specific, contextually relevant issues. Using a combination of theory and practice, ordinary people work together in a co-operative fashion develop their own ideas of their world and see if these ideas make sense (Heron & Reason, 2001). This research is done through several cycles of inquiry consisting of reflection, planning, action, observation, and further reflection. In this type of cooperative inquiry all participants are fully involved as co-researchers in the research decisions around content, methods and findings. This type of research was not suitable for the research I was conducting. Participants were learners who did not share the same concerns or interests that I did in exploring the phenomenon of simulation and debriefing, nor would they be in the setting long enough to understand the contextual implications of this learning process.

A case study design was appropriate for the purpose of this inquiry, which was to explore, in detail, a single episode of the contemporary phenomenon of postsimulation debriefing (Stake, 2005). The case occurred within the contextually and socially bounded system of the simulation–debriefing learning experiences of a group of nine postgraduate nurses and the debriefing facilitator in a perioperative laboratory course. Stake identified this type of case study as intrinsic “because, in all its particularity and ordinariness, this case itself is of interest” (p. 444). In this type of case study, Stake said the researcher “at least temporarily, subordinates other curiosities so that the stories of those ‘living the case’ will be teased out” (p. 445).

Stake (2005) believed that the most important role of the case study researcher is that of interpreter. This ability to highlight multiple accounts of these participants’ experiences within the context of a common phenomenon allowed me to generalize aspects of the experiences of the

group while also extracting the unique experiences of individuals and giving voice to their particularized experiences (Ayres et al., 2003; Stake). I chose a narrative approach to represent learners' experiences in a cohesive text as this is a simple yet powerful way to reach the reader providing an opportunity for them to vicariously experience the happenings within the case and "extend their perceptions of happenings" (Stake, p. 454).

Participants

The goal of this case study was to generate rich information that would inform the topic of simulation and debriefing as an educational strategy through purposeful sampling of the nine registered nurses enrolled in a community college postgraduate perioperative nursing program. All of them were invited and all agreed to participate in this study. This heterogeneous sample was an all female cohort as no men had enrolled in the program that year. They were of varying ages, with a variety of nursing backgrounds and experience (see Appendix D). The Perioperative Certificate Program in which they were enrolled had provincial and national approval. The program consisted of five didactic and two laboratory courses. In the six months prior to the study, I had facilitated the nurses' learning in the perioperative theory courses. In this time I developed personal and professional relationships with the learners. Although I was the facilitator for the theory courses, I was not involved in facilitating in the laboratory courses.

When the learners enrolled in their last perioperative laboratory course in the program they were invited in person to participate in this study. Participants were fully informed verbally, and in written format, of the purpose of the project and their role within it should they volunteer to participate. They were also assured that their grades for the laboratory course would not be affected by their involvement in the project or lack thereof. Individuals who agreed to participate signed a consent form (Appendix E). They all signed a non-disclosure form stating that all

interactions occurring within the simulations and debriefings would remain confidential and not discussed publicly. The non-disclosure form was completed and returned to me in a preaddressed envelope (Appendix F). Once they had completed the consent form and non-disclosure form, participants were asked to fill in a demographic questionnaire that solicited information regarding their educational status, years of nursing experience, specialty areas worked in, and past simulation and/or debriefing experiences (Appendix G). There was no remuneration provided for participation in this project.

By agreeing to participate in this research, learners gave permission for their video recorded sessions, written journal, and demographic data to be used for research purposes. Their anonymity was assured through the use of pseudonyms in any written reports or publications resulting from the research. Another way in which confidentiality was achieved was through the careful storage of discs and transcriptions. All data collected (Appendix H) were accessible only to me and my research advisor. Participants had the option of withdrawing themselves and/or their data from the project at any time without prejudice; however, none chose to do this.

There were two laboratory instructors who taught the lab portion of the program. Although these instructors were not part of the research project they had an impact on the results of the study, so it is important to understand their role. These two expert operating room nurses had experience training novice nurses in the clinical setting but neither had a formal teaching background. One had graduated from a perioperative certificate program; the other had learned operating room techniques on the job. It is important to note that each instructor approached teaching skills to new learners in the way that they had been taught and were used to practising, so although both adhered to the perioperative standards of practice, they did not do everything in an identical fashion. Their years of working in hierarchical teams in high acuity operating rooms

coloured their stories and interactions with learners. They taught together in the skills laboratory which consisted of a series of experiential sessions where learners had demonstrations of, and practised skills and procedures specific to working in an operating room. The instructors also played roles in the simulation scenarios. The simulation scenarios were 30 minute recreations of the preparation and start of an operation. In these scenarios, the learners performed the nursing roles and the instructors performed the roles of anesthesiologist and surgeon (Appendix I). Because of their intimate roles in the scenarios the instructors also signed a non-disclosure form and I briefed them about their roles. I observed the scenarios but was in no way responsible for the learners' grades in the laboratories.

I was also a participant in the study. As a novice to healthcare simulation and debriefing, there were a number of activities I engaged in over the course of the research. First, in order to get an overview of simulation and debriefing activities in the healthcare faculty, I observed several simulation and debriefing sessions and recorded observational notes. Second, I interviewed three faculty colleagues involved in healthcare simulation and debriefing. Third, I facilitated the postsimulation debriefing sessions. I wanted to be involved in the debriefing part of the simulation-debriefing process because I felt that was where I would learn most about how debriefing impacts learners. Debriefing sessions were a part of the course that did not impact learner grades so there was no conflict when I conducted the postsimulation debriefings (Appendix J) and interviews. My background and expertise as a perioperative nursing educator allowed me to assess individual and team performance in the simulation setting. My effective communication and observation abilities helped me identify issues of professionalism, judgment, emotional responses, and the reflectivity of participants during the debriefing activities

(Dismukes et al., 2006). Finally, as a reflective participant, I kept a personal learning journal throughout the study.

Setting

The setting for this research was a 30-hour laboratory course that occurred at the end of the perioperative program. This laboratory practicum was conducted in a state-of-the-art healthcare simulation laboratory at a community college. This facility included a fully functional operating room, the capability of using high fidelity mannequins, the ability to do audio–visual capture of students practising in the laboratory, and a debriefing room that had DVD playback capabilities and offered a private, comfortable environment for individual and group debriefing. Upon successful completion of this laboratory course and a one month clinical practicum in a local hospital operating room, nurses were prepared to enter the perioperative setting in a novice capacity.

Research Process

The following is a discussion of each step taken to conduct this research.

Literature Review

An initial review of the literature was conducted to determine the current status of information on the broad topics of experiential learning, simulation, and debriefing in healthcare education. Ongoing searches of pertinent literature occurred throughout the research process to help explain and substantiate findings.

Research Ethics Board Approval

After the research proposal was accepted, approval was received from the university and community college research ethics boards. The research ethics boards outlined all the procedures and processes required to protect human subjects and ensure voluntary participation, informed consent, and methods that adhered to confidentiality.

Data Collection

Stake (2005) suggested that case study research should rely on a mix of multiple data collection methods allowing for a rich, multifaceted representation of a phenomenon. In this case study, data was collected through audio, visual (observation and video), and written means over a four month period. All written data was transcribed electronically and placed into folders. A folder or profile was created for each learner which consisted of demographic information, their written submissions, transcriptions from interviews, and my notations from reviewing the simulation and debriefing videos was filed into separate folders for ease of analysis. The following sections outline the types and sources of these data.

Perioperative simulation data. Data related to the perioperative simulation included my personal written observations and professional transcriptions of nurses' activities during two simulation and debriefing scenarios, as well as the visual and audio capture of these scenarios. Following a series of experiential laboratory activities where students learned psychomotor skills and operating room procedures, two simulation scenarios were conducted a month apart. The learners were divided into three groups of three and participated in both one-and-a-half hour audio-video recorded operating room simulated scenarios and debriefing sessions.

The two scenarios were patient-based and reflected an authentic, uncomplicated, general surgical operation where the students had to admit a patient into the operating room and prepare

him for surgery. The rationale for using this type of simulation scenario was to observe how students sequenced their psychomotor skills and to gain a sense of their “soft skills”, such as teamwork and communication. The perioperative simulations were primarily student-driven as was appropriate for meeting the objectives of the simulation. This allowed them independence in performing activities, which is unlike the clinical environment where learners are closely monitored so there are no negative patient outcomes. Two instructors were present to facilitate and participate in the simulations.

Scenarios were written and included in the students’ course documents so they could read them before the simulation. Each perioperative scenario had three distinct nursing roles to be enacted, as well as the roles of the anesthesiologist and surgeon, which were played by the two laboratory instructors. As an observer, I took detailed notes of the simulations in progress, which prepared me to facilitate the debriefing sessions. After each session, I filed all simulation notes electronically in separate folders in OneNote.

Perioperative debriefing data. I conducted the debriefing sessions in a quiet debriefing room within the healthcare simulation laboratories. The debriefing sessions took approximately 30 minutes each and were video recorded. The debriefing sessions were not prescriptive but I referred to written recommended guidelines for effective debriefing as the sessions unfolded (Centre for Medical Simulation, 2009).

Initially, students were asked individually what their perceptions of the activity were and how they perceived their performance as a team and individually. This allowed them to make positive comments or vent frustrations and voice negative opinions about their performances. After this, and referring to my observation notes, I played back pertinent parts of the simulation video. The main goals of this activity were to provide positive reinforcement for good

performance and to visually point out errors in technique. As the perioperative “expert”, I was able to answer questions, refer to current standards of practice to back up my position, and speak to the students from my personal experiences.

The debriefing sessions ended with the learners planning how they would improve their performances for the next simulation or in the clinical setting. I reviewed and made written comments on all six video debriefing sessions. After each session students were asked to review the same video again at their leisure. They were each given a DVD of the simulation video and asked to submit a reflective journal entry outlining how they felt about the activity, including the instructor roles, the efficacy of the debriefer, and what they had learned from the simulation. For coding purposes, the entries were copied into Microsoft Office OneNote, a digital notebook where the user can gather notes, create tables, and annotate and code information easily.

Learning journals. As part of the course requirements, learners kept reflective journals chronicling their learning experiences in the perioperative laboratories, simulation and debriefing sessions, and operating room clinical. Guidelines for reflective entries were given to the students; however, the format was not prescriptive and allowed learners to present the facts or comment more subjectively on their experiences, as they chose. Since these transcripts resulted from the program activities, the generation of these data for research purposes did not require any additional time from the learners. Data were entered directly from these journals into OneNote for coding.

Individual semi-structured interviews. The semi-structured interviews provided a retrospective opportunity for learners to reflect on and discuss their perceptions of simulation and debriefing as a learning modality for perioperative training. Eight of the nine research participants took part in individual, face-to-face interviews with the researcher, within one week

of their completion of the perioperative program. Although I attempted to set up an interview with the last participant, she claimed not to have the availability to do so and did not respond when I attempted to conduct a telephone interview. Five of the participants met with me at the community college, I met with two others in their homes, and the last at the hospital in which she worked. I viewed this opportunity to talk with the participants as an important discourse not only to garner more information on the phenomenon of postsimulation debriefing but also as a way to honour their thoughts and opinions as learners in the perioperative program.

A semi-structured interview agenda (Appendix K) allowed me to ask specific questions and explore topics generated from the qualitative data that focused on the learners' perceptions of the perioperative simulation and debriefing experiences. I used an open approach and intuitively followed topical trajectories in the conversation that shed light on issues that evolved from the simulation and debriefing (Childs, Sepples, & Chambers, 2007; Decker, 2007b; Keen & Packwood, 1995). In addition, participants were given the opportunity to describe other experiences from the program and clinical placement that were meaningful to them. The interviews were audio-taped, professionally transcribed, and then coded.

External data collection. In order to get a comprehensive view of healthcare simulation and debriefing practices across the college healthcare faculty, I received permission from healthcare educator colleagues to observe their simulation and debriefing sessions for a total of 15 sessions broken down into the following specialty areas:

Respiratory therapy x 5

Practical nursing x 5

Neurology critical care nursing x 3

Maternity x 2

During each session I was an observer only and took extensive field notes.

Faculty interviews. In-depth semi-structured interviews were conducted with four college faculty instructors who conducted simulations and debriefing within their own specialty areas. The purpose of these interviews was to identify their perceptions of the efficacy of simulation and debriefing for their students. The intention was to identify commonalities and disparities in styles and methods across specialties, as well as affirmations and concerns about the simulation–debriefing process. These interviews were audio-taped and professionally transcribed.

Researcher journaling. I kept a personal journal as a research-directed method to assess my strengths and weaknesses as a debriefer and educator and provide insights into the necessity for ongoing reflection and the critical thinking required to improve teaching practices as they apply to simulation and debriefing. This allowed me to gain a deeper understanding of the educational processes that unfold in simulation–debriefing settings (Loughran, 2004). I achieved this by immersing myself in context-dependent learning (Flyvberg, 2006). As a perioperative observer, I took detailed notes of the simulations in progress and included any abnormal occurrences or deviations from the norm, for instance, if there were teams of two students instead of three due to absence, technical glitches, missing equipment, and any unusual participant behaviour. These notes were transcribed and added to later when I reviewed the videos.

I also wrote about my observations and analysis of debriefing sessions conducted by other healthcare educators and myself via video review. This process facilitated my ability to self-assess gaps in my own competence and to address and rectify identified deficiencies (Candy, 2004; Regehr & Eva, 2006). Through focused personal reflection and critical thinking, I used this information to complete the DASH[®] as a self assessment that listed my personal strengths

and deficiencies in debriefing with the intent of developing a learning plan to improve my skills in this area.

Finally, aside from the personal goals of improving my practice and substantiating student and faculty information, I believed reporting this perspective of professional development would be beneficial to the larger community of healthcare educators participating in simulation activities (Ham & Kane, 2004).

Data Analysis

One challenge of this case study was making sense of the volume of information and significantly reducing it while retaining the significant themes and connections (Bloomberg & Volpe, 2008). Qualitative content analysis is data-derived which means that codes are generated from the data, systematically applied, and continuously modified to include emergent data and researcher insights. I used such a template analysis style as it provided flexibility for adding new data, modifying and quantifying themes allowing me to see patterns and regularities in the data (Sandelowski, 2000).

Before starting the study I identified themes that I expected to surface from the data based on the debriefing conceptual framework and experiential learning models. For instance, I expected to see evidence of episodes of reflective practice throughout the learning strategies in the laboratory and simulation scenarios. These themes were put into a template and assigned a colour code using OneNote.

Initially, I read and reflected on all the transcripts, observational notes, and written journal material as they were generated and transcribed. I reviewed and listened to video recorded simulation–debriefing sessions and noted team dynamics, significant body language, narrative structure, and group communication. These notes and memos helped me identify ideas and

relationships to put into themes (Maxwell, 2005; Stake, 2005). I created individual folders for each simulation and debriefing scenario for each group of three participants and populated these with the transcriptions from my observations and the debriefings. Each participant, in turn, had her own folder with her demographic information, laboratory journal entries, and interview transcripts. The simulations conducted by other faculty members that I observed and individual faculty member interviews were kept in separate folders.

As I reviewed the data, I coded information according to the colour assigned to the theme in which the data belonged. New themes that were identified were added to the table and I started to recognize patterns between the participants. I counted occurrences of events and themes using this method to prioritize what and how data would be reported. Additionally, all quotations that I felt were representative of a theme were highlighted and annotated. After writing up and coding the most challenging simulation–debriefing scenario, I asked a colleague who is a simulation expert, to review and code the videos and transcripts. There was a high proportion of agreement between the two raters and the discussion that ensued confirmed that our designations matched (Banerjee, Capozzoli, McSweeney, & Sinha, 1999).

I proceeded to develop a profile for each perioperative learner that reflected the learner's lived experience within the context of the study. It became apparent to me that a strictly contextual view of these women in the classroom and lab did not honour their backgrounds nor their tribulations and triumphs in pursuing continuing professional education. By interpreting their narratives thematically through the traditional method, I could not represent what each individual brought to the research project. To that end, I listened "first to the voices within each narrative" (Chase, 2005, p.663). Chase described using this technique because it allowed her to see the connections between a woman's constructions of self in various situations. This

technique allowed me to hear each participant's story of themselves as nurses, learners, and novices to a new nursing specialty area. I was able, then, to interpret their stories in a more inclusive manner. There were many iterations of these profiles as I consulted with colleagues; the process continuing until the most concise, representative version remained. Quotations were edited so they were clear and readable without changing the meaning and pseudonyms were used to shadow the participants' identities. In the final check, I looked at the accurateness and fairness of participant representation and whether it maintained the participant's dignity. When the profiles were complete, seven of the nine learners were contacted (two were unreachable). All seven reviewed their profiles and were pleased with the accuracy of their representation.

My objective in this research was to answer questions about how participants perceived the simulation–debriefing experience and how debriefing impacted their learning. To that end, data were analyzed in two ways: through categorization and connecting strategies within and between both the participants and simulation and debriefing events. In other words I arranged data from the particular (participants) to the broad context of the learning events (Sandelowski, 2000).

In order to assess events, critical thinking, and reflective discourse, I determined common categories that described each participant's routine experiences, concepts, and beliefs. This created contextual integrity and followed individual trajectories. Exceptional circumstances and interpretations were also noted (Stake, 2005). All relevant information was mapped to the theoretical categories within my debriefing conceptual framework (Maxwell, 2005).

From here, the data were examined in three ways. First, I looked at common threads within categories; second, I compared threads across categories. These two steps allowed me to identify important fragments of data and start to synthesize them into a new, holistic explanation of the phenomenon of perioperative simulation and debriefing. Here is an example of this process.

Within two categories (i.e., simulation–debriefing and clinical experience), participants expressed numerous emotional responses. Threads of positive and negative emotional responses were compared across participants then reviewed across categories in order to investigate triggers and coping strategies. This led to the identification of communication as a theme. The third step in the analysis was to situate this finding by reflecting on the observed communication peculiarities and comparing this to current literature. This led to the exploration of the topical issue of team communication within operating room settings and resulted in important educational considerations for simulation and debriefing facilitators.

Stake (2005) cautioned that the “researcher’s knowledge of the case faces hazardous passage from writing to reading” (p. 445). My final challenge was to unravel and tell the story of how perceptions, beliefs, actions, practices, and language shaped participants’ perceptions of their learning events within the simulation–debriefing experience (Bouma & Ling, 2004; Losielle & Profetto-McGrath, 2004; Maxwell, 2005) and to bring relevant information forward to the educational community.

Ethical Considerations

Stake (2005) described the confluences of issues such as privacy, exposure, access, and agreements that impact the ethics of conducting case study research. Delving deeper into the protection of participants he noted, “Qualitative researchers are guests in the private spaces of the world. Their manners should be good and their code of ethics strict” (p. 459). He indicated that participants risk exposure, embarrassment, and possible loss of esteem within case studies and advocated for a “contract...a protective covenant...a moral obligation” (p. 459) to exist between researcher and participant.

A full ethics review took place to ensure the protection of the participants in this study. Simulation literature reports that some learners experience distress, fear of failure, and discomfort with peer judgment during debriefing (Fanning & Gaba, 2007). Strong personalities may disrupt the delicate debriefing communication process leading to disagreement and dissonance. To decrease the possibility of this occurring, I discussed debriefing etiquette at the outset of the study. Learners were informed of my dual role in the research project as a debriefer and co-learner conducting self-study research concurrently with participant data collection. To address debriefing confidentiality, participants were required to sign a non-disclosure agreement to ensure that skills and emotions displayed by participants were not discussed outside the study environment (Barach et al., 2001).

For confidentiality purposes, participants' names were replaced with pseudonyms on written and transcribed data, in the reporting of findings, and in any subsequent publications resulting from this research. In accordance with Stake's (2005) suggestions, I sent participants drafts of their personal profiles and they were informed they can read the final thesis. All data collected throughout the research, such as questionnaires, video recordings, and transcripts, were stored in a locked cabinet in the principal investigators office and will be kept for a period of five years. All computer generated data were kept on a personal computer with security login until the end of the project, at which time they were archived on disc. There was no remuneration for participants.

Trustworthiness of Research

Denzin and Lincoln (2005) discussed the need to differentiate how qualitative and quantitative research is assessed. They described establishing the trustworthiness of qualitative research through credibility, dependability, confirmability, and transferability.

Credibility

In qualitative research, the reader must be given reason to believe descriptions, explanations, and conclusions of the study are credible. Credibility is based on research design and the integrity of the researcher (Maxwell, 2005). To ensure methodological credibility, I triangulated data sources and data collection. Stake (2005) described triangulation as the “process of using multiple perceptions to clarify meaning, verifying the repeatability of an observation or interpretation” (p. 454). Data sources included the researcher, the participants, and external faculty. Several data methods were used to capture the multiple realities of learners’ experiences and to explain the simulation–debriefing phenomenon, namely observation, video review, group debriefing transcripts, written journals, and individual interviews.

Guba and Lincoln (2005) discussed that careful attention to interview techniques and subsequent accurate transcription act as an aspect of trustworthiness. In this study, interviews were conducted in a respectful manner and all audio files were professionally transcribed (Guba & Lincoln; Maxwell, 2005). Furthermore, credibility was sought from the participants who were asked to review their profiles. Seven of nine participants responded and approved the representation; the other two could not be contacted.

Dependability

Dependable findings are the result of a rigorous process of coding and analyzing throughout the research. Dependability is supported through the methods described above to code and verify information. Interrater reliability was established by asking a colleague to code simulation and debriefing videos and transcripts; these results were consistent with my findings. Another colleague reviewed the research findings and discussion and pointed out topical areas

for discussion that I had not seen. These were subsequently addressed in the final discussion.

Finally, all steps in the research process were tracked for auditing purposes.

Confirmability

Bloomberg and Kolpe (2008) discussed the futility of seeking objectivity in qualitative research. Instead, they promoted the confirmability of research. This comes from the ability of the researcher to illustrate how data were captured, reflected upon, and transformed into findings and discussion. In this research, all field notes were chronicled and I kept memos and a personal journal that are evidence of ongoing reflectivity on the data.

Transferability

Qualitative researchers acknowledge that their research is contextual and unique; however, this does not mean the results are not applicable to other contexts with similar conditions. The transferability of results from this case study lies in the ability of the reader to extrapolate relevant information and apply it locally to his or her environment or situation. To make this information easy to interpret, rich descriptions of the participants' learning experiences in simulation and debriefing are provided to the reader. Through participants' unique and shared experiences the readers should be able to identify with salient issues that are applicable in their own settings. Finally, I chose to discuss topics that I believe are relevant to the emerging, healthcare educational strategy of simulation and debriefing that I trust will be of interest to the reader.

Threats to Trustworthiness

Maxwell (2005) discussed two threats to the trustworthiness of a study: researcher bias and researcher reactivity. Researcher bias involves the selection of data that fits the researcher's preconceptions about the research. As a researcher of high integrity, I strove for reflectivity and a

nonjudgmental approach to the data. My interpretations were reviewed by fellow researchers and my doctoral advisor for confirmation of accuracy and an absence of bias.

Reactivity is the influence the researcher has in the setting and on the participants. In this study, I declared my previously established relationship as a perioperative educator with the participant learners in this research. It was an intimate group where personal and professional relationships developed. I had an understanding of their personal lives and nursing careers and expertise, as well as their strengths, motivations, and challenges in engaging in continuing education. In turn, participants knew my style of educating and we had developed trust in our relationships. The fact that this relationship existed allowed me to have a more in-depth understanding of these learners' perceptions of participating in simulation and debriefing. I believe it enriched the findings because participants felt secure in the environment and able to express emotions and share information that would not have been possible in a more formal relationship. In addition, I believe that my personal commitment as a co-learner and colleague gave me credibility.

Limitations of the Study

In qualitative research, interpretations are researcher-dependent, thus they are subjectively limited (Bloomberg & Volpe, 2008). One limit of this study related to my subjectivity in the research project as an educator and my participation in a doctoral program. As mentioned, I developed friendly, personal, professional relationships with the learners during the didactic courses in the perioperative program. These relationships may have influenced their agreement to participate in the study and their willingness to cooperate in providing information they perceived might be useful to me in the pursuit of my studies.

A second limitation was the study sample size. The study was not intended to elicit findings that could be generalized, so research was confined to a small number of postgraduate nurses participating in continuing professional education. As a result, findings may not be relevant at the undergraduate nursing level, across healthcare professions, or in the clinical environment.

Summary of Methodology

A qualitative case study design allowed me to explore in detail, a single episode of the contemporary phenomenon of simulation and debriefing as experienced, interpreted, and understood by the participants: nine nurse learners and myself within a bounded context of a community college postgraduate perioperative nursing program. The setting for this research was a 30-hour laboratory course that occurred at the end of the perioperative program. This laboratory practicum was conducted in a state-of-the-art healthcare simulation laboratory at a community college.

Research process evolved through the following stages: literature review, college and university research ethics board approval, data collection and data analysis. Ethical considerations for this study focused on trustworthiness of the research, credibility, dependability, confirmability, and transferability of the findings. Threats to trustworthiness were deemed to be researcher bias and researcher reactivity.

One limit of this study related to my subjectivity in light of the positive relationships I had developed with the learners that may have influenced their agreement to participate in the study. The second limitation was the study sample size. Findings from this small, homogeneous sample of registered nurses may not be relevant at the undergraduate nursing level, across healthcare professions, or in the clinical environment.

CHAPTER 4

Findings

The goal of this study was to explore nurse learners' perceptions of their simulation and debriefing experiences as part of their educational preparation for work in the operating room. I was specifically interested in three questions:

1. What are the perceptions of perioperative nurse learners participating in the simulation–debriefing process?
2. How does postsimulation debriefing impact the learning process for nurses participating in a perioperative clinical laboratory course?
3. How does the facilitator experience and explain debriefing within this case study?

In this chapter, the nine participants' perceptions of the perioperative laboratory simulations and debriefing, as well as the accounts of their experiential learning during their four week clinical in local hospital operating rooms, are presented. The individuality in activities, emotions, and thoughts creates a rich fabric of interwoven threads that merge into common themes. In addition, the diverse representations of healthcare simulations I observed are reported, as are discussions with three faculty colleagues involved in simulation. To complete the findings, at the end of the chapter a debriefing efficacy tool was used in a self-reflective way to rate my performance in the six debriefing sessions covered in this study.

Participants' Experiences

The data collected for this study was used to create the following learner profiles. The profiles address the learners' experiences in the following areas: laboratory experiences, facilitator interactions, simulation and debriefing experiences. Events that occurred in the clinical environment are reported under the nurses' individual profiles. The written data collected

through nurses' journaling during their clinical experiences and the post-clinical interviews I had with them, provided me with a retrospective opportunity to gain additional understanding of their perception of the value of simulation and debriefing as a learning strategy in the lab and how it impacted their learning processes in the operating room.

The learner profiles are divided into sections: laboratory experiences, facilitator interactions, simulation experiences and debriefing experiences.

Veronica

When women give birth through cesarean section, the operations are usually performed in the Labour and Delivery Unit of the hospital, not in the operating room. Nurses who work in Labour and Delivery (L&D) rarely have formal perioperative training but learn to scrub and circulate on the unit. Veronica, an L&D nurse in the perioperative class, had been working in this specialty since 1989 and considered herself an expert in caring for mothers in labour and their infants.

Laboratory experiences. The first entry of Veronica's journal portrays the adversities that this forty-something, mother of two had to endure coming back to college for continuing professional education:

Was late, rushed, and very tired going from working nights to days all week. Did not really follow what was being discussed [in class]. I hate being late. Tried to clarify [the assignment] with facilitator but too tired to be anywhere near articulate. Will just wing it for now. (V.L. Lab Journal, January, 2009)

Much of the initial laboratory work, such as scrubbing, gowning, and gloving, was a review for her. Many of her senior L&D nursing skills were transferrable to the perioperative setting so she developed a comfort level with the basics quickly and used her critical thinking "to

weed out bad practice habits and other things that we are not doing quite up to best practice” in L&D and replaced them with techniques she learned in the laboratory.

Facilitator interactions. The two perioperative facilitators were seasoned operating room nurses who were used to teaching in the clinical setting. Helen was the younger of the two and nursing was her second career. She completed her Perioperative Nursing Certificate in 2000 and had worked in a tertiary care operating room from that time on. Merriam received her operating room training twenty years ago and initially worked in a tertiary OR but for ten years had worked part-time in a surgi-centre doing plastic surgery. In that time, operating room standards of practice had changed significantly and her knowledge base was dated. This led to some discomfort in the labs when she would tell the students something obsolete and Helen would have to take her aside and correct her. So although they were both set in their ways and strict with matters of technique, their techniques did not always coincide. Veronica sized up the laboratory facilitators early on:

OR nurses are much like L&D nurses: opinionated, tend to have strong personalities, and get very attached to the structure and manner in which things are done—“this is how I do it”—with that slight hint of superiority. I am sure I have done it myself when teaching the new girls in the unit. (V.L. Lab Journal, January, 2009).

Veronica struggled to interpret the facilitators’ mixed messages that resulted from their variances in practice. Unlike other learners however, Veronica did not get frustrated with this but always sought a balance by weighing the pros and cons of the facilitators’ explanations of how to do something:

One [facilitator] would come along and show us how to do something; for example, the direction and setup of the mayo stand and then the other [facilitator] would come along and rearrange it. I do not mind the different perspectives (V.L. Lab Journal, January, 2009).

Veronica liked having ready access to a facilitator as she felt it allowed the group to move forward more effectively. However, she described a downside to one laboratory experience that occurred at the end of the day:

When I arrived...the facilitators looked a bit done in....They looked like they got dragged through a hedge backwards...in other words, tired and cranky. The decision was made to carry on with no break....I remember what it is like to be teaching and feeling that your brain has been used up and your patience headed south. I did not have a good feeling things would go well today. (V.L. Lab Journal, February, 2009)

Indeed, the facilitators were confrontational and contradictory that day, which led to more frustration than learning. Instead of cueing and guiding, they were critical and oblique. In Veronica's written account of the incident, her reflection led to a better understanding of the communication that happened.

Grace, [the facilitator,] asked me how I would set up the table. I did not understand the question; it was like we were speaking two different languages. After several goes at this I figured out she wanted to know how I would put the instruments on the table. (V.L. Lab Journal, January, 2009)

The air was cleared in subsequent laboratories, which progressed in a more relaxed manner:

"The overall atmosphere was much better and I could feel my ability to learn and think come back to me" (V.L. Lab Journal, January, 2009).

Simulation experiences. Veronica found the first simulation scenario contrived. Due to the camera placement for filming, the set up was in an awkward part of the simulation laboratory making it difficult to manoeuvre. While Veronica was comfortable in the scrub role she met two notable glitches. The first was when placing the sterile drapes on the patient:

Concentrated on square draping; have been practising at work. I forgot to use the approach drape first. Felt like an idiot. I will never make that mistake again. I was comfortable passing instruments. I was not too happy about “the surgeon” throwing the knife on my mayo. Not something I allow. Nobody throws things at me never mind a knife. (V.L. Lab Journal, March, 2009)

However, Veronica’s affective response in the video review debriefing after this scenario was relaxed and engaged. After the debriefing session she wrote in her journal, “The debriefing was very helpful. You can really see yourself, how you move. You can almost see what you are thinking about at different points in time. It was done in a manner that was constructive to learning” (V.L. Lab Journal, March, 2009).

The second simulation went very smoothly for Veronica with her partners Caitlin and Lesha. At that time, Lesha had just completed her clinical experience so the trio had a significantly higher confidence level than the others did for the last scenario.

Debriefing. During the debriefing of the first scenario, Veronica was positive about her group’s effort but uncomfortable with some of the “pretend” aspects of the simulation. For instance, in the operating room the antiseptic preparation solution used on the patient at the incision site prior to surgery is coloured so you can see the area covered. As this solution stains the mannequins students are to use a dry sponge to do the preparation. As a result, Veronica was unsure if she had been thorough.

Veronica's reflections on the postsimulation debriefing centred around the positive aspects, such as the ability to decompress after an event, the comfort level of discussing personal performances and areas for improvement in an intimate group setting, and being able to trust teammates to bring up salient learning points and have relevant discussions. Veronica noted, "The debriefing environment facilitated people's ability to discuss what went on in the video in a constructive manner. I thought the debriefer was able to lead us to points that needed to be discussed or things we would have overlooked on our own" (V.L. Lab Journal, March, 2009).

In clinical. During her preceptored clinical placement, Veronica struggled when she was paired with a junior perioperative nurse. The following excerpt from her reflective journal describes the difficulties some perioperative nursing learners are exposed to during clinical and why the teaching team tries to inject a sense of reality into the simulations:

I sure had an extremely busy week; stressful, but learned a hundred things. [My preceptor] was a good guy and was trying hard to help me but when he left the room this week, the other nurses would be telling me to do something else, changing things, and contradicting him. Sometimes they were doing it in front of him, arguing...who do I listen to? Headache! (V.L. Clinical Journal, May, 2009)

Upon completion of the program, Veronica accepted a position in this operating room and started working there directly after her clinical was complete.

Caitlin

Caitlin and Veronica were friends and colleagues who worked together in L&D. They learned their operating room technique on the job from their colleagues. Coming back to the classroom to relearn what they had been practising for years brought to mind the saying, "It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so!"

(Mark Twain, 1835-1910). This quotation encompasses the struggles that experienced nurses have when learning new evidence-based information that is contrary to their current “expert” practice. Caitlin, a petite 48-year-old, garrulous mother of two, was a 19 year veteran of L&D nursing. She considered herself an expert in child birth and had “seen it all”. Through her journals and interview, she shared the discord she experienced as a proficient nurse cycling back to learn a new specialty, perioperative nursing.

Laboratory experiences. The skills practised in the first few operating laboratories came easily to Caitlin. As the activities became more complex, she found herself “trying to be open and incorporate the old and new”. She had been doing a similar job for years and performing these activities in lab while being scrutinized by the facilitators made her uncomfortable: “I know that I have things to learn but it feels weird” (C.M. Lab Journal, January, 2009). Caitlin had clinical teaching experience and initially professed to enjoy the perioperative facilitators and their unique points of view: “I know, personally, that experience brings its own colour and texture to learning”. However, the colour was not always rosy. Caitlin noted, “Both [facilitators] bring their own methods of teaching. I found this to be frustrating at times. I realize that everyone has their own way of doing things but this is a school course and I feel that the skill base should be standard practice”. Interactions were annoying at times:

For me the lab did not start well. I was scrubbing and Merriam [laboratory instructor] came to me and said that I broke sterile technique. I was confused as I have scrubbed many times and have never had any problems. I checked the technique sheet and I was correct in my scrub. It put me off to a shaky start.... Classroom [procedures] should be standard. (C.M. Lab Journal, February, 2009)

Simulation experiences. In the first simulation, Caitlin was initially uncomfortable being watched by others but soon the camera was forgotten and she did the job to the best of her ability: “Working in an OR every day does make it easier to make the room flow. Having Veronica there is just like being at work. I believe we are both more at ease because of it” (C.M. Lab Journal, March, 2009). In the final simulation, she took on the role of the scrub nurse and the video proved to be a beneficial tool to observe all the roles being performed together:

I was only focused on what I was doing with Lesha. I heard Veronica but was too busy setting up to watch her. I felt very nervous. I found there were a lot of instruments to get organized in a short amount of time. It felt like a real OR experience as there was a time limit. Watching myself, I seemed to be trying to find my way around the back table. It was a lot to do. I always like to be organized during surgery and I felt like I did not know where to put anything. (C.M. Lab Journal, April, 2009)

Debriefing. Caitlin was animated throughout the first debriefing, using hand and arm gestures to emphasize points and keeping up a lively discussion. Her main focus was to clarify practice issues in the operating room that were different from the ones she practiced in L&D. She described that watching the video was a valuable learning tool as it let her see that her performance was not as bad as she thought and she liked seeing what everyone else was doing: “When you perform a task, you are concentrating on what you are doing. The video allowed me to view the whole scene, what we were each doing, and the way we communicated with each other” (C.M. Lab Journal, April, 2009).

Debriefing was a positive experience for Caitlin who appreciated seeing herself in action and having the facilitator create an atmosphere where the team could express their emotions:

The debriefing was helpful because what I was feeling was not evident to the others. It was good to talk about what we did and it helped to hear how the others felt. I felt comfortable expressing myself during the debriefing. It is an effective tool for learning. (C.M. Lab Journal, April, 2009)

In clinical. During her clinical placement at a tertiary teaching hospital, Caitlin developed a very good relationship with her preceptor, an operating room nurse with over 30 years of experience. Caitlin mentioned that the shift from being an expert L&D nurse to a novice operating room nurse was difficult in some ways. Initially, she felt she would have to “prove herself” as a knowledgeable nurse to her preceptor but soon realized that her preceptor treated her as an equal—an expert nurse in her own right. The last journal entry after her clinical summarized her learning experience: “I cannot believe the last day has come. I feel ready to begin a new stage in my career as a novice and someday hope to have the wisdom to help others” (C.M. Clinical Journal, May, 2009). Caitlin joined her long time friend and colleague, Veronica, when she too accepted a position in the same operating room.

Lesha

Lesha was a 29-year-old registered nurse who had been nursing in the community for seven years. When she started the perioperative program she was on maternity leave. She thought this would be a good time for her to pursue a new career path as she did not have work commitments. With a three-year-old and an infant at home she needed great time management skills to accomplish the volume of work required in the program. A quiet, tall woman, Lesha was soft spoken and focused on doing the assignments and tasks in a professional, efficient, solitary manner.

Laboratory experiences. Lesha's maternity leave ended in May so her goal was to complete the program and her 150 hours of clinical before she had to go back to work. This meant that she had to start her clinical placement in April before the program was complete. This time constraint put pressure on her to master the laboratory skills in an accelerated fashion and initially left her anxious and frustrated. Her expectation was that laboratory time was productive. Unlike some of her colleagues, she diligently took the time to practice skills at home prior to laboratory sessions. Despite home practice, it was apparent that initially she felt uncomfortable and awkward in the operating room. It was easy for her to over-think the psychomotor processes and get "hung up" on the details. For instance, she wondered which hand had to be scrubbed first and she found her height hindered her placement at the scrub sink:

Being tall left a challenge I had not thought about, my back was sore from being all hunched over. Gloving skills is still a hit and miss, sometimes I get it and actually look like I know what I am doing and other days I look like I don't have a clue. (L.W. Lab Journal, January, 2009)

As was the case with some of the other perioperative learners, Lesha rarely acknowledged her positive accomplishments, so the skills that she still needed to master always appeared formidable to her. In February, after mastering the aseptic setup, she stated in her journal, "The main thing I have realized is I need to improve on the instruments. I need to be more confident in recognizing them and their uses so that I can better predict what the surgeon will need next" (L.W. Lab Journal, February, 2009). During a small group laboratory, the surgical process coalesced for Lesha yet she still verbalized the internal conflict of wanting to know it all, while realizing that this would only come in time:

Today's laboratory was the first one where I did not feel lost, frustrated, and overwhelmed about the roles I am to play in the operating room. I enjoyed the lab today because it was real, the time pressure was there, which is a reality in the OR. The amount of stuff on my back table was certainly more realistic and it really gave me an overall picture of how it is from [the] start to finish of a patient surgery case. I don't think I am ever going to feel as prepared as I would like for clinical as I hate the thought of not knowing. I guess I am a little impatient. I want all the knowledge now and want to be able to be confident. I know it will come with time. (L.W. Lab Journal, March, 2009)

Simulation experiences. Due to learner availability, Christie, Minnie, and Lesha agreed to come in a week early to do their first simulation scenario. This new laboratory time was not convenient for the two facilitators, so I was challenged to film, instruct, and debrief the trio. Lesha chose the scrub role for this simulation and she performed well. The team communicated throughout the simulation and assisted each other when uncertainty was voiced. The threesome was comfortable and enjoyed the time to "play". Although Lesha worked proficiently in her role, she professed that she was nervous for the first group debriefing session and did not enjoy watching herself on the video.

I did not have a lot of confidence in my skills and I certainly didn't want other people watching me and judging me. But it actually ended up being a good learning experience as we were all feeling the same way—unsure of ourselves. (L.W. Lab Journal, March, 2009)

For the final scenario in April, Lesha was matched up with the two L&D nurses, Veronica and Caitlin. By that time, Lesha had completed her one month of clinical and was a transformed learner exuding confidence. This group was the last in a long day of simulations and followed a team that was unhappy with how their simulation experience had unfolded. These learners had

vented their displeasure to the facilitators and me. We were somewhat taken aback and it definitely changed the tone for Lesha, Veronica, and Caitlin's scenario. More explanation of instrumentation was given up front and learners were told they could ask the facilitators questions. Facilitators cued this group more and let them complete the tasks uninterrupted.

Lesha had no complaints with this second simulated learning environment, especially since she had been in clinical. She realized:

The simulation scenario was exactly what I would face in the real world. Having a practice run at it and then being able to see myself do it helped me to prepare....I was not as nervous as I have been to clinical now and so I have more confidence. It was still a good learning tool to show me how to be more time efficient. (L.W. Lab Journal, April, 2009)

Debriefing. During the debriefing I had to encourage the taciturn Lesha to voice her opinions and participate. As her teammates shared their thoughts Lesha started to get more engaged:

I did feel I was able to express myself. We were all in the same boat, trying to take it all in and learn. I was able to ask group members questions to clarify situations because it was a private and intimate environment. I think it was a positive way for us to give each other constructive criticism and to identify, as a group, our weakness and strengths. I felt comfortable discussing individual performances within our team because I have been interacting with these classmates since September. (L.W. Lab Journal, April, 2009)

Lesha described the debriefing area as a quiet, controlled environment, where the learners were able to face each other and maintain good eye contact. She felt comfortable conversing and sharing thoughts and feelings in this intimate setting. She perceived the facilitator's role as

“someone to help guide us, to also focus on the areas we may have missed, to tell us the good things we had done, and ways to improve on the things we could have done better”.

In clinical. During her clinical placement, Lesha spent a lot of time reflecting and writing in her daily journal. Her progression through her month in the operating room is best experienced by the reader through her own words. The following excerpts from her reflective clinical journal (April, 2009) provide a synopsis of her first and last week of experience in a local area hospital.

In week one, Lesha was somewhat overwhelmed:

Monday: This morning before going to clinical I was so nervous I had butterflies in my stomach. I just wanted everything to go smoothly....The pace was certainly real today.... If I concentrate on one thing too hard, I miss other things that are happening around me.

Tuesday: The first case of the morning was an eye opener. We started the case as a laparoscopic sigmoid resection, which turned into an open sigmoid resection, and then the bladder was accidentally opened and another surgeon had to be called in to repair. So, it just reinforced that in a blink of an eye the case can change from good to not so good very rapidly.

I still don't have the whole picture yet, I was so busy today counting, gloving, and gowning the surgeon, assistant, and resident, preparing the table, that the patient just seemed to appear. And then, at the end, I am so focused on preparing for count, closing, and dismantling the back table and the patient just disappears and the room is turned over.

After her first week, Lesha was still overwhelmed and uncertain of how to prioritize and manage her time. However, in her last week, Lesha was a different nurse:

Tuesday: Today was great. I was with the general surgery team leader and she left the room for most of the day and would just come in periodically to see how things were going. I

was forced today to do everything by myself with no one there to help, starting from setting up the room, opening, getting the patient, hooking up the patient, staying with the patient while they go to sleep, prepping, counting, tying up surgeon and assistant, surgical pause, hooking up and starting all the machines, running for things, specimen handling, charting, counting, unhooking everything, moving the patient, cleaning the room, and then starting all over again! (L.W. Lab Journal, April, 2009)

In a month, Lesha went from having the anxiety of wanting everything to go smoothly to the jubilant experience of having it all come together: “I have seen the whole picture and lived through the whole picture”.

Christie

Whether face-to-face in the classroom or behind a mask in the operating simulation laboratory, Christie’s furrowed brow indicated an imminent question. Nothing could be taken at face value, theory had to be substantiated, and actions had to be rationalized before she could open up and absorb the learning. Curiosity is invaluable in the perioperative setting because it keeps people on their toes. The questioning of staid practices by new nurses is often the catalyst for change. I wanted to encourage Christie’s learning style and patiently accepted the challenge of facilitating her perioperative learning. At 41, she found herself back at school after a hiatus while she brought up her two children. An impetus for her to enrol in the perioperative program was her volunteer experience in the local children’s hospital where she accompanied parents to the operating room and stayed with them as their children were anaesthetized. This gave her a birds-eye view of perioperative nursing that captured her interest.

Laboratory experiences. Christie, one of two Francophone nurses in the program, was pleasant and studious. She was excited to come to the laboratory sessions and went to great lengths to prepare beforehand. Her first laboratory journal entry hints at her learning orientation: Today my wish has been granted. We had the facilitator all to ourselves. The facilitator, besides answering all of our questions, shared her experience as an OR nurse. I can now rely more on what I have learned before. I need to have logic in my way of doing things. I cannot function properly when I am told to do things in a certain way if I do not understand the logic, the reason behind it. If it doesn't make sense to me I will question and be reluctant to go ahead. (C.B. Lab Journal, January, 2009)

As for the other learners, Christie felt there was never enough laboratory time and that she would be unprepared for her clinical rotation despite the fact that she was progressing competently.

Simulation experiences. During the first simulation, Christie was grouped with Lesha and Minnie and I was the sole facilitator. Watching them, I felt as though I was in an operating room starting a case. The dynamics in the laboratory were laid back; there was friendly chatter and laughter and the trio communicated openly and felt free to ask me clarifying questions. In Christie's words, "the first simulation was the best laboratory; everyone was happy" (C.B. Personal Interview, June, 2009). In the circulating nurse role, Christie noted how she enjoyed working through the whole case from A to Z for the first time and appreciated the opportunity to work as a team.

The second simulation scenario evolved much differently. The team consisted of Christie and Minnie, both Francophone and friends, and Avril, who was perceived as quiet and aloof by the other two. Everyone came into the room and started doing their own thing. There was very

little talking among the team. As Avril, the circulating nurse, confidently opened supplies for Christie, it was obvious that Christie was struggling to put all the instruments in order on her table. She did not receive any helpful suggestions from Avril and did not directly ask the facilitators for assistance. In the meantime, Merriam, the surgeon [and facilitator], came into the room chatting, asking for things, and generally distracting Christie by trying to hurry her up. As the scenario progressed, the surgeon became more pushy and abrupt with the team. She asked for the instruments and equipment needed to start the case. When Christie responded that it was not ready, Merriam commented on how lonely it was up here waiting to start the surgery. Although the surgeon purposefully agitated the situation to get things going, the team members performed their tasks and kept their cool. Towards the end of the scenario, it was obvious that Christie and Minnie were uncomfortable with the facilitator's behaviour. Instead of perceiving it as a beneficial reality check they found it disruptive. Christie described this experience as the "worst lab ever" as follows:

I decided to be the scrub nurse which I haven't been in a long time. I told my teacher [the week before] that I would need help setting up my back table and was told that I would get help. I knew that my partner, Minnie, would be there so I thought I would be fine since at the last laboratory we had good communication and a good experience. So, in order to perform well I spent a lot of time looking up my instruments on the Internet. I reviewed the set up videos provided by the teacher. I visualized my setup for the back table and the mayo stand. Although I felt comfortable with hand scrubbing, gloving, and gowning I even reviewed that and I felt quite well prepared. Well, I guess I was not. (C.B. Lab Journal, April, 2009)

Christie proceeded to describe the challenges she met as the scenario unfolded. Although

she described many tasks she did well, the tone of the journal entry focused on the negative perceptions she had of her team: “I did not like the facilitators talking while I was gowning and imitating my gestures. It made me feel like I was not doing the right thing even though I was” (C.B. Lab Journal, April, 2009).

Christie had not reviewed the content of the linen packages and she did not know where to place them on her table. She was confident organizing the first set of instruments but became flustered when a second pan of instruments was opened. She described how she felt: I did not know if I had to mix the instruments or not so I left them like that....Since I had not been a scrub nurse for a long time I would have appreciated a lot more support from my circulator and guidance and direction from my facilitators. I felt like I was all alone. There was no need to have more stress in this environment; I was stressed enough...I know I did most things right but I would have liked everything right or close to it. I think I learned from my mistakes and hesitations but it is frustrating to have no support from the circulator and facilitators. (C.B. Lab Journal, April, 2009)

Debriefing. After the first debriefing, Christie described being comfortable discussing performances with people she knew and she believed the team members helped and guided each other. She indicated, the video review “...confirmed what I do well and what I do wrong. With that, I can certainly improve my practice” (C.B. Lab Journal, March, 2009).

During the second debriefing, the session was subdued. The three learners gathered in the debriefing room, and I did not notice that the door to the room remained open, a detail that impacted the outcome of the session. Avril tried to maintain a positive atmosphere by focusing on how well the team performed and praised Christie’s efforts in the scrub role. This did not appease Christie who described feeling “like a dog in a bowling alley”. Her nonverbal

communication was very apparent on the camera. She responded when spoken to but looked unhappy and sullen even when I admitted that she should have had more cueing and support with her setup. It was not until the end of the debriefing when I asked how the team felt compared to the first scenario that Christie expressed some of her frustrations. She felt rushed due to the tight time constraint and verbalized that the surgeon should not have been sarcastic: “What is the purpose of doing a scenario if it is just a big joke? We are learners learning, so whoever is training us should know that we are stressed” (C.B. Lab Journal, April, 2009).

She expressed her thoughts and feelings clearly in her journal and reiterated these sentiments during our interview. She had felt unable to talk freely during the debriefing because she knew the two facilitators were outside the debriefing room and she thought they could hear the conversation. She related her loss of confidence in performing the scrub role to the lack of team support. Christie was under the impression that the circulator, Avril, knew a lot more than Christie did because she had worked as a scrub nurse for a short time during her nursing program and Christie expected guidance from her that did not come: “That made me feel very desperate and when it came to the debriefing session, I did not know which foot to dance on. Did she not really know or was she testing me?” (C.B. Personal Interview, June, 2009). This ambiguity concerning Avril’s motivation made it difficult for Christie to discuss the issue in the debriefing session.

In clinical. Fortunately, Christie did not carry her frustrations into her clinical placement at the children’s hospital where she was familiar with the staff and processes in the operating room. Her preceptors were eager to teach her. She professed to master the sterile setups in a few days and thoroughly enjoyed her month of learning, which encompassed a wide array of surgeries: “I had a very good experience during my consolidation. Though I was not always

paired with one preceptor, the educator found me very good alternatives and I was able to consolidate my learning even more” (C.B. Clinical Journal, May, 2009).

So, for Christie, the reality of the clinical placement was gentler than the artifice of the simulation laboratory. I was reminded from her experience that the reality of being a novice in the operating room is not always harsh. There are kind and accommodating perioperative nurses and physicians who go out of their way to teach and mentor healthcare learners. Several months after she completed the program, Christie was offered a position in the operating room at the children’s hospital.

Minnie

Minnie, 46 years old, was another Francophone nurse in the perioperative program. She gravitated naturally to Christie and they became friends and partners in the classroom and laboratory. Close in age and social background, they were both raising two children, working, and going to school.

Minnie’s current hospital nursing experience as a Postanesthesia Care Unit (PACU) nurse gave her the ability to integrate her expertise into assignments and surgical case studies. She was opinionated and passionate about certain topics in the classroom, such as the politics of healthcare and employee rights in hospitals. When excited and pleased, such as when she talked about an observation day in the operating room, she was infectiously exuberant, talking a mile a minute with hands waving expressively. When a colleague or facilitator upset her, her body language would be the first indicator of her agitation. An imposing woman, she seemed to grow in stature when annoyed and towered over us. With hand on hip, she would challenge her “opponent”. Sometimes when frustrated, she would turn to Christie and they would have a

French side-bar conversation. She made it clear that no one took advantage of her and she fought for what she believed was just.

Partway through her operating room studies Minnie was awarded a position in the operating room contingent on her successful completion of the perioperative program. She was excited about this opportunity to change her nursing focus and knew that the operating room would present better working hours—less shift work and weekends off.

Laboratory experiences. Minnie's laboratory journal entries were succinct throughout. When the laboratories changed format from the large group of nine to triads, Minnie found it easier to interact with, and ask and get answers to her questions directly from, the teacher. Prior to that, she had been bothered that the L&D learners "who thought they knew it all" would advise their colleagues about a specific technique or skill based on their L&D experience, which often turned out to be misleading:

The change in the learner-teacher ratio turned out to be efficient. I learned a lot more by being in the action. It was easier for the teacher to assess our level of knowledge and dexterity and [help us] improve by guiding us through the different steps. The interaction with the teacher was easier and more productive as there was less competition for attention.
(M.C. Lab Journal, January, 2009)

Simulation experiences. Minnie's first simulation scenario was with Christie and Lesha and the atmosphere was collegial as they performed their roles. She enjoyed the reality of working through the patient case and acknowledged its learning significance as she could see how all the puzzle pieces fit together. She noted that keeping the lines of communication open with co-workers during the case was important due to the learners' vulnerability of being in a new situation and specialty area of nursing:

By taking [on] a specific role, it became obvious what areas I needed to get more practice on to be ready for clinical. It helped me understand and clarify some issues I had with different roles within the OR team. Having the chance to review the session on video was extremely nice as we sometimes do not perceive things the correct way when we are in action. Seeing ourselves on video was a close call with reality. I loved it—we should do it all the time! It is the best way to understand the flow of things, the sequence of OR events. (M.C. Lab Journal, March, 2009)

The second simulation Minnie participated in was not a jubilant repetition of her first experience. As we have seen, the group dynamics between Minnie, Christie, and Avril were different. Minnie echoed Christie's distress about the unfolding of events:

I personally did not like a few things about this session. Some of the goals I had set for myself were totally pushed aside by the way this session went. As we arrived at the lab, we knew by the way we were greeted [the lab instructors] that something was up. It created additional stress and discomfort that should not have been [there]. (M.C. Lab Journal, April, 2009)

The trio was very quiet at the outset of the simulation and the two circulators, Minnie and Avril, did not talk to each other. Minnie was the circulator responsible for checking equipment and anesthetic preparation. She started off the scenario by forgetting to put on her mask. Observing, I did not comment but waited for a co-worker to recognize the break in technique and prompt her; yet that did not happen until much later when a facilitator reminded her. As she went to put on her mask, she appeared embarrassed and it disrupted her train of action. She was diligent about checking equipment such as the electrocautery unit and suction. However, she became frustrated when setting up other patient equipment and admitting the patient

(mannequin) to the operating room because she could not find some of the accessories. She verbalized that she felt things were not going well and although I cued her not to be concerned about small details, the lack of authenticity of the simulation concerned her:

It is unrealistic to expect us to function with equipment we have almost no contact with and expect us to get through the session by pretending what it is or should be. If we are expected to place a patient on a monitor, then it should be functional and we should have good formation on it.... If we are expected to place a warming blanket on the patient then we should not have to invent one. All equipment should have been ready and accessible.

(M.C. Lab Journal, April, 2009)

As Minnie prepared the patient for anesthesia induction, she made small sequencing errors that added to her aggravation. The “anesthesiologist” (one of the facilitators) discovered an allergy that was not on the patient’s chart, which obviously upset Minnie because this was not “in the script”. She strapped down the patient’s arm without having put on the blood pressure cuff and had to redo this activity. When she appropriately called for a time out, or surgical pause, to verify with the team that they were performing the right operation on the correct patient, everyone ignored her until Merriam, the “surgeon” (another facilitator), sarcastically responded that Minnie had the chart so she should know what was going on. Minnie’s perception of these events was as follows:

Throughout the scenario, the more the [facilitators] were trying to impress us with their reality check, it looked and sounded as if it was payback time. I personally found there was little respect, there was some intimidation, and it was absolutely not formative when it could have been so formative. (M.C. Lab Journal, April, 2009)

After the scenario wrapped up, Avril left the room to get a coffee. I asked Christie why she had prepared a long scalpel for the skin incision and she admitted that she had become confused. This exchange seemed to trigger Minnie. She became defensive and upset saying that it was not their fault they did not know what to do. How were they to figure out the sequence of events and know what items to check for and what they were supposed to pretend or not? Her angry words cut through the atmosphere like a scalpel, then her face crumpled and she started to cry. Turning away from the scenario she said, “Maybe I’m just sensitive today”. She reiterated that she did not enjoy this simulation at all. I went to her to calm her and led her into the debriefing room to talk.

Debriefing. Minnie chose to remain off camera during the recording of the debriefing sessions. I started the second debriefing by praising the team’s overall performance before going to the video review. I commented on Minnie’s thoroughness in performing her role and admitted that she was more meticulous than the teaching team had expected. Minnie was agitated that she could not find supplies she needed. Despite this, as we worked through the video review of the scenario, the learners supported each other. Minnie appeared comfortable, her booming laugh highlighting some of the scenes. She contributed to the discussion and offered Avril a “trick” to open a specific type of sterile pack. The group also talked about their agitation with specific incidents. Christie struggling when handling the instruments, Avril making sure everything was organized so the surgeon would have no complaints, and Minnie getting confused with the facilitator roles so the “anesthesiologist” threw her off course when she did not follow the script.

The wrap-up to the debriefing, intended as positive reinforcement and to support learning from the experience, was when Minnie’s invective surfaced: “I was not stressed. I was confused. I was disorganized in my head. We should have had more guidance” (M.C. Debriefing Video Review, April, 2009). Despite her perceptions of the final scenario, Minnie acknowledged the

necessity of postsimulation feedback and video review as a method for learners to learn from both positive and negative experiences: “Having the chance to look at the video and the debriefing was well worth it ... a video is worth a thousand words”. (M.C. Lab Journal, April, 2009)

In clinical. Minnie was welcomed and taught by the perioperative staff during her clinical. She attributed her acceptance by the team to her excitement of being in the operating room: “I was taken care of by surgeons and the surgical team—they like to inform and teach. I was extremely interested in learning so maybe that helped me be accepted by them”. Her preceptor sent her directly into action with the support and personal assurance needed for a novice and let her work through problems or mistakes even if it meant delaying operating room processes. Minnie’s motto was “The more I do, the more I learn”. This attitude helped her move from tentativeness and task-oriented behaviour in the first weeks to assertiveness, more comfort, and the ability to handle more complex cases at the end of the four weeks.

Following her clinical placement, Minnie continued to work in the operating room. However, while she loved her job, staffing shortages in the hospital meant that she did not get a consistent orientation to the operating room as the manager kept moving her back and forth from the PACU to the operating room. The unpredictability of these working conditions resulted in a stress leave for Minnie but after the situation stabilized she was able to return and complete her orientation.

Avril

Avril, a delightful young woman, was 31-years-old at the time of the perioperative program. She was new to the province, having recently completed her nursing degree in the

Maritimes, and had taken full-time work on a surgical floor in a local hospital. She had had the unique experience of doing a consolidation in the operating room as part of her nursing degree.

On our first meeting to discuss the perioperative program, Avril portrayed the infectious excitement of a new nurse embarking on an adventure. Enthusiastically, she described her desire to work in a tertiary care operating room. I was taken with her composure and quiet well-spoken nature. Her level of commitment to continuing education and her professionalism belied her years. In my mind, she was the type of young graduate nurse who could breathe a breath of fresh air into the operating room atmosphere. These first impressions of Avril held up throughout the two semesters of the perioperative program. She proved to be a serious, somewhat quiet learner in the classroom. Given the choice, she preferred to do individual versus group assignments and always produced quality work.

Laboratory experiences. Avril had an advantage over some of her classmates as she had had some introductory operating room training. In the laboratory course, Avril was comfortable performing basic perioperative skills and working in an aseptic environment. This proved to be frustrating for her when working in the laboratory with eight other learners who needed to repeat the skills: “In general, I feel as though the lab time is rushed, yet we continue to review the same things over and over again. This is both helpful and frustrating and in the end leads to a sense that nothing has been accomplished” (A.D. Lab Journal January, 2009). Avril preferred the smaller group laboratory sessions: “The lab did appear to run smoother with fewer people.... Overall, I found it to be a better experience [when we worked as a triad]” (A.D. Lab Journal January, 2009).

Reflective journaling about her laboratory experiences allowed Avril to formulate her own learning plan. She wrote: “I still need work to familiarize myself with the linens but know that

will come with time. Although I felt comfortable with passing up needles by the end of the lab I feel that is something I may lose if not practised enough. It may be beneficial for me to practise that aspect for every lab” (A.D. Lab Journal January, 2009).

Simulation experiences. In the first simulation, Avril, in a group with Amber and Ellen, chose the scrub nurse role, one with which she was quite confident. She found her colleagues somewhat lacking in skills and knowledge:

Although it was good to have set roles, not everyone was prepared to do so. I entered the room in the scrub nurse role and found the scenario slightly chaotic. Not all of the items on the pick sheet had been selected nor had all the instruments been collected. (A.D. Lab Journal January, 2009)

When the simulation began, the room was quiet. The nurses were focusing on their individual roles and I, as an observer, was concentrating on their actions. When Avril entered the room after performing the surgical scrub and prepared to put her sterile gown and gloves on, she met her first challenge. The circulating nurse accidentally removed the sterile table cover that Avril’s gloves were to go on. Her decision to glove on the back table led to the first compromise of the sterile field. As the scenario progressed, I witnessed a trio who was trying to integrate all they had learned in the skills laboratories into a cohesive role play. They were not yet comfortable manoeuvring around an aseptic environment and fell short in the details of the roles, such as the sequencing of events.

These small details were captured on video and helped me create teachable moments during debriefing. It was at this time that Avril had the chance to see the peccadilloes of her performance: “I liked the style of the debriefing session as it provided an opportunity to reflect on what had just occurred, as well as observe actions caught on tape that I may have been

unaware of'. She recounted that the visualization of her actions allowed her to reflect on why she was doing something in a particular way, what was going through her mind at that moment, and then to determine how she could improve in the future. Avril was comfortable expressing herself in terms of her own and others' performance: "I would be disappointed if others did not feel this way. I view these sessions as an important learning tool and all forms of feedback (positive or negative) provide information that can aid in improving current skill levels" (A.D. Lab Journal March, 2009).

In the second simulation, Avril chose the circulator role and was with two new partners, Christie and Minnie. Her description of the simulation experience differed from that of her partners. Avril was pleased with how it went but, as we have discovered, her two partners were not: "I felt that this [simulation scenario] went much better than the first.... I felt more prepared for what was going on and had a better sense of what I could do to make things work better for everyone involved" (A.D. Lab Journal April, 2009). At the end of the simulation, Avril left to take a break so she did not witness her partners' voicing their upset.

Debriefing. Avril was initially positive during the video replay, discussing how well the team worked together rather than focusing on individual performance. Christie and Minnie then started to discuss their feelings that the facilitators had been sarcastic and flippant during the simulation. Avril, caught between two negative forces, sat with her hands folded in her lap and kept a very neutral facial expression. It was only during the semi-structured interview that I was able to discuss Avril's perception of these events. She was taken aback at the tension in the debriefing room when she came back from her break. During the simulation, she had been focused on her duties and had not witnessed anything untoward unfolding in the room. Her perception of the laboratory facilitators was that the reality of the role play by the

“anesthesiologist” and “surgeon” in the simulation was appropriate for this setting. Based on her clinical time in the operating room she stated, “In real life it happens frequently and you never know when to expect it” (A.D. Personal Interview, May, 2009). Avril attested that if learners are exposed to this behaviour in simulation scenarios and discuss it in debriefing sessions, it makes it easier to deal with in the clinical setting.

Despite the dissonance, Avril found the debriefing helpful. The debriefing techniques allowed her to think about questions, mentally review information, and respond to what was incorrect or could be improved. She felt that despite the tension, the team realized their positive accomplishments.

In clinical. Avril’s clinical experience provided evidence of reflection-in-action and transfer of learning from the simulation laboratory to the operating room. She was challenged with increasingly complex cases as the month of the clinical placement progressed and she performed with aplomb despite some challenging situations, such as an intricate surgery involving two sets of surgical teams in which she was the circulating nurse:

This case felt a little overwhelming.... I felt lost every time I ran to get something. There were so many people and machines packed into the room and two services: general surgery and urology. There just seemed to be too much going on; I felt as though I was missing things, not doing things correctly. A good learning experience though. (A.D. Clinical Journal May, 2009)

Avril discussed how the postsimulation debriefing sessions helped her reflect during her clinical experience. She described that when there was a lull in the surgery, she would mentally review the actions she had taken in the surgical procedure to that point. She would identify areas where she may have been slow or frazzled because she was being urged to go faster and then would

strategize how she would correct that the next time round. She suggested that she may not have thought of doing this, or would not have known how to do it effectively, if it had not been modelled in the debriefing session by the facilitator.

Avril demonstrated the ability to integrate knowledge from the classroom to an authentic operating room situation. As she moves from novice to expert, her questioning, reflective nature will help her understand the complexity of decision-making processes for surgical patients, her role in their care, and how to best affect change in the healthcare system.

Ellen

Ellen had worked on a surgical floor for two years since receiving her nursing degree (BScN). A quiet spoken, svelte woman in her mid-twenties she befriended Avril who was also single and worked in the same hospital. Ellen's warm smile and calm demeanour made her a welcome addition to the program. At the beginning of the year, I could imagine her efficiently caring for her postoperative patients better than buzzing around a noisy operating room taking directions from Type A operating room nurses. Ellen meticulously worked her way through patient case studies and examinations in the classroom. In laboratories, she gained a comfort level with her classmates and adapted to the two laboratory facilitators. As I saw her roll with the punches, I came to realize she would be able to hold her own in a stressful environment like the operating room.

Laboratory experiences. Ellen was philosophical about dealing with the confusion that resulted when the facilitators each showed learners different ways of doing things. While she recognized that "each facilitator had valid reasons for why they chose to do things the way that they did" as a learner she felt, "I didn't have a clear answer on how I should do it. I guess I was

looking for the teachers to tell me ‘this is how you’re supposed to do it, it’s always done like this’ but in this case that didn’t happen” (E.S. Lab Journal January, 2009).

Ellen enjoyed receiving positive feedback and constructive hints from the facilitators. Over time, she was then able to assess her own learning needs: “I was able to pinpoint during lab an area that I feel I will need to practice more—passing instruments”. In the next laboratory, however, as she continued to practise handling instruments she got frustrated:

I got a bit frustrated with myself when the instruments I had on the roll were moved out of place and started to get tangled in with each other. I kept trying to keep all the instruments in the right order but found it difficult to stay organized. I’ve realized that organization is the key in the OR, especially as a scrub nurse. Being a neat and organized person by nature I thought that this would come easily to me.... I guess it will just take practise. (E.S. Lab Journal February, 2009)

Simulation experiences. Ellen chose the circulating nurse role for both simulations. In the first scenario, there were a couple of instances where she reacted instinctively and touched a sterile object, which compromised the sterile field. It was obvious that this was her first time sequencing the duties of the circulator. In retrospect, although there were appropriate props for her to use, she was not briefed well beforehand and struggled more than she had to.

In the second simulation, Ellen was the circulating nurse responsible for caring for the patient and assisting the anesthesiologist. Excited to practise a new role, Ellen worked through the process in a logical fashion. Yet her excitement had waned by the end of the scenario as the “anesthesiologist” pointed out deficiencies in her performance:

I guess I was so focused on trying not to miss anything that I completely forgot about checking with anesthesia before hooking up the patient to monitors. When this was brought

to my attention by the “anaesthetist”, I felt really bad. Also, when certain items were missing from the anesthesia cart, and when the pre-op pause wasn’t done before the surgery was started, I felt that I had failed in my role. (E.S. Lab Journal April, 2009)

Ellen took responsibility for her actions and did not lay blame on the facilitator’s tough behaviour. Looking on the positive side, she was aware of the mistakes she had made and vowed not to repeat them in clinical: “This lab was a good way to show me where I need to improve and the things that I need to be aware of and remember when the ‘real life situations’ arise” (E.S. Lab Journal April, 2009). In the post clinical interview, I mentioned to Ellen that I realized that she had been in an awkward situation and that the anesthesiologist had been quite abrupt with Ellen. I asked her how she felt about this “reality” intervention:

It was a good reality check because I think that probably would happen; you would expect them [anesthesiologists] to be quite upset. So, I mean, it didn’t feel nice to have her say the things that she was saying, obviously it didn’t make me feel good, it made me feel really bad for having made a mistake, but looking back on it I did learn a lot and now obviously I know, so I learned from it. (E.S. Personal Interview, 2009)

Debriefing. During the first debriefing having a quiet place to sit together during the debriefing, with just the group and facilitator, enabled Ellen to reflect on her performance and say what she was feeling:

I was still a bit embarrassed of the mistakes that I had made but I wasn’t scared to acknowledge them in front of the group that I was in because I knew that my teammates were not going to judge me or hold my mistakes against me. I felt that we were all fair to each other in listening to what each had to say. I know that I felt embarrassed seeing myself perform on video, especially when I did something wrong, but I think the group

was able to turn those embarrassing moments into areas for improvement. (E.S. Lab Journal March, 2009)

Constructive criticism and positive reinforcements dominated the debriefing of this second scenario. Ellen remarked, “Never during the debriefing did I feel that I was being singled out or criticized for my mistakes.... I think my worst critic was myself!” (E.S. Lab Journal April, 2009).

In clinical. All the perioperative roles crystallized for Ellen during her clinical placement where she had a very positive experience with a supportive preceptor. Ellen’s first operation was major—a liver resection. Although she professed to being nervous, she was told to jump right in and scrub for the case with her preceptor. She described the experience:

At first I was observing the scrub nurse and what was happening in the surgery but soon the scrub nurse let me take over passing instruments to the surgeon. She stayed close by the whole time and helped when I was unsure about something. I was so excited to be right in there assisting like a real scrub nurse! And when the specimen came out, I couldn’t believe that I was holding an actual piece of the liver in my two hands—so cool! (E.S. Clinical Journal May, 2009)

As the month rolled on, Ellen was charged to handle many complex cases and started gaining confidence in her critical thinking abilities. At the conclusion of her clinical placement Ellen described her attitude as follows:

I did have a few days where I felt that I could have done better, moved a bit faster, or done something differently. After talking with my preceptor though, I realized that I can’t be too hard on myself. I know that learning comes from doing and from practise and I feel that the more repetition I have at scrubbing and circulating for procedures, the better I’ll get—it just takes time. (E.S. Clinical Journal May, 2009)

Ellen continued to improve as a full-time perioperative nurse as she was hired in the operating room she did her clinical in.

Amber

If your heart needs mending, Amber is the nurse you want tending to you. She entered the perioperative program with an extensive background caring for cardiac patients, particularly in the intensive care of postoperative phase. At once autonomous and collaborative, cardiac nurses make decisions that have immediate impact on the patient's condition and they test out their critical thinking capabilities daily. I was pleased to have a critical care nurse in the program and knew she would add an element of expertise in understanding the critical nature of the unconscious surgical patient. Amber was gregarious and outspoken and anxious to master perioperative nursing. She was used to jumping into situations—"I'm not gun-shy"—and knew how to work her way to success. At 42 and married, she was an attractive, fashionable woman who seemed several years younger. She gravitated to the junior, single nurses for friendship and laboratory group work.

Laboratory experiences. Initially, Amber professed to be anxious before the laboratory sessions but soon realized that she felt more at ease if she read and watched the preparatory videos beforehand. She echoed her colleagues' desire for simple explanations and one way of doing things. She seemed to mesh better with the facilitator who would calmly point out incorrect practices, provide the rationale for a better way of proceeding, and then demonstrate the correct way to do the job. When discussing the other facilitator, Amber did not find her sensitive to the plight of the learners: "Her expectation was you should already know this. And you know it's hard to know what you don't know.... I need to learn. That's what I'm here for, that's what I'm paying for" (A.S. Personal Interview, May, 2009).

As the laboratories progressed, Amber had no problem discussing her decision-making capabilities or performing skills in the perioperative simulation laboratory and having her performance viewed and commented on by colleagues and facilitators. She understood the value of experiencing the reality of the operating room. When talking about how she felt with onlookers in the laboratory examining her performance Amber was candid:

I personally don't have a problem with that ... because you know, five people, two people, it's going to happen; better there than in the middle of an OR with ten people walking around. I'm fine with [it], but again that might be because I've been exposed to a little more in my career path than some of the others [in the program]. (A.S. Personal Interview, May, 2009)

Simulation experiences. Avril, Ellen, and Amber worked together in the first case-based simulation and the group struggled with some role omissions and basic sequencing of events. Despite this, the threesome was relaxed and amicable. The teaching team improved their own communication for the next simulation after which Amber remarked in her journal: "I did feel much clearer on our expectations this time than the last due to our previous debriefing. I felt that our group could help each other out and discuss our plan for this simulation openly" (A.S. Lab Journal March, 2009).

When commencing the second simulation, Amber reflected: "Like always, when I finally got to the sim lab and began to play scenarios from our last video lab and the posted labs in my head ... my anxiety diminished" (A.S. Lab Journal April, 2009). Due to scheduling, Amber worked with Kassidy and Ellen in the second scenario, once again in a cohesive group. Although Amber performed her circulating role adequately, the scrub nurse, Kassidy, struggled and this had an unsettling effect on the team. Amber quipped, "I think this was good, however, because

this clearly showed that some days things just happen to throw off even the best laid plans” (A.S. Lab Journal April, 2009).

Debriefing. Amber found the video replay to be invaluable in helping her visualize her movements and activities in the sterile field. She admitted that without constructive feedback during debriefing her improper behaviours would have continued until someone else corrected her: “For me, debriefing was excellent because in clinical I’d go back in my mind to those times and I’d say to myself, ‘it’s OK I’ve done that, been there, I know what to do because we talked about it’” (A.S. Personal Interview, May, 2009).

In our conversation about debriefing after the program, Amber remembered specific instances that were learning experiences for her:

What I found helpful is that you would point out areas that, in a couple of instances, we were all oblivious to..... One of them was in the last debriefing session when the (mayo) stand cover hit the ground. I was standing there, apparently right in front of it, and did not see that. It is important to see those things because we may not be watching what we’re doing and now we will be totally conscious of that from now on. As harsh as it may feel at the time, it’s a very important thing for the debriefer to have done because there are now situations where we won’t do that again because we’re kind of shocked into the situation. (A.S. Personal Interview, May, 2009)

I remarked that it sounded like the debriefing was more helpful to her when the debriefer pointed out errors or room for improvement rather than things that were done well. Amber concurred:

I take criticism well. I want people to tell me what I’m doing wrong because I’m not going to learn from you blowing sunshine.... If I’m getting all positive and maybe sugar-coated little things, I’m not going to take it seriously. If you’re telling me, having me look at it,

and then showing me the right way, I'm going to learn from that. (A.S. Personal Interview, May, 2009)

At the time of the interview, Amber had completed her clinical placement and been exposed to the idiosyncrasies of surgical teams. I asked how, in retrospect, she perceived the reality of the surgical simulations in terms of the facilitators acting the roles of surgeon and anesthesiologist and prodding the learners or being demanding during the scenario. Amber wanted them to bring it on!

I actually enjoy it because that's how it is. And being in the OR now and seeing that, they were preparing us in a very good way for what we're going to see. You are going to have those surgeons that are nit-picky and not so warm and fuzzy. You are going to have those circulators who seem to be not as conscientious as you are. You're going to have time restrictions and you're going to have things happen that you have no control over.... I was not irritated one little bit [by the roles the facilitators took on]. In fact, it would have been nice to have had a little more. I'm not sure if that's my perspective *now* because I see that it's so real, what the facilitators were trying to do. (A.S. Personal Interview, May, 2009)

In clinical. Amber chose to do her clinical placement in a community hospital and she thoroughly enjoyed the slower paced experience that allowed her and her preceptor to debrief at the end of each case. Amber remarked on the similarities between the debriefing sessions in the simulation laboratory and with her preceptor in the clinical setting:

It was really good to get her perspective because obviously she knows what she's doing. She's watching me and I'm concentrating on what I'm doing so I'm not necessarily taking in the whole picture. Talking to [my preceptor] and having those little conversations, it really did help with the flow for the next case or to practise the techniques that she had

shown me, the little tricks of the trade. And it worked really fine, debriefing after the cases or before the actual day. I found it very helpful because my preceptor gave me cues as to what would happen, what the surgeons didn't like, and stuff like that. (A.S. Personal Interview, May, 2009)

Amber described a number of clinical successes she had in implementing changes with the staff while in her practicum:

I found a lot of the little things that we did in our course I was conscious of. I was paying attention, I guess, because there were a few little things that [the nurses in this operating room] would do incorrectly, like opening up gloves, even the way they open up packages, the way they flip things. I said, 'I hope you don't mind, I would prefer to not flip because that is the way that I've been taught and that's the way that I really feel comfortable with' and they were all open to that. (A.S. Personal Interview, May, 2009)

Commenting on her review of the simulation and debriefing videos at the end of her clinical experience Amber was amazed: "Now it just seems that those things that I was so focused about in our sim lab are not even hitting the radar anymore. They are not even there anymore. It's something so much more" (A.S. Personal Interview, May, 2009).

Kassidy

Kassidy was a pleasant-looking, married, 24-year-old nurse who had worked for three years as a diploma registered nurse then went back to school and received her BScN degree. She was working on a surgical floor when she enrolled in the perioperative program. The college's videoconferencing capabilities allowed her to attend class from her out of town hospital. We became familiar with her shy smile and quiet attentiveness as she joined the class on the video screen. Although she could interact with her colleagues "in class" she did not get to know them

intimately and worked independently to prepare her assignments and presentations. The only time she was face-to-face with the other learners was during the laboratories. About two months into the program, Cassidy was hired into a perioperative nursing position at her hospital and she worked in the operating room in a circulating role. When she was in the simulation laboratory, she was anxious about the scrub role.

Laboratory experiences. Cassidy's emotional expressions are indicative of her comfort level doing certain scrub tasks. In the fourth laboratory session she remarked:

I felt comfortable with scrubbing, gowning, and gloving today. However, I believe that I need more practice with the scrub nursing role. I felt a little overwhelmed with setting up the back table and placing instruments on the mayo stand. I also need some practice with draping the mayo stand. (K.B. Lab Journal, January, 2009)

As she progressed through the program, Cassidy's scrub nurse skills solidified and became more reflexive. She attributed her efficient progression to the facilitators' cueing and questioning of her rationale for doing things. Cassidy commented: "I found this helpful because I was able to reflect on what I was doing and why. Therefore, I am able to remember more about what I did in lab practice so that I can apply it to the clinical setting" (K.B. Lab Journal, February, 2009). In addition, the laboratory sessions became more complex, giving the learners a sense of urgency. Cassidy was self-directed in her skill progression:

After scrubbing and circulating, we practised passing instruments. I enjoyed this exercise. I set up the mayo, prepared a suture on a needle driver, and handed it and other instruments to the "surgeon". This role play made the experience feel real and it is easy to see that this role could be very intense as you have to be very organized and punctual. I am feeling

comfortable in lab and I know that I will need to further practice draping and passing instruments. (K.B. Lab Journal, February, 2009)

Simulation experiences. Due to illness, Kassidy was not present for the first simulation activity, so the second simulation scenario was her first experience with the formal simulation–debriefing process. She was a reluctant actress initially but in the long run she was a convert to the process:

I felt very nervous, at first, in lab because of the video recording and all the silence within the room. I was not extremely excited about the idea of using video and audio recording as a part of the lab for this reason. As the process and the debriefing evolved afterwards, I began to realize how important this technique is ... for learners. I saw myself as an OR nurse and how I look when I work in the OR (K.B. Personal Interview, April, 2009).

Debriefing. Kassidy found the debriefing helpful because the group was able to discuss their flaws and areas to work on in a positive, non-demeaning way. She was comfortable talking in the small group setting, felt she could speak freely, and put her ideas forward. She perceived the facilitator as supportive and nonjudgmental and feedback given during debriefing helped Kassidy grow stronger in her clinical skills. In her words:

The debriefing, to me, was a way to explore with others our performances and to help one another learn new techniques and prevent error or contamination in the OR. It was reassuring to hear the positive aspects of my role as a scrub nurse. At the same time, I was reassured to know that I was not the only one with areas to improve on. I say this because initially I was mainly focused on my “mistakes” and myself but when you are in a small group it is easier to observe and learn from others. My classmates were ultimately like me. We all needed to improve on something. This reminded me that it is normal, as we are

novice OR nurses and this really brings reality into perspective immediately. (K.B. Lab Journal, April, 2009)

In order to better understand how thought processes may be recalled from the classroom or simulation–debriefing when the nurse is in the clinical environment, I asked Kassidy how she would describe the assimilation of knowledge and skills:

Theory ... is like step one. Step two is the lab and step three is in the operating room.... In the lab, theory is already gone.... It's there in my mind but I'm not considering it as important because we are already applying the theory to practice immediately. (K.B. Personal Interview, May, 2009)

Kassidy recalled a time in her clinical placement when she had to place the sterile drapes on the patient:

I always think back to lab. How did I do that square draping? I remember you saying, 'do the one at the top last'. I think back to what I did then and try to apply it. I kind of placed myself in the lab ... like a little mental picture. (K.B. Personal Interview, May, 2009)

Kassidy light-heartedly summarized her experience of simulation and debriefing: "I think you need to see yourself in order to correct yourself. It really gives you a sense that you are looking over yourself. It's like an out-of-body experience" (K.B. Personal Interview, May, 2009).

Debriefing Efficacy Using DASH[®]

In the fall of 2009, after I had collected the data from the simulation and debriefing sessions, I continued to explore the simulation and debriefing literature. This led me to The Centre for Medical Simulation. This organization developed a tool to formally assess the debriefing efficacy of healthcare educators who use simulation as a learning modality. The Debriefing Assessment for Simulation in Healthcare (DASH[®]) helps determine, through third-

party observation, if the debriefer is conducting a comprehensive, postsimulation learning session. DASH[®] is currently being used for research in this area. I received permission from the Centre for Medical Simulation (R. Simon, personal correspondence, April 3, 2010) to use this tool for the purpose of self-assessment within this case study with the proviso that I send a copy of my final dissertation to them for their files on debriefing research, a request to which I am pleased to comply.

DASH[®] (Appendix C) incorporates six elements of debriefing:

1. Sets stage for engaged learning. Before any simulation or debriefing begins, the facilitator is clear about what is expected of learners, helps them understand benefits and limits of a simulated clinical setting, and creates a safe environment for sharing thoughts and feelings.
2. Maintains an engaging context for learning. Throughout the debriefing, the facilitator helps trainees be clear about what is expected of them, and helps them learn from a simulated clinical setting.
3. Structures debriefing in organized way. An effective debriefing should have a beginning which is the reactions phase, the middle, an understanding phase that includes both analysis and generalizing to other settings, and a summary phase.
4. Fosters interesting discussions and reflective practice. Good debriefing requires the participant to apply, analyze, synthesize and evaluate information and to personally reflect on their approach to clinical practice and inspire improvement.
5. Identifies performance gaps. Participants need concrete feedback about sub-optimal, performance so the debriefer explores the basis for performance gaps including

knowledge, skills, and attitudes. The facilitator also assists participants in identifying attributes that contributed to excellent performances.

6. Helps close performance gaps. Facilitator assists participant in identifying the knowledge, skills and attitudes that contributed to excellent performance and is knowledgeable in subject area so is able to use performance gaps revealed in the simulation to generate discussions about how to improve or maintain clinical performance.

For each element, the debriefer is rated from 1–Extremely Ineffective/Abysmal to 7–Extremely Effective/Outstanding. As a reflective practitioner, I decided retrospectively to review the debriefing videos and assess my performance as a debriefer. In order to rate my performance, I looked at whether the dimensions of the six elements were met consistently throughout the six debriefing sessions in this study and rated myself accordingly.

The results of this assessment (Appendix L) provide clues about how my ability to execute debriefing sessions impacted learners' educational experiences. The self-assessment revealed that there were instances when I was not effective in preparing the stage or maintaining a context that inspired reflectivity. However, my strength in identifying and closing knowledge and performance gaps speaks to my experience as a perioperative nurse and educator and my ability to recognize outstanding and poor performances.

Observations of Healthcare Simulations External to Perioperative Nursing

Prior to commencing this case study, I had little experience with simulation and debriefing outside my specialty area of perioperative nursing. My literature search on the topic was extensive, yet nothing I read gave me an experiential feel for the process. In an attempt to explore wider applications of simulation and debriefing and its effectiveness in other content areas, I took advantage of the opportunity within my institution to observe faculty colleagues in

other programs as they worked through simulation scenarios with their learners. Over the winter semester of 2009, I observed 18 separate simulation and debriefing situations and interviewed three colleagues, none of whom were in perioperative nursing (Appendix). In order to provide a broader application of the methods being used I will outline how the simulations and debriefings unfolded. My thoughts on the pros and cons of different methodologies and my conversations with colleagues are discussed in Chapter 5.

Respiratory Therapy Simulations

The respiratory therapy and perioperative nursing programs at the college where this research took place have similar components. The respiratory therapy course work is supplemented with skills laboratories where learners are taught to perform tasks and become comfortable with complex respiratory equipment. Two facilitators are involved with the simulations in this program and they take a “meat and potatoes” approach to simulation scenarios in year two. Learners review basic practices and react to an authentic patient condition. The two facilitators focus the simulations on the outcomes they want to achieve but the simulations are not formally written and not previewed by the learners. The facilitators described their debriefing process as more of a “review on the fly”.

The five respiratory therapy simulations I observed were short, case-based scenarios for second year learners. The purpose of the simulations was to allow learners to put their knowledge, skills, and judgment to the test diagnosing and caring for patients with specific medical conditions; for instance, a patient who needed to be placed on a mechanical ventilator. The laboratory class of eight learners convened in the simulation centre classroom where all are able to see and hear the activity on the video screen via live feed from the simulation room. A facilitator chose one or two learners, depending on the scenario, and proceeded to explain the

patient's situation. He/she then sent the learner(s) to the simulation room to respond to the situation. For example, the learners might be told that respiratory therapy has been called to the Emergency Room to assess a patient in respiratory distress. When the "performing" learners left the classroom, the facilitator sat down with the remaining learners and, as the scenario unfolded, used the opportunity to answer questions, discuss specific topics that arose, and look for teachable moments. During this activity, not all learners in the classroom were equally engaged. Some sat informally leaning back in their chairs, arms folded, and observed. Others flipped through textbooks and looked up things pertinent to the scenario. Hal, the facilitator, reflected on this observation approach from a teaching perspective:

[Sometimes] it's very hard to pull a teaching moment [and] sometimes there's just nothing really going on..... So then you're kind of like, 'OK, so what can we talk about?'

Sometimes it goes off on a tangent and it is fine because you're talking about anything that's related, but other times there's not much going on here. (H.G. Personal Interview March, 2009)

While the group watched, the two learners entered the simulation room where the second facilitator, Terry, had programmed the human patient simulator to mimic the conditions of a patient in respiratory distress. The learners in the simulation laboratory were not cued by the facilitator. On occasion, they asked for specific tests or interventions to be done; for instance, they called for a blood gas to be done. After a lapse of time, the facilitator reported the blood gas results and learners had to react to this new information. They had 10 minutes to care for the patient after which time the scenario was terminated.

Following the termination of the scenario, a five minute debriefing ensued. This was primarily a review of the scenario focusing on the efficacy of the learner interventions. When the

scenario was finished, the classroom learners entered the simulation room and the intervention learners gave a patient report. At this time, learners asked their colleagues questions, commented on their performance, and asked additional questions of the facilitators. Sometimes this bedside debriefing became an additional teaching forum where facilitators explained certain principles or discussed decision-making rationale. The simulation–debriefing process was completed in 15 minutes and then a new scenario commenced.

The five respiratory therapy simulations I observed all followed the same format. There was a varied amount of enthusiasm and engagement from the learners sitting in the classroom and differing levels of proficiency from the respiratory therapy students doing the interventions. The facilitators worked well together, agreed on what to discuss, asked questions that encouraged learner reflection on material learned in the past and critical thinking of the scenario at hand.

Facilitators' perceptions. I interviewed both respiratory therapy facilitators to better understand their choice of simulation format and their perceptions of the efficacy of simulation for this learner group. Initial respiratory therapy simulations integrate basic knowledge and simple skills learned in the laboratory, such as “bagging a patient”, which involves establishing a patient airway and mechanically ventilating the patient with a mask and bag. Over time, simulations build up to higher acuity situations. Logistics dictate the format of the activities, which means a couple of learners usually work through a scenario in the simulation laboratory while the others watch on a screen in the classroom. The facilitators believe there is potential for the observers to have a meaningful learning experience. Further, there is anecdotal evidence that while the learners enjoy acting out the situation they feel they learn more from watching in the classroom and discussing the scenario as it unfolds.

Terry indicated that during the group debriefing at the “patient bedside” (human patient simulator), the observers seemed hesitant to point out the weaknesses in their colleagues’ performances because “it makes their co-workers look bad”. He also believed that sometimes the teaching point would get subsumed in a general discussion on the larger picture of the simulated condition. After 20 minutes of conversation, he questioned if the learners remembered the salient points.

Hal described the respiratory therapy scenarios and debriefing as follows:

We try to ... look at our outcomes but there’s not a formal ‘this is what we’re doing today’. Essentially, we’re trying to get them to react. We don’t do a formal debrief ... where we say ‘let’s sit down, let’s review’. So, a lot of it is on the fly. (H.G. Personal Interview, March, 2009)

Hal discussed the importance of reviewing the tests and orders the students had requested during the simulation to diagnose the patient’s condition. He made the point that tests, x-rays, and other diagnostics take time to process in a hospital setting, whereas in simulation the results are provided immediately. This gives learners a false sense of time management and security because in real life “you have this person who is not doing well, so you have to figure that part out”.

Terry revealed that in the first year of simulation delivery the learners were filmed during scenarios. However, there had not been time to formally discuss learner performance. Learners were given a DVD of their performance to review privately but there was no follow-up. The facilitators hope to be able to reinstate filming with a formal debriefing in the next school year but recognized lack of time is a factor.

The bright light of simulation in respiratory therapy is in the feedback the facilitators have received from their clinical partners. In areas where there are bottlenecks for placement, such as in the pediatric and neonatal units and the operating room, hospital educators praise how well the respiratory therapy learners are prepared for their clinical practicum. Further, simulation has decreased the amount of clinical placement time needed.

Neurological Simulations for Critical Care Nurses

One course that is seminal in the critical care nursing program is neurology. At the end of the course, one day is spent in the simulation laboratory with a human patient simulator working through three scenarios that involve caring for a patient with a neurological condition. The purpose of the scenarios is to allow nurses to react to unstable patient conditions in a safe environment, become familiar with specific neurological equipment, and discuss ways of communicating the patient's neurological status with families. On the day that I observed the simulations, there were eight critical care nursing learners and one facilitator at the bedside. I acted as an assistant and remained in the laboratory control room. I was responsible for changing the parameters of the mannequins as the scenarios progressed but I also observed and took notes of the simulations

The learners had access to the written scenarios prior to coming to the laboratory. However, despite this, as a whole they did not appear prepared for the simulations by reviewing the neurological conditions involved. There were no roles assigned for the interventions but the facilitator asked for volunteers at the bedside.

The first scenario involved a patient with a subarachnoid hemorrhage. This was caused by a blood vessel that had ruptured leading to an accumulation of blood in the skull surrounding the brain and could be fatal. One of the nurses volunteered to assess the patient but had difficulty

with the “pretend thing” and tried communicating with the mannequin, which caused some laughter and broke the ice. Due to the complexity of the equipment and procedures needed to treat this patient, most of which was unfamiliar to the learners, the simulation scenario had the appearance of a clinical teaching session at the bedside. The expert nurse facilitator discussed the patient diagnosis and unfolding conditions, set up the external ventricular device to measure intracranial pressure, and did the sterile setup prior to drilling a burr hole into the patient’s skull. Some learners volunteered to assist the facilitator, others stood around the bed with their arms crossed, and some were unruly, having private discussions as the facilitator explained concepts. The second scenario, which took 30 minutes, followed the same format as the first but ended with the patient succumbing to brain death. A lengthy discussion on diagnosing brain death and communicating this to the family ensued. The off-topic issue of organ procurement and transplantation was talked about at length. The facilitator let the conversation flow and learners seemed engaged.

The third and last scenario occurred in the late afternoon. The learners were encouraged to answer questions or contribute their ideas of how to handle unfolding situations but it appeared more difficult for them to concentrate on the activities. The facilitator’s demonstrations and explanations were inclusive.

At the end of the day, during the short debriefing sessions, the consensus of the learners was that they were appreciative of seeing, setting up, and operating the specific neurological devices used in critical situations but thought it would have been more productive to have seen the equipment beforehand so the session could have gone more smoothly. I felt that it was unfortunate that the learners did not have equal opportunity to practise and participate. This was in part due to the simulation format used and also because not all learners were equally engaged

in the activities. It was a long day and, although the teaching objectives were met, there was information overload. I believe the simulations could be organized differently so that all learners are able to participate in some way. All learners should have a hands-on experience in order to increase the likelihood that learning is transferred to the clinical environment.

Practical Nursing Surgical Testing

I observed five summative simulations that evaluated a class of practical nursing learners on their ability to care for postoperative patients. The facilitator had very detailed scenarios that provided information on the patient, equipment that was required, procedures that needed to be done, essential documentation, and the roles the learners would enact. These scenarios were used in a formative fashion midway through the semester followed by extensive debriefing. Learners were thus familiar with the scenarios when it came time for testing. An inclusive evaluator checklist made it simple to ensure learners achieved all the objectives.

Each simulation took 15 minutes with a 5 minute debriefing. The learners were in groups that were consistent with those in the clinical setting so they were used to working with each other. Learners were allowed to select their role for the final scenario. During the simulation, if the learners appeared nervous, the facilitator cued them. Learners received their final mark during the debriefing. Some groups were more cohesive and effective than others but all successfully passed the test. I was very impressed by these well thought out and planned simulations.

Maternity Simulations

I conclude my observation of simulations in various settings with observations of five maternity simulations. The first three simulation sessions occurred over one day at the beginning

of March, 2009. These were practice laboratories where learners gained comfort and experience assessing and caring for the postpartum patient. As in the aforementioned practical nursing simulations, the maternity simulations were well designed, detailed, and the roles were outlined and scripted. Learners were expected to prepare for the day by previewing the scenarios and reading pertinent maternity course information. The first session occurred four weeks prior to the second and was not video recorded. The second session was used as a replacement for clinical time and was video recorded. The ensuing description is of the second simulations.

Simulation sessions. The two simulations in the second session were each conducted with ten students and a facilitator. Learners completed both scenarios. Both simulations required five participants; the other learners observed. Over both scenarios, everyone had the chance to role play. Learners were comfortable in the simulation enactments and scripting of their roles gave them practice talking to patients using correct terminology in a secure environment.

Each simulation session took one hour: 20 minutes for the simulation, 20 minutes to review the video, and a 20 minute debrief. The video replay involved the entire class and was well received for the first scenario as learners took notes and asked questions. As the day wore on, learners who had not acted in the simulation were not as engaged in the replay. Lights in the room were dim. Some learners dozed off as others whispered together. Debriefing sessions focused on the affective responses of the “actors”, Socratic questioning by the facilitators to elicit critical thinking and reflection, and engaging all the learners to participate. The scenarios became central to the teachings of the facilitators and a rich learning experience.

Facilitator perspective. Barbara, the facilitator, and I started our conversation on simulation and debriefing by discussing the logistics of having a full class participate in a meaningful way in the scenarios. It takes time and consideration to develop a relevant experience

where learners are actively engaged. Barbara was pleased with how diligent the learners were during the simulation noting how seriously they acted their roles, even if it was that of observer.

As these simulations were replacing part of the learners' clinical experience, I asked Barbara how the decision came about to use maternity simulations in lieu of clinical hours. She responded:

I think it was necessity. And it also came just from discussions with people that have been involved with simulation. The idea that the literature says that it is of value to use simulation to promote clinical learning in a safe learning environment,... I think that's part of it. With the RPN's [registered practical nurses] particularly, they only have three clinical days so the simulation is more important in terms of really supplementing their clinical learning. (B.H. Personal Interview March, 2009)

Developing the theme further, I inquired if clinical facilitators were able to observe an enhanced comfort level in the learners or whether there was any indication that the simulation skills are being transferred to the patient care setting. Barbara's response was:

Absolutely. It was the first time, really this time, that I felt we were able to see that. The learners said they were very glad they were having [the postpartum assessment lab] prior to going to the clinical setting, even though they had had a lab previously that had focused on these skills. This was another opportunity to put those skills to use, to play out how they would actually apply those skills in a simulated environment, and they felt that it added to their confidence. [In clinical,] we also had more of a chance to discuss, in detail, in the debriefing why they were doing what they were doing, and what might be the alternate approaches in terms of their nursing care. (B.H. Personal Interview March, 2009)

Barbara explained how she tries to get the learners to reflect during the conference after a shift on the maternity unit:

It doesn't always work perfectly because they're excited about what they've seen. It's to get them to focus on "What did I learn?" It's a higher level. What did I learn about this experience that I could share with another learner that would improve her practice that I wish I had known before I began. For example, as I took out staples for the first time today, I learned that it's extremely important to talk to the patient beforehand and ask the patient, "Have you ever had staples removed before and have you any concerns about this because it will feel like having your eyebrows plucked?" Or I learned, if I hold the stapler flat then I'm going to cause the patient less pain. These are little things that aren't necessarily included in lab. (B.H. Personal Interview March, 2009)

In finalizing our discussion about reflective practice, Barbara touched on the potential merit of guiding learners to write a short anecdotal note of their day's experiences: "It would give them a little distance so that then they could think a little more about what they actually did and the meaning it had for them, and perhaps what they might do differently" (B.H. Personal Interview March, 2009).

Summary of Findings

The findings in this study were reported in three sections: participant profiles, debriefer efficacy, and simulation and debriefing findings external to the perioperative nursing program.

In this study, participants shared their positive group learning experiences with simulation and debriefing, and described unique learning events in the laboratory and clinical setting. Dissonance was experienced and reported on in some situations. Learner profiles were divided

into sections: laboratory experiences, facilitator interactions, simulation experiences and debriefing experiences.

Under simulation, themes emerged around the format of the laboratories, initial learner assessment, communication, skill training, the necessity to introduce and set the rules of engagement during simulation, and the importance of active learner participation. Under the debriefing theme, activities, learning and reflection were identified as subthemes.

A self-reflective exercise using the DASH[®] tool to rate my performance as a debriefer for the six simulations in this research study revealed both strengths and weaknesses in my approach that will inform my future practice. Finally, a summary of healthcare simulations and debriefing sessions I observed within the faculty of health were presented. This demonstrated the diverse objectives and styles of simulation that are being used in the college. Faculty facilitators honestly discussed their triumphs, concerns, and unresolved questions about how to maximize simulation and debriefing for all participants.

CHAPTER 5

Interpretation of Findings and Discussion

This study is based on the belief that knowledge is subjective and constructed from our ability to interpret our own experiences. In a qualitative inquiry, any information, in any form, that is communicated to the researcher may be admissible data and contribute to the diverse sources and methods of data collection (Bouma & Ling, 2004; Maxwell, 2005). Using in-depth inductive methods, qualitative researchers determine approaches and make decisions about sites of research. They negotiate relationships with participants while looking at the complex and dynamic sociocultural interactions of individuals and communities and unravel how interrelated beliefs, actions, practices, and language shape individual and social experiences (Losielle & Profetto-McGrath, 2004; Maxwell). In this research I essayed to approach the findings holistically as I soon realized that simulation and debriefing are contiguous and that learner experiences are unique and contextual. This knowledge lead to the creation of rich categories of knowledge that describe the meaning, importance, dimensions, and variations of phenomena of simulation and debriefing (Davis, Sumara & Luce-Kapler, 2008; Pickford & Dixon, 2004).

The goals of this study were to explore and understand the experiences of nine nurse learners' perceptions of their perioperative simulation and debriefing experiences as well as my own accounting and interpretation of the events as an observer and debriefing facilitator. Through learners' voices, captured from oral and written accounts, I explain interpersonal and individual responses to participating in simulated scenarios and describe the participants' discrete and collective learning experiences. I was curious to know how learners reflected upon and integrated new knowledge as they journeyed through the perioperative laboratories and

simulations and culminated their experiences in the clinical setting. The study was guided by three research questions:

1. What are the perceptions of perioperative nurse learners participating in the simulation–debriefing process?
2. How does simulation and debriefing impact the learning process for nurses participating in a perioperative clinical laboratory course?
3. How does the researcher experience and explain simulation and debriefing within this case study?

A number of methods of data collection were used to allow participants' lived experiences to be portrayed. The candid opinions and reflections of the nine learners provide unique, in-depth stories of their struggles and triumphs in integrating the new knowledge of the operating room world into their professional practices. The common themes that emerged provide a clear understanding of how the simulation environment and interpersonal dynamics impacted their learning.

The data were coded and analyzed and then the findings were organized under the two broad categories of simulation and debriefing. In addition, my reflective debriefer efficacy ratings on the six elements of the DASH[®] tool (Appendix L) were reported, as was an account of my observations of simulation and debriefing sessions and discussions I had with colleagues across multiple disciplines. These results add richness and depth to the topic.

The results from this study suggest that simulation and debriefing are dynamic and contextual events. Executed properly, they are powerful learning tools. However, flawed design and/or unforeseen circumstances result in suboptimal learning experiences. It is apparent that

simulation–debriefing design and execution are paramount in initiating the experiential learning cycle. In this chapter, the findings are analyzed, interpreted, and synthesized.

First, issues related to teaching and learning that occurred during the perioperative laboratory simulation sessions and the clinical setting will be discussed. The second section of this chapter focuses on debriefing and represents my reflections and reconstruction of the data through a holistic lens. The discussion provides a fresh view of how postsimulation debriefing impacts learning that identifies consistencies with current literature yet goes beyond present knowledge in intimate and valuable ways. The debriefing conceptual framework is used as a guide to describe the dynamics of the four phases of debriefing. The manner in which these phases contribute to learning is explored and examples are provided of how transformative learning occurred for the participants.

Perioperative Simulation

The operating room in the simulation centre is an ideal environment in which to train nurses (Rystedt & Lindström, 1999). It provides opportunities for immediate facilitator feedback and debriefing that promotes clinical competency and critical thinking (Childs et al., 2007; Issenberg et al., 2005). However, it was clear from the results of this study that thorough planning is a prerequisite for a successful learning experience. The year in which this study was conducted was the first time that our teaching team had worked together and the first time I had formally designed a simulation experience for perioperative learners. Although we were new to each other and to simulation, we planned to the best of our abilities. Having honest concurrent learner feedback from learner journaling and a flexible teaching staff allowed us to tweak the program as we went along. Five areas of simulation design emerged as being inadequate in this study: 1) Acknowledging prior learning and the contribution of experienced nurses, 2) Frequency

and size of laboratories, 3) Communication, 4) Presimulation briefing and the fiction contract, and 5) Active learner engagement. These will be discussed in the ensuing sections with the purpose of understanding processes of learning in the simulated setting, providing guidelines for planning simulation activities, and presenting directions for future research in simulation.

Acknowledging Prior Learning and the Contribution of Experienced Nurses

In a constructivist learning environment, practices derived from the clinical setting should be valued and professional strengths should be built upon. This study brought to light the necessity for perioperative program facilitators and nurse preceptors in the clinical setting to better understand, acknowledge, and respect the prior experience of nurses entering the operating room specialty. This issue will be addressed in the context of the simulation laboratory.

Participants had been working in some area of nursing before entering the perioperative program. Veronica, Caitlin and Avril had varying levels of perioperative experience. They were confident learners able to identify some entry-level learning needs and wished to initiate self-paced learning plans in order to progress faster in the laboratory skills. Veronica and Caitlin, frustrated at the outset of the laboratories, expressed their opinions that there should be a method to assess learners' skills coming into the program and tailor their learning appropriately. Caitlin, coming from L&D, felt like the first semester laboratory was a refresher and she did not learn anything new. She suggested that nurses coming into the perioperative program with perioperative skills should be evaluated during the first laboratory and an appropriate learning plan developed based on individual need (C.M. Lab Journal, January, 2009). Similarly, Avril had spent three months in an operating room in her undergraduate program and had mastered basic perioperative skills. She perceived that the novice learners in the program held up her progress.

This corroborates Vygotsky's (1978) assertion that instruction should be designed at a higher developmental level than the learner's current level to allow them advance.

Assessment of prior learning with the intention of developing individualized learning plans is certainly a consideration in continuing professional education programs where participants come from diverse backgrounds with a myriad of different skills. Nurses have high expectations and desire effective training that builds on their prior knowledge and experiential base. They want results in terms of value-added for time invested especially in light of the barriers many overcome to access education, such as financial constraints, role conflicts, and inability to get time off work to study (Estabrooks et al., 2005; Haigh, 2004; Wetzig, 2004).

From a practical perspective, the ability to assess and give an advanced learning plan to learners for clinical skill acquisition requires thoughtful consideration and planning. Tailoring laboratory sessions to suit individual learning needs may require more facilitator resources and/or innovative self-directed delivery, as well as increased flexibility in course delivery and evaluation. Facilitators must be open to allowing adult learners to have an impact on their learning environment by being able to choose appropriate delivery models that build on their prior knowledge and experiential base (Brookfield, 1995). This means learners must be free to interact with resources appropriate to different learning styles. In laboratories, workstations can be setup to allow learners to work independently or in pairs and move from basic to complex skills and procedures. A computer-based audio-video demonstration of the procedure can be given and then the learners provided with access to the equipment or supplies needed to perform the procedure (Kneebone, 1999). Facilitators can then circulate through the workstations.

Frequency and Size of Laboratories

The frequency of laboratories at the appropriate skill level impacts learner success. Learners must have the time and support necessary to learn the procedures requisite to perioperative practice, which are founded in psychomotor skills and the ability to perform complex procedures in changing environments (Gentile, 1972).

Although it is well documented that the skill retention of novices evaporates rapidly if not regularly reinforced through practise (Kneebone, 1999), it takes time and experimentation with different formats for designers of simulation laboratory activities to determine the length and frequency of laboratories needed to provide optimal practice and retention. Yet it is likely that learners will feel they never have enough laboratory time to complete perioperative tasks. Lesha recommended, “more lab times and less theory” (L.W. Lab Journal, February, 2009), while Christie echoed this sentiment saying, “I should have more time in the lab to practise in order to better retain the information” (C.B. Lab Journal, February, 2009).

In this study, the perioperative laboratory course comprised nine 5-hour sessions. Initially, all nine learners worked in the laboratories together. The competition for facilitator time, having to wait for some learners to review and catch up, and the perception that laboratory time was not as productive as it could be were frustrating for the learners. Lesha voiced:

I need more supervision and guidance and can't seem to get that with the bigger group.

Maybe even having someone in my group that has more experience, so that person could guide me along so I don't feel like a lost sheep, [would help]. (L.W. Lab Journal, January, 2009)

This ignited the idea to change the laboratory sessions from a large to small group format of three triads.

Although financial and time constraints can negatively impact the ability to use small group work in simulation, in this case study, having the flexibility to initiate the small 3:1 learner: facilitator ratio was appropriate for task training. The triads functioned well, as each group had 1.5 hours of undivided facilitator time. The close association with the facilitators helped move learners to new levels of proficiency. Ellen described feeling more comfortable:

I wanted them to point out anything that I was doing wrong or could do differently. I was able to ask questions when I was unsure of something, felt comfortable doing so, and received positive feedback. Having both facilitators right there the whole time made it easier for me to learn and I enjoyed the day much more. (E. S. Lab journal, January, 2009)

Caitlin found the newly formatted laboratory sessions had more focused goals, leaving her feeling more in control and pleased with her progress. She noted that with increased facilitator supervision she was more aware of her surroundings and recognized breaks in aseptic technique more readily. Similarly, Kassidy enjoyed learning with and from her colleagues: “Classmates were able to help me as they gave cues and reminders as to what I may have missed” (K.B Lab Journal, February, 2009).

In this study, the learners built up trusting, friendly relationships. This intimate socialization resulted in small communities of practice that were intent on learning the realistic tasks needed to work in the operating room (Jefferies, 2006). This environment permitted facilitators to accentuate teaching points by debriefing while learners performed technical skills (Fanning & Gaba, 2007). Learners were able to advance their skills and knowledge through a closer association with facilitators. In the perioperative laboratory, scaffolding occurred when the facilitators modeled the ideal version of the manual skill then retreated, allowing the learner to continue on their own, observing, and prompting when necessary (Kneebone et al., 2004; Marsh

& Ketterer, 2005). This was an effective strategy that allowed access to, what Vygotsky (1962) termed, the Zone of Proximal Development where the teacher provided learners the opportunity to extend their current skills and knowledge. This technique, in turn, promoted reflection-on-action (Schön, 1987) that resulted in deeper learning and addressed nurses' preferences to balance active and reflective learning by using visual and kinesthetic means of understanding and remembering (Cioffi, Purcal, & Arundell, 2005; Feingold et al., 2004). Kassidy explained this as follows:

Grace and Merriam [the facilitators] asked us some questions as we were performing our roles. I found this helpful because I was able to reflect on what I was doing and why.

Therefore, I am able to remember more about what I did in lab practice so that I can apply it to the clinical setting. (K.B. Lab Journal, February, 2009)

As learners demonstrated increasing mastery of a skill, the facilitators determined when the learner was ready to move on (Feingold et al., 2004; Kneebone, 1999). Lesha summed it up succinctly:

I like being split up in the smaller groups, I get so much more from the experience, [rather] than standing around with my group wondering if we are doing it right and waiting for our opportunity for guidance. I think the best way for me to learn these skills is [to] learn the theory, watch someone do it, have someone watch me do it, and then I can do it on my own. (L.W. Lab Journal, February, 2009)

Regarding psychomotor skill acquisition, this study demonstrated that a laboratory design with a small learner to facilitator ratio of 3:1 was effective in meeting perioperative objectives. It allowed learners to learn collaboratively by observing, interpreting information, repeating skills and procedures in the group. The engagement with a capable facilitator promoted the

refining of their thinking and allowed them to perform tasks they could not master alone.

Subsequently this internal construction of new meaning resulted in the individual's ability to do the task alone and transfer the learning to new settings (Ally, 2008, Vygotsky, 1978).

Additionally, the openness to change and flexibility of the laboratory facilitators resulted in a successful class negotiation that changed the group learning environment. This enabled learners to have a voice in their learning, an important concept in professional continuing education where learning is based on intricate interactions between the learner and facilitator, learner and content, and learner and peers (Anderson, 2008; Candy, 2004; Oblinger & Oblinger, 2006). Based on learner feedback and the results from this study, the following year of the perioperative program at the college, laboratories were scheduled bi-weekly (instead of every three weeks). The laboratories received positive evaluations from the learners.

It became apparent through this research that the simulations I observed outside the perioperative setting varied extensively. Facilitators should constantly evaluate the format of the simulations to ensure that adequate and appropriate learning is occurring. Changing the format may be desirable if there is flexibility within the system to do so.

Communication

Clear communication guidelines that align with appropriate teaching principles must be in place for facilitators and learners. Learner communication and support must be addressed at the outset of simulation design. Based on the activities tied to the learning objectives, designers need to determine the appropriate types of feedback, including how often and when verbal and active support will be given to the learner. Communication in the laboratory setting and during scenarios will be discussed in the following sections, along with effective and ineffective communication.

Communication in the Laboratory. The facilitator's communication with the learners required constant honing throughout the laboratory course. Initially, there was a lack of instructional clarity and inconsistent information from the perioperative laboratory facilitators that hindered the acquisition of skills and procedures. According to Jefferies (2006), learners must be provided with correct information, as information processing of cognitive skills is dependent on effective communication. In healthcare skills training and simulations, facilitators may be expert practitioners in their specialty but not necessarily versed in teaching. Kneebone (1999) aptly noted that when experienced surgeons teach surgical skills, they ignore the need of the novice learner for simple explanations of elementary techniques. Kneebone noted, "By the time they come to teach, surgeons have all too often forgotten the time when they struggled with tying knots or releasing clamps" (p. 571). In our operating room skills laboratory, both facilitators provided correct information but did not take into consideration that their methodologies differed. Learners became confused—which practice was right?

The teaching team resolved this issue by meeting in the laboratory, going through each skill, reviewing the standards of practice, and coming to a decision on how it would be taught. We then made short narrated videos demonstrating the skills and posted them on the course Blackboard site for learners to review prior to the laboratories. Once congruency in the facilitators' teaching methods for specific skills was achieved, participants became actively engaged in reproducible, standardized educational experiences. They developed confidence in their technical skills through focused, deliberate practice and demonstrated the ability to reflect on and evaluate their performances (Feingold et al., 2004; Kneebone et al., 2004; Seropian et al., 2004; Tanner, 2006).

Communication during scenarios. Another aspect of communication that was not

explicitly predetermined in this research was the faculty role during simulation scenarios. Horn and Carter (2007) determined that if simulations are rehearsed beforehand, bugs can be worked out and appropriate cuing, such as phone calls, asking questions, or verbalizing chart or laboratory reports can be practised. Facilitators must provide enough information for the learner to carry on with the scenario but not too much to interfere with their problem-solving (Jefferies, 2006). If feedback is given during the simulation, it must be timely. Learners should be allowed to make mistakes and not be given excessive feedback, as this can be frustrating and cause dependency on the facilitator to provide the next steps. Typically, feedback should be given after the simulation is complete so the learner has the opportunity to act in the professional role, make decisions, solve problems, and have time to reflect on their actions (Jefferies; Van Haukolom et al., 2010).

Effective communication. Effective communication in simulations may include conversations and dialogue that emulate what transpires in the work setting. In their 2006 article on training teams for the perioperative environment, Entin et al. discussed the implicit hierarchy that governs surgical teams, observable patterns of team communication, and the need for effective discourse to avoid interprofessional conflicts. Successful team communication can improve personal and team performances, positively impact workflow and client outcomes, and significantly reduce adverse events (Clay et al., 2007; Kozmenko et al., 2008; Vashdi et al., 2007).

An example of a simulation with effective communication in this study was the first simulation experience of Minnie, Christie, and Lesha. There was consistent communication from the outset between the participants and myself as the facilitator. Minnie and Christie discussed details of the setup in French. When talking to Lesha, all three spoke in English. I prompted them

when they looked hesitant, asked specific questions, and explained the procedure of anesthesia induction to Christie. When the case was “delayed” due to the discovery of unsterile instruments, the nurses were prompt to tell the surgeon (me) that we could not proceed and there would be a delay in surgery. I groaned and asked how long it would take to restart and was told five minutes, which elicited mirth all around because in reality there could be up to a half hour delay. It was a light-hearted attempt by the circulating nurse to placate the surgeon and lighten the mood. This experience was positive for learner performance and satisfaction and allowed the group to build trust through social interactions.

The scenarios were not pre-scripted in this study so the facilitators, who assumed the roles of anesthesiologist and surgeon, took it upon themselves to interject actions and dialogue that they knew would likely be encountered by the novices when they entered the operating room. I observed the perioperative scenarios and, more often than not, found the facilitator interjections and role play inoffensive and sometimes humorous, as did the learners for the most part. When effective team communication patterns occurred there was a collegial approach to working through the scenario that resulted in smooth execution of the simulation case study and satisfied learners.

An example of team members who developed an effective repartee with the “surgeon” and “anaesthesiologist” were Veronica and Caitlin, both nurses with surgical L&D experience. They were familiar with communication nuances in an operating room and idiosyncrasies of surgeons and anaesthesiologists. They always acknowledged when a specific request was made by one of the facilitators. They responded either with an appropriate action or a light-hearted dismissal that they would get to it eventually but it was not a priority at this time. For example, in one scenario, Merriam, the “surgeon”, came into the operating room and asked for specific instruments for her

case. The operating room nurse learners were performing their surgical count that could not be interrupted, so Caitlin told Merriam they would take care of it later. Veronica and Caitlin's communications with the "surgical staff" reflected a comfort and confidence in their ability that is a hallmark of the expert nurses' practice. Self-efficacy and the ability to cope with interpersonal stressors was a result of their ability to perform specific tasks in the operating room environment, the support they gave each other, and their knowledge of perioperative nursing roles (Gillespie, Chaboyer, Wallis, & Grimbeek, 2007).

Ineffective communication. Elements such as gender, role, economics, politics, and focus of patient care can be divisive and lead to communication conflicts (Lingard, Reznick, Espin, Regehr, & DeVito, 2002). Further, in operating rooms, ineffective team communication can have catastrophic consequences, such as retained sponges in incisions, medication errors, and wrong-side surgery (Kohn et al., 2000; Sexton et al., 2006). In this study, I noted episodes of ineffective communication during perioperative simulations, for instance in some of the initial scenarios, team members did not talk to each other and in others there was unclear communication between the nurses and "surgeon and anaesthesiologist". Perpetuating ineffective styles of communication that lead to conflict or that may inhibit or cause negative learning are obviously counterproductive during simulations. As professional healthcare educators, we must aim to promote healthy, positive interprofessional relationships that learners carry back to the work environment. The following report on non-productive communication events that occurred during the study discusses how they could have been avoided by paying attention to details during the planning, development and implementation of simulation activities.

During each perioperative simulation, learners knew that the activity was an educational event, as well as a social situation, meant to mimic the reality of interpersonal dynamics and

communication in the operating room (Dieckmann, Gaba, & Rall, 2007). The way the learners responded to the reality of a specific simulation scenario relied on their personality, beliefs, and self-awareness, as well as their stress level, fatigue, and mood at that particular moment in time. When the participants' expectations were not met by the facilitators, due to ineffective communication, scenarios went awry.

There were instances when, as an observer, I noted facilitator communication that seemed to be deliberately geared towards distracting the learners. Individuals and teams reacted to these annoying, spontaneous surgical behaviours in diverse ways. For example, Minnie became upset and started crying. According to Peters and Vissers (2004), it is not uncommon for learners to react this way to a simulation but it is usually unexpected and may be due to the difficulty of the case (Ziv, Ben-David, & Ziv, 2005). In another example, Christie, playing the role of the scrub nurse in the last simulation, did not turn to look at the "surgeon" or respond to a request she made as she came into the room. Being ignored seemed to annoy the "surgeon" who expected some acknowledgement. The surgeon proceeded to become more demanding in her requests, which made Christie defensive. As delineated in the previous chapter, Christie experienced negative feelings around these nurse-physician interactions and was not comfortable with the disrespectful communication.

In reviewing the video of this scenario, I felt that the "surgeon" was demanding in a way that sometimes occurs in the operating room. In the clinical environment, this type of dissonance may be related to the professional hierarchy and physicians' perceived power over nurses. However, it has been found that the traditional power imbalance between nurses and doctors diminishes when both are female (Zelev & Phillip, 2003). It may have been that Christie could not suspend reality and perceive the instructors as actors during the simulation and thus felt that

the “surgeon” should have been a supportive facilitator and peer rather than a demanding physician. From the facilitator’s (“surgeon”) perspective, Christie’s lack of acknowledgement may have been translated to a lack of the nurse’s respect for the surgeon.

A way to explain this is through primary social frames which refer to what motivates people, the way people make decisions, and their interactions. This establishes expected patterns of interaction between disciplines and within interprofessional health care team members. (Dieckmann et al., 2007). In these scenarios, this refers to how the nurses related to each other in the team and how the nurses and physicians (“surgeon” and “anaesthesiologist”) related to each other. The primary social frame may account for the discrepancies in the perceptions of the facilitators who approached the simulation scenarios as operating room veterans and the perceptions of the novice learners who had a less developed social frame, having had no previous conception of how nurses and physicians interact in an operating room. This dynamic resulted in misunderstandings. There were disappointed learners on one hand and righteous, unapologetic facilitators on the other. This may have served to perpetuate ineffective communication patterns that play to gender and power stereotypes in the operating room that nurses are so determined to overcome (Zepek & Phillip, 2003).

This example reinforces the need for faculty training and support in simulation and debriefing. Since learner and facilitator expectations may differ, roles and duties of facilitators must be explicit for both parties from the outset (McLean, 2003). At the time of this study, specific training in simulation and debriefing for both full- and part-time faculty was not available. The two facilitators worked from their professional point of reference without understanding the principles of social frames, adult education, and facilitation. These notions

need to be incorporated into facilitator training that should be mandatory for all simulation and debriefing facilitators.

In an attempt to improve surgical processes and understand the culture of operating rooms, recent studies have looked at communication patterns of perioperative teams. Lingard et al. (2004) identified communication failures in the operating room in approximately 30% of team exchanges. These ineffective exchanges jeopardized the surgical safety of one third of the patients by virtue of increasing the cognitive demands of team members, interrupting routine procedures, and increasing tension in the operating room. Sexton et al. (2006) proposed that the climate of operating room teamwork was “in the eye of the beholder” (p. 881). By this they meant that the operating room climate varied between different hospitals and that the interprofessional team members (e.g., anesthesiologists, surgeons, and nurses) had differing definitions of collaboration and discrepant attitudes about working together.

A telling example of this was revealed in the following feedback from Sexton et al.’s 2006 study: “Nurses often described good collaboration as ‘having their input respected’, whereas physicians often described good collaboration as having nurses ‘who anticipate their needs and follow instructions” (p. 881). Although these communication patterns may be grounded in medical and nursing history and culture, recent studies have demonstrated that providing structure to communication patterns in the operating room by way of preoperative briefing and postoperative debriefing not only improves shared understandings but leads to operating room efficiencies by improving patient safety through the control of preventable adverse events, as well as enhanced team reflexivity (Clay et al., 2007; Dismukes et al., 2006; Sexton et al., 2006; Vashdi et al., 2007).

In order to change perioperative culture and improve patient care, the findings from this study must become part of the perioperative nursing curriculum and be modeled in the perioperative simulation setting. There is no need for disrespectful or abrasive communication during simulation activities in the name of authenticity nor is there room for the perpetuation of negative stereotypes in an educational environment.

Presimulation Briefing and the Fiction Contract

As demonstrated in this study, simulation is not without its pitfalls, one of them being the potential for negative learning to occur (Van Haukolom et al., 2010). This can happen if students learn something incorrectly due to facilitator error, technological limitations, or if the simulation events occur in accelerated time. For example, if students request diagnostic tests during simulation, the results will be given to them in accelerated time, not actual clinical time.

One way to mitigate negative learning is for simulation facilitators to set the stage by briefing participants and establishing a fiction contract. In this study, the perioperative simulations were high fidelity full patient care scenarios based on simple surgical procedures as advocated by Hovancsek (2007). The scenarios integrated months of theoretical background and psychomotor skill training. As such, they were powerful experiential learning tools meant to engrain the theory of *why* into the practice of *how*. The main objective of the scenarios was to allow learners to internalize and fuse theory to task, leading to the transfer of new knowledge into the patient care scenarios and ultimately the clinical setting (Gruendemann, 2007).

When designing the simulations, it did not occur to me that I needed to brief the learners and facilitators before they participated in the scenarios. The learners and facilitators had been working together for six months in the simulation laboratory operating room so had intimate relationships with each other and were familiar with the equipment and supplies. I did not factor

in the stress levels learners would experience when they performed the scenarios and what would happen when members changed groups. Nor did I factor in facilitator fatigue. A briefing, or introduction to the simulation activity, should have been meticulously planned so all participants had the same information and reminders of what was expected of them. According to The Centre for Medical Simulation (2009), briefing should include the following:

- time for the participants to introduce themselves to each other
- an overview of the scenario and the learning objectives of the scenario
- a discussion of simulation etiquette
- a review of the participants' (including the facilitators') roles
- a review of the simulators, ancillary equipment, and location of supplies

Disruptive communication occurred in one of the scenarios due to a lack of briefing and clarification of the facilitators' roles and dialogue. Minnie was unprepared for the "reality check" during the scenario when she perceived the facilitators overacted their roles as surgeon and anesthesiologist. As the simulation was meant to be as real as possible, this behavior made it real for the facilitators but confused and upset the learners. Clarification should have occurred in a briefing to either tell the facilitators to tread lightly or inform the participants they could expect communication challenges with the team members. This is all part of a fiction contract.

A fiction contract outlines expectations for participants regarding genuine performance, when acting is appropriate, and what equipment and props are available to participants (Foot et al., 2008, The Centre for Medical Simulation, 2009). The fiction contract outlines how the learners should respond to omissions in the simulation scenario. For instance, sometimes learners have to imagine an item or suspend reality when using props, such as a flannel blanket instead of a warm air blanket. When learners are familiar with the use of equipment and know where to

find it they are more motivated, self-directed, and comfortable in the role play (Jefferies & Rogers, 2007). Conversely, not discussing the challenges of realism, stating that participants should act the same way they would in the real clinical setting, or assuming that learners will all “play along” are ineffective educational strategies (Childs et al., 2007).

Had I conducted a briefing and outlined a fiction contract, unnecessary discomfort and frustration for learners may have been avoided; for instance, for Ellen who did not see documentation props that were on the anesthesia machine, for Minnie who searched for anesthesia equipment that was not available, and for Veronica who became disoriented when she asked the mannequin questions preoperatively but no one had been assigned to role play the mannequin and so she did not receive any answers.

One aspect of a fiction contract that was made explicit to the learners in this study was the length of time they had to complete the scenario. Timely execution of the scenario was embedded in the clinical objectives and brought the experience to life for these nurses who came from different clinical areas and did not have the concepts of time and scheduling that are relevant and crucial to operating room nurses. In the laboratories, the completion of specific skills was timed. Putting it all together in the team performance was an important learning point during the scenarios. In the first round of simulations, teams discovered that the scenario had taken significantly longer than expected. In the debriefing, discussion on timing resulted in planning individual activities they needed to practise and speed up. When the simulations were re-enacted a month later, all learners performed their roles more quickly and most agreed that communication and team cohesion issues, combined with authenticity, helped them learn. In this case study, reproducible simulations and debriefing led to effective group teaching as they

initiated appropriate interventions that led to more timely and safe patient outcomes which corresponds to the research results reported on by Issenberg et al. (2005) and Kohn et al. (2000).

Active Learner Engagement

Ideally, simulation should provide an opportunity for participants to actively engage in their own professional role. As there are decreased clinical training opportunities for learners in hospitals and other healthcare agencies not all learners get equal opportunities to perform and experience patient care activities in the clinical setting. One rationale for investing in simulated educational environments in healthcare is to provide consistent learning experiences for all learners involved.

Facilitators have to design and implement simulation activities for large numbers of learners within limited time frames. In these situations, while all learners may have an opportunity to participate in the simulation, they may not have the chance to practise the procedures requisite to their professional role. For example, in one of the maternity simulations I observed there was a group of ten practical nursing learners. Five learners observed the others performing a postpartum scenario. Of the five performers, two played nursing roles while the others played the roles of the mother, father, and grandmother. Only the nurses physically checked the patient and had the chance to ask her questions and provide education around breast feeding. The others participated through a combination of scripted and ad hoc communication. While these types of simulations may be valuable they do not give all participants active engagement in reproducible, standardized educational experiences that can be practised contextually, confidently evaluated (Bjork & Kirkevold, 2000; Kneebone et al., 2004), and used to increase learning and enhance critical thinking skills (Billings, 2006).

The general consensus of the facilitators interviewed was that knowledge and skills acquired in simulation laboratories are transferrable to the clinical environment. Importantly, learner feedback was consistently positive and clinical partners in the hospital environments were satisfied with the apparent benefits of simulation as it related to enhanced comfort, skill development, and safety levels during learner–patient interface.

Nonetheless, facilitators held differences in opinions as to whether simulation should replace clinical hours for healthcare learners. It is my opinion that there should be no assumption that healthcare simulations are adequate experiences that can replace clinical time, especially when not all learners have the chance to practise their specific roles. As Kneebone et al. (2006) explained, “The relationship between competence and performance is at the heart of the debate, and it remains to be seen how simulation-based behaviour translates to clinical practice” (p. 1113). Further research is needed into the use of different models of simulation and its role in preparing learners to work in the clinical environment. Until more information of this nature is available, the philosophy of educators using simulation should be one of inclusivity where all learners have an opportunity to actively participate by having a hands-on experience in their specific professional roles and the chance to reflect on the simulation activity.

Debriefing

The experiential learning cycle as described by Kolb (1984) consists of concrete experience, followed by reflective observation, abstract conceptualization, and active experimentation. In this study, simulation was the concrete experience. Guided debriefing was a communication strategy meant to initiate the reflective process and collective learning through reviewing the activity and experimenting new behaviour in subsequent situations. This modern educational intervention of supports Vygotsky’s (1978) concept that learning occurs when

people make connections with each other within a cultural context, through acting and interact in shared experiences. Extrapolating on Vygotsky's concept, people use tools that develop from a culture, such as speech and writing, to mediate their social environments. In this study, learners were acquainted with a new surgical language, and perioperative culture. Debriefing was introduced into the simulation learning cycle as a structured venue for a small community of learners to collectively mediate this new environment together. As nurses became accustomed their new language and roles they bridged the gap between experiencing an event, making sense of what happened, and learning from the activity (Fanning & Gaba, 2007). Their lab and clinical journaling provided another cognitive debriefing method for the nurses in this study to internalize these new tools and make new meanings of their experiences. Thus debriefing became an integral component in transformative learning.

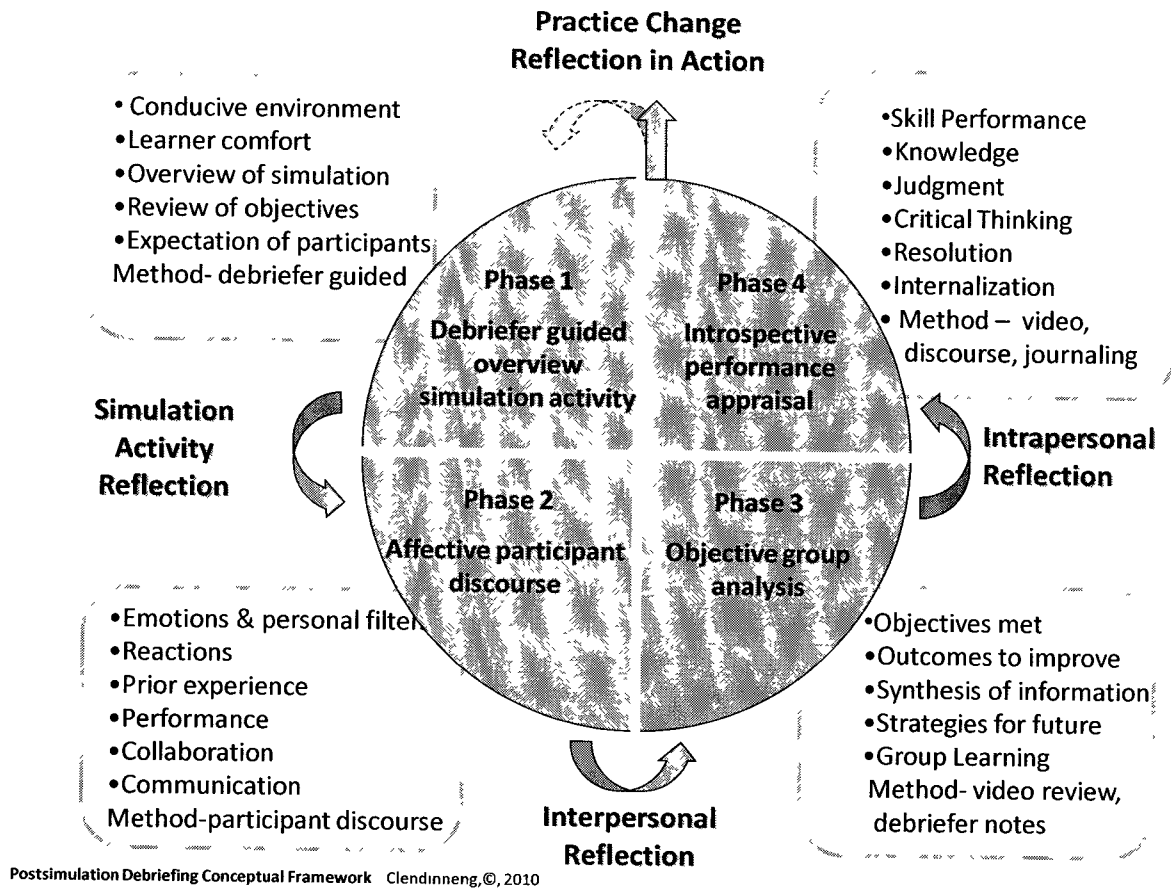
The Centre for Medical Simulation (2009) described healthcare debriefing as a conversation among people to review a simulated activity. Learners explore, analyze, and synthesize what they thought, did, and felt during the simulation. By delving into their thought processes and actions, they strategize to improve performance in authentic settings. This definition implies immediacy in engaging in an oral process and assumes that the participant's future performance in the clinical environment will improve based on mental activities derived from conversations engaged in during the debriefing.

Based on my experience in observing how nurse learners transition learning into the perioperative clinical setting and the findings from this research, I propose a more holistic definition of postsimulation debriefing that is subjective, contextual and extends beyond the simulation activities.

Debriefing is the review of a performance over time that guides purposeful learning from the experience. It is an intentional communication and learning event based on mutual respect and a quest for knowledge on the part of all participants—both learners and facilitators. Whether verbal, written, or visual, effective debriefing helps a person make cognitive links from events that allow for improved future performance thus transforming professional practice (Clendinneng, 2010).

This definition envisions the facilitator as a content expert and co-learner whose intention is to guide and direct learner reflection. The expectation is that the learners must be actively engaged in critically analyzing their performances, honouring what went well, sorting out what improvements are needed, and determining how to improve future performance (Fanning & Gaba, 2007). This definition also assumes that reflection occurs over time and some learners require a catalyst to bring their thought processes into focus.

In the ensuing discussion, I substantiate my definition of postsimulation debriefing and the value I found in using the Postsimulation Debriefing Conceptual Framework©. I have chosen to do this by relating specific events that occurred and issues that arose within the case study to phases in framework as described in Chapter 2. This expanded look at postsimulation debriefing elaborates on, and justifies why I included verbal, written and visual debriefing strategies in the debriefing process. The framework has been reproduced here for the facility of the reader to refer to.



Postsimulation Debriefing Framework

Phase 1. Debriefers Guided Overview Simulation Activity

Debriefers remind participants of what is expected of them during the debriefing, provide a general overview of the simulation, and reaffirm simulation objectives.

In this first stage of debriefing, I set the tone of the debriefing session by ensuring all participants were comfortable and relaxed, then I set the expectations for the debriefing session, such as allotted time and a reminder of confidentiality. I discussed that my role as facilitator was to guide the conversation and help learners identify practice issues that were relevant learning opportunities. I explicitly mentioned that this experience was not meant to expose their performance weaknesses but to emphasize practices they were doing well and point out areas for

improvement. Learners with respect as everyone had an opportunity to express their feelings and opinions and to ask questions, in an interrupted fashion.

Phase 2. Affective participant discourse. Learners decompress and express their emotions and responses to simulation based on their personal filters. This requires trust and collaboration among group members.

In this phase a guided oral discourse focused on the affective reactions of the participants and the social aspects present during the simulation scenario. Peters and Vissers (2004) promoted a “cool down” period at the start of the debriefing, where learners decompress and feel safe to release emotions. This emotional release after simulation is important because participants sometimes cross boundaries of reality which can inhibit learning (Dreifuerst, 2009). The debriefing facilitator’s role is to acknowledge powerful emotions and redirect the learner so he or she can reflect on the experience.

Before opening up, learners in this study had to feel they were in a psychologically safe environment. I achieved this by creating an open atmosphere through friendly communication using an appropriate tone of voice, facial expressions, and body language to help the learners feel comfortable. Learners were encouraged to discuss their emotional reactions, which were primarily expressions of satisfaction or discomfort and embarrassment around individual performances. Some divulged “feeling like an idiot” or “discouraged and stupid”. Others were proud of their performances and sought affirmation for positive actions. In all debriefing sessions, there was mention of what the group did well as a team and how team members complemented each other. Once learners had vented their emotions, we collectively reviewed the group’s performances. Most debriefing sessions were relaxed and convivial, thus setting the affective stage for learning, which occurred in Phase 3.

Only one of six debriefing sessions (with Minnie, Christie, and Avril) did not provide an opportunity for clearing the air and providing a safe haven for the learners to share their emotions. When learners are not able to acknowledge the affective dimension of their experience and are unable to express their feelings, reflectivity and, subsequently, learning can be hindered (Boud, Keogh, & Walker, 1985). In this debriefing session with Minnie, Christie, and Avril, I was unsuccessful in creating a safe atmosphere for all the participants. This debriefing followed the simulation where Minnie had an outburst and started to cry at the end of the scenario and where she and Christie were disgruntled entering the debriefing. In the debriefing session, Minnie remained off-camera throughout and contributed to the conversation minimally, while Christie, arms folded, gazed at the table. The only upbeat participant was Avril who had not been in the room during the flare-up.

In the postsimulation interview, Christie revealed she had felt unable to talk freely during the debriefing because she knew the two facilitators were outside the debriefing room and she thought they could hear the conversation. Further, she related her loss of confidence while performing the scrub role to the lack of team support. She felt that Avril had the knowledge to help her but chose not to: "That made me feel very desperate and when it came to the debriefing session, I did not know which foot to dance on; did she really not know, or was she testing me" (C.B. Personal Interview, June, 2009). Avril, however, had no idea that she was resented by Christie. While she did acknowledge the charged atmosphere in the debriefing session in her last journal entry, she attributed it to the understanding that her two partners had not enjoyed the learning experience because they felt they were treated disrespectfully. When she learned of the real reason she commented, "Though I did not sense this at the moment of the scenario, it was

interesting to hear that perspective. It makes one more aware of how actions and words can be misinterpreted and how important effective communication is” (A.D. Lab Journal, April, 2009).

This debriefing session provided me with the opportunity, as an educator and reflective practitioner, to delve deeper into this problematic outcome and to speculate how I could have handled it more effectively with the goal of improving future performances. To gain a broader perspective, I asked the two facilitators to review the simulation videos and provide their impressions with the goal of gaining further insight into alternative explanations for Minnie and Christie’s upset. Merriam, one of the facilitators, noted that the team was very quiet and non-communicative during the simulation. She noted that they did not ask questions or overtly seek assistance from the facilitators during the simulation, as the other teams had, and that might have been why they felt unsupported. When I asked Merriam specifically whether she thought the interjection of reality into the surgeon and anesthesiologist’s roles through the brash comments and prodding might have been upsetting to the learners, she felt they should be able to “suck it up” and move through it. Grace, the second facilitator, noted that Minnie looked frustrated but was unprepared for her outburst—“I don’t have to put up with this s\$%# anymore!”—at the end of the simulation. Neither of the facilitators acknowledged the possibility that their behaviour may have contributed to the outcome.

Reflecting on what occurred in this debriefing session has made me more aware of and sensitive to participants’ submerged emotions. I read this situation incorrectly. I knew Minnie was upset as evidenced by her angry, tearful outburst at the end of the simulation. But I was so taken aback, that I was blinded to Christie’s feelings and interpreted her sullenness as empathy for Minnie, when in fact she was just as distressed as her friend but for other reasons. If I had to do it again I would close the door to the debriefing room. Ideally, had Christie and Minnie felt

more comfortable venting their emotions at this time, the conversation would have centered on the necessity of collaboration and team support and how to cope in difficult situations before it moved to the assessment of individual and group performances.

In the operating room, peer support, an aspect of collaboration, is characterized as a willingness to support each other through clinical guidance, social inclusion, and by valuing the contributions of team members (Gillespie et al., 2007). This is what Christie was referring to in her issue with the facilitators and Avril not assisting her during the simulation and the feelings of distrust that developed. Thankfully, Christie found a supportive environment during her clinical placement in a friendly operating room that ended her experience on a positive note.

The flip side of this issue is that learners need to develop appropriate coping skills. Coping is a balance between cognitive and behavioural efforts that allows individuals to manage internal and/or external stressors (Lazarus, DeLongis, Folkman, & Gruen, 1985). The use of effective coping strategies in the operating room is essential for newcomers. There is a steep learning curve associated with both role expansion in performing highly complex, technology enabled types of surgery, and socialization, that novices must adapt to (Timmons & Tanner, 2004). It has been shown that when operating room nurses use maladaptive coping it results in diminished role performance (Gillespie & Kermode, 2003), which exemplifies what occurred in this simulation.

Minnie's orientation to her new position in the operating room ended in a stress leave despite her enthusiasm for the position at the start. Her last entry in her clinical journal provided a clue to her discontentment in the operating room. She felt there were communication issues. As a self-described straightforward perfectionist, Minnie asked a lot of clarifying questions and wondered if people found her too direct. Minnie questioned whether she intimidated her teammates because sometimes they did not know the answers to her questions and did not want

to appear unknowledgeable. Did her behaviour in the second simulation exemplify an inability to communicate effectively with the facilitators and her teammates and to cope in this new environment?

What else might I have done differently during the debriefing to support these learners?

Dieckmann et al. (2007) noted that when simulation roles are clear, the environment is safe, and participants trust the facilitators, learners are more open to self-reflection and learning after the simulation. Had I been more intrepid in facing the negative feelings during Phase 2 of the debriefing, we may have been able to work through the damaging emotions, turned the debriefing into a positive communication event.

Phase 3. Objective group analysis. Phase three relies on collective learning that assumes shared understandings are developed within social groups. The facilitator guides the review of individual and group performances via video review or debriefer notes, and helps learners synthesize information and strategize for improved performance in the future.

In Phase 3 of debriefing, the learner–facilitator group identified the objectives that were met and how efficiently this was accomplished. Performance was reviewed, required improvements discussed, and strategies to enhance future interventions sought. This phase was tailored to suit multiple learning styles as learners immersed themselves through visual and verbal recreation of the simulation activities through cognitive means (Santally & Senteni, 2006).

Nurse learners reported evidence of direct learning from Phase 3 of the debriefing. This documented learning is an important finding as it links learning directly to the debriefing process. This confirms the report by Savoldelli et al. (2006) that exposure to a simulated activity without debriefing offered little benefit to healthcare learners. In their research, when there was no debriefing, participants' performances did not improve. However, when the learners were

given constructive feedback by skilled facilitators, significant improvement was noted in nontechnical skill performance. Savoldelli et al. concluded that learners' self-reflection, in conjunction with facilitators' feedback, during a debriefing session is required during simulation-based education.

I think it is appropriate to emphasize that the skill of the debriefer is of paramount importance. In this study, learning was facilitated due to the efficacy of the debriefing, which was neither critical nor judgmental. Rudolph et al. (2006) described debriefing with good judgment "in which trainees feel simultaneously challenged and psychologically safe enough to engage in rigorous reflection" (p. 49). This concept of debriefing with good judgment can alleviate the dissonance that some facilitators experience when trying to frame critical feedback in a way that does not spawn negative emotions or embarrass learners. What follow are two examples of learning that started in the Phase 3 analysis phase of oral debriefing and video review and culminated in a change of practice that was transferred from the simulation to the clinical environment.

The first was a situation that Amber recounted after being in the clinical setting. We were reviewing the responsibilities of the circulating nurse during a debriefing session. In the scenario, the patient was not yet in the operating theatre. The first thing a circulating nurse has to do is a visual and physical overview of the room to make sure it is clean and the equipment and supplies are ready. It is a time to remove any paperwork or objects that belong to the previous patient (e.g., radiographs). I stopped the video and asked the three learners to look at the scene. There was an x-ray on the viewing box in the operating room. I mentioned to Ellen, the circulator, that it seemed unusual for an x-ray to be on the viewing box with no patient in the room and asked what was going on. Ellen admitted that she had not checked the name on the x-ray but had made

the assumption that it belonged to their patient. The group determined that this type of assumption could be dangerous. Having another person's radiograph in the theatre becomes a safety issue. There are reports of incorrect-side surgery having been done on patients based on the x-ray the surgical team was viewing. In this situation, I was debriefing with good judgment by displaying an open curiosity about the x-ray. I had the learners problem solve and rationalize the importance of the issue. This opened them up to reflectivity in their practice. When Amber was doing her clinical placement, she caught a similar error. After a patient came into the operating room, she looked at the x-ray viewer and discovered that the x-rays did not belong to the patient on the operating room table and had them removed from the theatre.

A second example of the application of knowledge into the clinical environment came from Kassidy. In the debriefing session after the second simulation with Kassidy, Amber, and Ellen, I stopped the video after the scrub nurse had drawn up medication into a syringe and placed it on her table and the circulating nurse had poured sterile saline solution into a bowl on the sterile back table. I told the group that what I had seen seemed problematic to me. I asked the team to review the still picture and help me understand what was going on. None of the trio could identify the problems so I asked them to think about what the standards of practice are regarding medication and solutions on the back table. Neither the syringe with medication in it nor the bowl had been labelled, which is a patient safety issue. I did not assign blame for this error. Instead, I let the learners solve the problem and verbalize the safety issue together, making it a relevant learning experience. Kassidy then had confidence when in her clinical placement to remind the nurses she was working with that all the medications on the table had to be labelled as a patient safety initiative.

In Phase 3, the analytic, reflective phase, video-assisted debriefing proved to be a powerful learning tool for these nurse learners. Initially, many of the learners expressed reluctance at being video recorded during the simulation. However, the emotional decompression that occurred in Phase 2 of the debriefing soothed the learners' anxiety about being judged or ridiculed for their performance. All the participants voiced their appreciation of how the video review helped them to reflect upon and assess their performances, a similar finding to Graling and Rusynko (2004).

Using the video review to visualize the physical activities opened the participants' eyes to how they performed tasks individually and worked through processes as a team. Reviewing the videos permitted the learners to see how their perioperative roles meshed and how they collaborated and communicated to meet the simulation objectives. Visualizing how they moved and performed tasks in this aseptic environment with invisible boundaries gave them the spatial awareness needed to work without contaminating the sterile field.

In Phase 3 of the debriefing, the learners detected, reflected upon and corrected errors in practice. These self-reported practice improvements following the video review are unique based on the current conflicting reports in the literature. The value of video review in initiating behavioural changes with healthcare professionals was mentioned by Savoldelli et al. (2006). They reported that the addition of video review did not offer any advantage over oral feedback alone in the improvement of nontechnical skills, such as task management, awareness of the team working situation, and decision-making, in anesthesia residents.

Nurses' experiences in this case study, however, were more similar to those of the participants in Scherer, Chang, Meredith, and Battistella's (2003) research. Scherer et al. discovered significant and rapid behavioural improvements in surgical residents' performance in responding to resuscitation codes after they reviewed videos of the events. In the same

population, however, no improvement was found after oral feedback. They postulated that the objective evidence of an individual's performance offered by video review provides accurate, real-time, indisputable data that can motivate and initiate behavioural changes. These sentiments were echoed by the nurses in this study. There are a number of examples that exemplify how the learners in this study benefited from the video review.

Amber perceived video review as a first-rate way to see what activities her teammates were doing. Immersed in the scenario, she did not have the comfort level to stop focusing on her task and focus on the surroundings. When reviewing the video later at home, Amber reported:

When I watched the scenario on my own I was able to visually see our downside, which was not always evident during the task. I find [the video] extremely helpful for me because I am a visual learner and I can refer mentally back to certain situations in order to learn. It was a very positive way for me to see my actions and allow me to sit back and watch how we performed as a group. (A.S. Lab Journal, April, 2009)

Video review also allowed Caitlin to see herself moving about and doing activities within the sterile environment. For instance, walking through a "sterile corridor" between two sterile fields was something they did not pay attention to in L&D but Caitlin saw herself do this on video and adjusted her future actions accordingly.

Veronica also described changes in her practice during her clinical experience based on reviewing the simulation video at home. She described the film as unbiased—there was no one explaining what she had done right or wrong, no critiques, just self-observation that gave her new insights. She detected errors and silently praised good performance. She noted her body position in the sterile environment and visualized her hand movements. In the operating room during surgery, she focused on creating an economy of movement by thinking about what the

result of her action should be and taught herself not to over manipulate supplies. In the operating room, she was asked to assist with square draping. She remembered being very attentive to this during simulation, recalled her actions on video, and executed the task perfectly when it mattered.

Although this qualitative case study did not measure learning outcomes, the ability to review performance was perceived as a benefit and powerful learning tool by the learners. Video accurately captures how nurses sequence complex motor skills and move within the aseptic boundaries of an operating room. Nurses who watched colleagues perform procedures relevant to all perioperative roles insisted that it helped them when it was their turn to act in that role. It also allowed them to critique the team's soft skills of communication, collaboration, and professional conduct with the patient and interprofessional team.

For these reasons, I recommend that simulation designers consider using this tool in a discretionary fashion to enhance reflectivity in the learning process. By discretionary, I defer to Fanning and Gaba (2007) who cautioned that the use of video is an art. It takes practise for the facilitator to become efficient at playing back the scenes that lend themselves best to significant learning. Internal dissonance often drives learning and facilitators must allow participants to feel discomfort with suboptimal performance as it motivates them to improve. However, my observations of video review conducted by other facilitators, as well as some of my own sessions, remind me that if the video segments are lengthy or unrelated to the learning objectives, the session can become boring and discussion stifled (Fanning & Gaba).

Phase 4. Introspective Performance Appraisal. This phase is when the learner takes time to critically think about their simulation performance in a logical fashion by reviewing their skills, knowledge base, judgment, and decisions made. The intention of the learner is to determine and

internalize improved ways of acting and resolve to put these revised plans into action in similar situations in the future. Strategies that assisted learners in this phase were video review, discourse and journaling.

A main premise of the debriefing conceptual framework is that time for intrapersonal reflection should be put aside after the simulation–debriefing experience in order for participants to make sense of what transpired during the debriefing and to personalize learning. People have varying ability to recapture their experiences, mull them over, and evaluate them and, based on the findings in this study it appears that a catalyst such as discourse, writing or video/visual stimulation can help some learners apply what is learned during the simulation to future clinical situations. This happens because learners are nudged to bring their ideas to a conscious level where they can evaluate and begin to make choices about what they will do or change. Dreifeurst (2009) referred to the ability to assimilate and accommodate new information as a professional characteristic of critical thinking. She termed it reflection-beyond-action. She asserted that “the ability to anticipate or consider the ‘what if’ distinguishes the novice nurse from the expert and represents higher order clinical judgment and clinical reasoning based on metacognition” (p. 111).

Even in extensive debriefings, such as the ones in this study, there is little time for deep reflection upon events and critical analysis of what one has learned, let alone time to strategize how to integrate new knowledge into practice. An alternative strategy is journaling. Through the learner’s journal the facilitator can judge the degree of critical thinking and learning that took place over time, information that is invisible without this type of follow-up.

In order to capture learning that occurred after the simulation sessions, participants were asked to keep reflective learning journals after each simulation laboratory and scenario, as well

as during their clinical placement. Journaling promotes self-examination that involves looking back over what has happened in practice in an effort to improve future professional practice. Petranak (2000) referred to this process as “written debriefing”, an experiential learning activity in which participants have the opportunity to write about their experiences and feelings and those of others after the oral debriefing. Reflection over time brings perspective to and deliberation on the simulation activity and forces participants to organize the simulation experience on a personal basis.

Even when learners in this study were not enamoured with the writing process, they found that writing clarified their ideas and meanings around personal and professional roles and activities. It helped them understand complex interactions between themselves and others and bridge the gap between experiences and the classroom (Petranek, 2000).

As part of Phase 4, the nine participants had the opportunity to critically reflect and discuss their new perspectives with me through journaling and in the post program interview. Their personal growth as operating room nurses was dependent on the clinical conditions under which learning took place. These conditions included the support and focused feedback from the preceptor and the time and effort they took to recall, reflect on, and critically analyze their performance (Kneebone et al., 2004). In the clinical setting, learners were finally able to test their assumptions about working in the operating room setting and determine the fit of their personal values and beliefs in this culture. They were able to reflect back on laboratory and simulation performances and use this platform to look forward and confidently open themselves to improved future performance (Fanning & Gaba, 2007; Merriam, 2004; Sutinen, 2007). Mezirow (2000) termed this process transformative learning.

In this case study, learners and facilitators came into contact with new ideas, events, and activities surrounding perioperative nursing. They made sense of them by filtering them through what they already knew and believed from their prior years of nursing practice (Dewey, 1916; Pickford & Dixon, 2004; Schön, 1987; von Glasersfeld, 2003). The knowledge that all nine nurses gained in this program was subjective and dynamic (Dewey). Each underwent a personal and professional transformation in nursing practice as they integrated into the perioperative nursing role. Transformation was unique and surfaced throughout the psychomotor laboratories, simulation scenarios, and in clinical practicum.

Journaling was cathartic for some learners and a chore for others. The style of journaling varied from point form to prose, objective to subjective, yet all learner journals included thought development and experiences that indicated a reflective process. Reflections centred on task-based practices, critical evaluation of the rationale for doing certain activities, and affective insights.

Dewey (1916) believed that individuals had to use their intellectual activity and reflect on experiences in order to discover the connections between things and be able to integrate these experiences into real life situations. Schön (1983) echoed this belief and elaborated on the necessity of learners to work in close association with expert practitioners in order to improve their practice. This is the process that occurred in the last phase of the perioperative nursing program when the learners spent one month in a clinical setting working with a preceptor to help them consolidate and integrate theory to practice. This one month practicum of exciting transitions, where learners gain the skills and confidence required to enter an operating room at a novice level, is largely invisible to the program educator. Journaling in this stage of the program satisfies two purposes. First, it provides an opportunity for adult learners to reflect and make

sense of their experiences as part of transformational learning (Mezirow, 1991). Second, written debriefing allows the learners to privately communicate with their professor, who can, in turn, assess learner behaviour, reflectivity, and transformative learning (Petranak, 2000).

Having completed her clinical placement, Amber looked back at her perioperative psychomotor skill and performance acquisition in amazement:

I was so focused on the task and now it just seems that those things that I was so focused about, even in our sim lab, are not even hitting the radar anymore. They're not even there anymore, it's something so much more. (A.S. Personal Interview, June, 2009)

One of Caitlin's clinical journal entries provides an example of how a learner performs, reflects, and perfects technique:

Every day I do something new and learn a lesson. I have to be more aware when handling specimens. I took a specimen off the back table with gloves on then opened the lid of the specimen jar, thus cross-contaminating the lid. Not something I will ever do again.

Experience is still the best teacher. (C.M. Clinical Journal, June, 2009)

I believe, based on the findings of this case study that it is essential to allocate time for the learners to engage in a post experiential reflective process. If learners are exposed to a series of events without having the time to reflect, it is unlikely that they will make the most of any of the learning opportunities (Boud et al., 1985).

Journal assignments can be specifically designed to capture aspects of learning relevant to the simulation objectives. Although this requires time for the educator to review and comment on the learner reflections, "the benefits far outweigh the costs.... Written debriefing should become a major instrument in the field to promote better learning" (Petranak, 2000, p. 108).

In this study, there was wide variation in the amount and quality of journal content and evidence of reflective processes. Participants who were less comfortable with the written process, such as Amber and Avril, were enthusiastic in the verbal interview and expressed their ability to think critically and reflect on learning experiences in this venue. The important concept in phase 4 is taking the time to do an introspective performance appraisal that helps the learner realize new ways of performing that can be implemented in their practice to improve future performances. The medium chosen to do this does not matter as much.

Debriefing Efficacy

The skill of the debriefer can impact the postsimulation learning experience. According to current literature, facilitators must have formal training in facilitation so they can maximize their impact on learning, add credibility to the course, and act as appropriate role models for evolving professionals (Fanning & Gaba, 2007; McLean, 2003). Prior to this study, I had no formal training in facilitation but considered myself an effective communicator. In this study, my skill as a debriefer was assessed by the learners and me. Comments on my efficacy as a debriefer from the learners were generally positive. Self-assessment was conducted using DASH[®] and audio-video review. Using the DASH[®] tool, I identified weaknesses in my facilitation skills in three distinct areas:

1. Briefing:
 - a. Clarification of specific details of the nursing roles
 - b. Establishing a fiction contract
2. Recognizing and managing upset participants
3. Acknowledging the participants' issues or complaints and sympathizing

As mentioned earlier, the briefing of facilitators and learners was not thoroughly attended to. Further, during the debriefing, I inappropriately used humour as a form of avoidance to deflect complaints and frustration from learners who were upset. The audio-video review was an excellent mirror for my self-assessment. It captured an unbiased picture that allowed me to see my body language and ability to listen to tones of voice, words spoken and unspoken, and silences that were open to new interpretation. The video helped me reflect and understand aspects of my facilitation approach that need improvement; an effective tool for personal learning.

When a facilitator participates in debriefing, there will be events, communications, and actions that are obvious and have clear meaning. However, there will be some that are not. Facilitators must consider that every participant comes to the simulation with an individual frame of reference and different life experience. People obtain, manage, and assimilate information based on their unique understanding of reality (Rudolph et al., 2006). Unless facilitators take the time to understand the adult learners frame, conducting a debriefing session may be challenging and learning opportunities lost.

Two debriefing events in this study illustrate how learner frames must be respected so facilitators can guide them forward in their learning. The first instance occurred in one of the first debriefing sessions. Caitlin was monopolizing the conversation talking about what they do in L&D and how it was different from what she was learning in the program. The other two learners were not able to talk and started fidgeting. My tired ears biased my hearing as she droned on and I was wondering what I could respectfully say to move the session forward. However, I intuitively knew that Caitlin needed to be heard and wanted explanations when she asked for them. When she finished I swayed the discussion back to the others. Later, when I

reviewed this debriefing video through my reflective practitioner lens, I heard Caitlin verbally struggling to understand why she had to change a practice that she had been doing a particular way for twenty years. It was her way of using the debriefing time to confirm her frame of expertise to others, verbally grapple with concepts, and, with expert information, finally came to understand why it was important for her to change. Over time, she understood that her L&D expertise did not directly translate into perioperative expertise. Caitlin was treated with respect and received the approbation she needed during the simulations and debriefing. I believe that shifting the debriefing environment to meet her needs helped her gain the confidence she needed to go to the operating room as a novice and establish an effective working relationship with her preceptor.

In a second situation, Christie's questions dominated her team's first debriefing session. I became silently frustrated by the constant questioning. Couldn't Christie think things out before asking? Upon reviewing the video, I recognized Christie's deep-seated need to understand the rationale driving the simulation activities. Dewey (1933) described this as an inner discomfort that leads to the search for information that will resolve doubt and perplexity about a topic or event. My patience for providing her with the expert information desired led her to deeper comprehension and commitment to follow through with correct behaviours.

Debriefing is a complex, emotional communication process. When I evaluated my reactions to Christie and Minnie's discomfort and frustration, I realized that I had avoided getting embroiled in their emotions because I was uncomfortable with what I perceived as a conflict between the learners and facilitators. Had I approached this situation more directly during the debriefing, the learners would have had the chance to vent their anger and perhaps we could have worked through these issues instead of glossing over them. This could have made the

two learners more receptive to the debriefing analysis and made it a positive learning experience. This reflection has made me aware that I need more experience and confidence in handling anger and negotiating conflict resolution. I will gain this experience by enrolling in a leadership program that focuses on communication.

Debriefers Competencies

Bradshaw (2007) pointed out that educators in the health professions are responsible for teaching to professional standards that have measurable outcomes: “This is juxtaposed with the importance of freeing up the student from linear thinking and encouraging broader approaches to learning that are accomplished through dialogue, expression, and attribution of meaning” (p. 9). An effective debriefer must embody this notion by being a content expert in the healthcare specialty being simulated, have a solid foundation of constructivist learning approaches, and employ the following principles of effective teaching:

- Encourage close contact with and voice your high expectations of your learners
- Promote active learning and cooperation among learners, while respecting learning styles and individuality
- Practise active listening and provide learners with prompt feedback
- Exercise vigilant time on task (Chickering & Reisser, 1996).

Additionally, debriefers must incorporate adult learning principles into the simulation and debriefing process. Examples of such essential qualities are:

- Encouraging learners to take responsibility for their own learning.
- Making learning practical and provide opportunities for immediate application of information and skills.
- Allowing learners to provide direct input into their learning experiences.

- Communicating in a competent, dynamic manner and using communication strategies to enhance learning.
- Being attentive to learners' emotional responses.
- Troubleshooting problematic situations.

Debriefers Personal Qualities

Based on my readings and reflections throughout this study, I have identified personal qualities that I believe debriefers require to be credible and effectual:

- Knowledgeable: Debriefers should be self-directed learners and content experts
- Personable: Debriefers should be able to develop positive relationships with, and care about, learners
- Learner-centred: Debriefers should be learner-centred, supportive, and patient
- Ethical communicator: Debriefers should promote and practice respectful, confidential communication
- Motivational: Debriefers should be enthusiastic, set high expectations for learners and nurture a commitment to action and change in practice
- Organized: Debriefers should set goals and have a systematic debriefing plan
- Flexible: Debriefers should be able to alter plans in order to support learner goals

Summary of the Interpretation of Findings and Discussion

The purpose of this chapter was to understand and create new meaning from the simulation and debriefing experiences of the nine learners and myself. The discussion provided a fresh view of how simulation, postsimulation debriefing and debriefer efficacy impacts learning.

It identified consistencies with current literature yet goes beyond present knowledge in intimate and valuable ways.

The challenge in the preceding discussion was to make sense of the large volume of information that was collected from varied sources and determine what data to report on given the purpose of the study. I chose to investigate topics that were pertinent to me from a learning perspective, whether they were issues that surfaced that I had been previously unaware of or areas throughout the simulation and debriefing processes where I felt there was room for personal improvement. The interpretation and discussion of the findings were analyzed, interpreted, and synthesized along three themes; simulation, postsimulation debriefing and debriefer efficacy.

Within the first theme, simulation, the findings made it apparent that simulation–debriefing design and execution are paramount in initiating the experiential learning cycle. Areas of simulation design that emerged as being inadequate in this study were the lack of acknowledgment of prior learning and the contribution of experienced nurses, the frequency and size of laboratories, communication, presimulation briefing and the fiction contract, and finally, active learner engagement. Each of these topics was discussed in depth and recommendations made.

Debriefing, the second theme of this chapter focused on the importance of debriefing in the social construction of knowledge and in initiating and perpetuating learners' reflective processes. I provided debriefers with a more inclusive definition of debriefing based on learning constructivist learning principles and substantiated by events in this case study. I proposed that the use of the Postsimulation Debriefing Conceptual Framework© as a holistic approach to debriefing. This framework follows the tenets of experiential learning and was used to describe

the dynamics of the four phases of debriefing and the manner in which they contribute to learning. Details and examples substantiate the experiential and transformative learning that occurred amongst the learners in the study, nurses and facilitator alike.

Lastly, an overview of debriefer efficacy and my perceptions as a debriefing facilitator was followed by my perceptions of basic competencies and personal qualities that I believe are the hallmark of effective debriefers.

CHAPTER 6

Recommendations and Reflections

This case study explored perioperative simulation and debriefing as an educational strategy. The perceptions and learning processes of perioperative nurse learners participating in a simulation–debriefing process have been discussed. Further, the researcher’s experiences and interpretations of simulation and debriefing within this case study were developed and explored. In this final chapter, the implications of this case study will be highlighted and recommendations for nursing and educational practice and research provided. The chapter concludes with a personal reflection.

*Implications for Nursing**Qualitative Nursing Research*

My use of a qualitative case study approach demonstrated the very important fact that modest research can result in dramatic and potentially far-reaching results. This study was conducted by the researcher with no external funding. Resources included time for the research and support for writing. This has implications for promoting the conduction of research by nurses within healthcare and educational settings. With education and support, more nurses may change their perceptions of nursing research as an onerous process outside their scope or abilities and become engaged in active nursing research. Qualitative research offers exciting possibilities for nursing research in to the personal, subjective realm, allowing researchers to explore lived experiences of clients and nurses as they transition through healthcare experiences. A paradigm shift to simple, well-conducted qualitative or mixed-methods research would enhance the profile of professional nursing and add to the body of nursing knowledge.

Simulation and Nursing Education

There is a growing body of research on the effective uses of simulation in nursing education, the extent of which was beyond the scope the literature review in this study. What was apparent to me, however, in my review of the literature, and in the external observations of nursing simulations I reported in my findings, is that while simulation is still evolving and transitioning, it is important to remember to integrate basic pedagogical principles into the learning strategy. Areas that I encourage simulation designers and facilitators to consider in the planning phase are how to provide the opportunity for active involvement of all learners in simulations and how and what methods of debriefing would be most effective. Evaluation of simulation activities and the dissemination of educational experiences such as the one in this study are essential to help move simulation and postsimulation debriefing forward as an effective learning strategy.

Perioperative Nursing Practice

This research focused on the perioperative nursing specialty, an under-researched nursing cohort, and contributes to our knowledge of how nurses learn to work in the complex environment of an operating room. It demonstrated that simulation and debriefing are effective learning strategies for perioperative training including psychomotor skills, procedural skills, process centered patient care and for working within an interprofessional team.

This research highlighted some reasons for communication inadequacies within surgical settings. It pointed to the existence in some operating rooms of outdated hierarchical personnel structures that inhibit communication and the ability of nurses to express themselves within this patient care setting. It pointed a way, through briefing and debriefing in the operating room, to allow all voices to be recognized and valued. Researchers must conduct long term research that is focused on techniques to improve communication in the operating room and whether this

enhanced communication is sustainable. Does briefing and debriefing lead to increased efficiencies and does it, indeed, lead to safer patient care?

Transfer of Learning

This small research demonstrated unequivocally that learning is transferred from the simulation setting to the clinical environment through a process of postsimulation debriefing. An area for further research is to explore the learning process within the clinical setting. As evidenced by the clinical journaling of the nurse learners in this study, learning in the operating room occurred at a rapid pace and the expectation of educators and managers for nurses to function independently are pervasive. A better understanding of the learning process within the clinical setting might allow educators to facilitate and accelerate nurses' integration into specialty areas.

From Expert to Novice

Although beyond the scope of this research, I believe that a topic for further investigation by the nursing profession is to look at the issue of valuing experienced nurses in new clinical settings. Within this study there were instances during the simulation and clinical experiences, when senior nurse learners did not feel valued or respected for their knowledge and experiential base. This helps to remind us that experienced nurses bring a unique knowledge base and valuable patient care competencies to new clinical settings and they deserve and desire to be treated with respect. By not acknowledging the experience senior nurses bring to a new clinical setting, nursing staff unnecessarily devalue the learners' initial contribution, which may go way beyond the ability to perform skills.

Perhaps, as Edmond (2001) speculated, it is a matter of perspective: “the problems ... originate in a basic misunderstanding of the nature of practice itself and the knowledge, skills, and performance ‘know how’ that make up professional practice” (p. 252). Senior nurses know how to get the work done. They have mastered the coordination and management of patient workloads by juggling multiple activities, such as coordinating multidisciplinary patient activities, performing nursing interventions, and monitoring and progressing patient care. To add to this complexity, nursing is also multilinear; these activities are applied to a number of patients simultaneously and automatically (Benner, 1984; Emond; Estabrooks et al., 2005). These are processes that novice nurses do not possess.

In 2001, Emond called for re-examination in looking at how clinical nursing experience can be integrated into the continuing education process for nurses. Yet, to date, there is little literature that discusses this issue. The importance of continuing education in the nursing profession is topical today due to nursing shortages and loss of jobs because of fiscal constraints in healthcare settings. Based on the current climate, administrators at educational institutions are predicting that experienced nurses will be looking for educational opportunities to expand their marketability or to move into areas where there is job demand (M. Tosh, personal communication, April 12, 2010). Research that looks at how nurses transition their knowledge, skills, performance, and judgment from one clinical setting to another may help substantiate the richness senior nurses bring to nursing settings outside their primary training. Such information could initiate a change in the prevailing culture that nurses entering new specialty areas should start from ground zero, and promote educational strategies that honour practice knowledge and help create more seamless learning environments. In the meantime, it is important for nurse

educators and nurses in the clinical setting responsible for education to reflect on these issues and make adjustments to improve the situation.

Implications for Healthcare Education

Simulation Facilitator Training

Simulation facilitators within the college faculty who were interviewed in this study revealed the following:

- They desired a concrete plan for growth and implementation of simulation.
- Many different models of simulation and debriefing were being used in the college. These were dictated by simulation objectives, number of participants, time, and the experience facilitators had with simulation typologies.
- Not all facilitators were equally comfortable running simulation sessions.
- Not all facilitators had received staff development training on how to conduct simulation sessions using the available technology.
- Facilitators varied in their level of understanding regarding the principles and benefits of debriefing.
- Facilitators were concerned about the pedagogical soundness of how they were conducting scenarios and debriefing. They longed for dedicated time to delve into evidence-based simulation, to reflect with colleagues on best practices, and so they could have assistance to develop and run new types of scenarios and debriefing.
- Facilitators generally believed that a coordinated approach by the college's healthcare faculty to develop, implement, and evaluate simulation and debriefing practices would enhance its reputation as a centre of excellence.

My recommendation is that educators using simulation and debriefing as an educational strategy must advocate for training in both these areas. As leaders and managers of education, it is imperative for facilitators to use techniques that maximize learning and develop skills to handle all eventualities during simulation and debriefing.

Educators need to be cognizant of the principles of experiential learning and simulation. With the exponential advancement of simulation technologies, it is tempting to substitute technology for patients in all types of healthcare intervention training. As some researchers are discovering, the loss of patient interaction can inhibit skills transfer (Kneebone et al., 2004). Educators must be able to balance high technology with high touch; in other words, know how to promote caring when using technology. For an example of what a healthcare debriefer workshop might include see Appendix M.

Transfer of Learning from a Simulation Laboratory to a Clinical Setting

For these nurse learners, skills acquired during simulation were transferred to the clinical setting and applied directly to patient care interventions under supervised conditions. Learners provided numerous examples of the types of learning that were transferred to the clinical environment and some explained their thought processes that led to the application of new knowledge. Based on these findings, I am convinced that simulation is an appropriate educational strategy for nurses who actively experience their own roles in simulated settings. Yet learners must still be initially supported in clinical situations to ensure safe and correct practice in this open patient environment.

My recommendation is that until further research is done, I recommend that all learners practise their own roles when participating in relevant simulation activities that are transferrable

to the clinical setting. Observing or participating in fringe activities in scenarios is not proven to develop clinical competence.

Continuing Education

There are a number of continuing education challenges for nurses. This study portrayed some of the adversities that nurses face when trying to advance their education. A major hurdle for the participants in this study was to get to class for a full day once a week and then find time for reading and assignments.

My recommendation is that educators involved with the continuing professional education of nurses must be open to alternative, flexible means of educational delivery. A hybrid program where online, asynchronous activities are complemented by simulated experiences in a laboratory setting is one such example. Indeed, this approach was implemented at the college for the perioperative program the year following the study.

This approach is pedagogically sound and accommodates the specific needs of nurses as adult learners. However, hybridization of programs means different things to educational designers and little evidence points to best practices in this area.

Debriefing

At the best of times, simulations are stressful. In healthcare situations where there is the potential for adverse outcomes and team interactions are dynamic, the stress can be magnified. As a result, simulations can only be rich learning experiences when debriefers have the communication expertise to guide participants through straightforward simulation reviews, as well as emotionally complex and draining events. Briefing and debriefing are communication skills that facilitators must develop that can assist in planning, creating educational and clinical

efficiencies, promoting learning, and effecting change. These techniques are adaptable to the clinical setting where they have been shown to optimize intra- and inter-professional teamwork and, subsequently, patient care. In the operating room, these techniques can be used effectively by preceptors, clinical educators, and surgical teams.

My recommendation is that debriefing strategies should be implemented to inspire reflection on, in, and beyond action. These are characteristics of the reflective practitioner and expert professional. Learners have different learning styles and are not equally adept at reflection. Using a variety of debriefing strategies at different time intervals enhances the probability of deep reflection and critical thinking that leads to transformative practice.

A debriefing framework can assist the debriefer in the organization and implementation of effective debriefing sessions. The debriefing conceptual framework used in this study proved to be comprehensive yet practical. Debriefing conducted in four phases provides reflective opportunities for individual and group learning.

This study provided concrete evidence for the benefit of conducting video review of simulated performances with healthcare learners, especially in situations like perioperative training where spatial awareness and monitoring of movement is integral to safe patient care. Video review allows learners to recall events, see the whole picture, and objectively view, listen to, and critique their performances. In this study, learners unanimously reported this was the most powerful learning tool.

Future Research

As a result of conducting this study, many topics for future research emerged. The following questions remain to be answered:

1. What are the experiences of nurses in continuing professional education who transition from expert to novice and then develop expertise in a new specialty?
2. What nursing knowledge and expertise is readily transferrable across specialties?
3. How can workplace communication be enhanced, particularly in the operating room? Can effective communication processes, such as briefing and debriefing, be instituted within nursing and interprofessional teams? Is communication improved over the long-term and does it result in safer and more efficient patient care?
4. What learning occurs when learners observe or play roles other than their own in simulated situations?
5. How do skills evolve? What simulation techniques help learners transfer skills from closed to open environments?
6. Are specific simulated experiences equivalent to clinical practicum? If so, what simulation typologies suit this purpose best?
7. What are the best ways to assess skill and procedural competence in simulated settings?
8. What reflective techniques facilitate knowledge transfer and how can educators embed these into debriefing experiences?
9. What are best practices for debriefing?

Personal Reflections

Like many healthcare educators, I am an experienced nurse who moved from teaching in the clinical setting to teaching in a formal educational system. When I started as faculty at the college, I was introduced to the healthcare simulation centre. I was enamoured by the technology and amazed at the new types of instructional opportunities that were available. Yet I struggled to see the relevance of some of the high fidelity equipment (e.g., the human patient simulator

mannequins) for the perioperative program, which is focused on entry level training and not on advanced patient interventions. I wondered what I could contribute to perioperative learners and the use of simulation in the perioperative setting. Before long, I realized that I had been blinded by the technology and was exhibiting what Cranton and Carusetta (2004) described as “habits of mind or a frame of reference for understanding the world, much of which is uncritically assimilated” (p.7). I had the epiphany that simulation need not be all high fidelity and complex. I realized that I had, as a clinical educator, been using simulated training techniques for staff new to the operating room throughout my career but had not connected this learning strategy to what I perceived were the complex simulation activities being enacted in the college simulation laboratory.

With simulation somewhat demystified, I was curious about the unique learning journey that nurses experience as they engage in continuing education in the perioperative program. What aspects of simulation and debriefing contributed most to their learning? In this case study, I was privileged to share the journey of nine nurse learners as they developed their skills in the perioperative program and shared their experiences with me. By immersing myself as a co-learner in this research project, I identified with the participants who were female professionals like me. I appreciated their open sharing and admired their tenacity in pursuing continuing education. They made me more sensitive to the personal frames and professional experiences that nurses bring to the postgraduate educational setting. They helped me understand that my role and responsibility as a facilitator is not only to maximize nurses’ learning experiences but to make sure they feel uniquely valued and enjoy their experience.

Some aspects of this qualitative case study research felt as complex as unravelling the double helix, yet it was right for me because my passion is working with and for people. During

the two years over which this research was conducted, I attempted to understand my own learning by embodying the principles of the reflective practitioner. I used reflection as a learning process for exploring nursing and educational issues and experiences. Reflection also acted as a change agent. Questioning previously held assumptions allowed me to address gaps in my competencies (Regehr & Eva, 2006). I was able to think critically about aspects of the data that created personal dissonance and make changes in thought and action. The research project acted as my transformative catalyst, what Guba and Lincoln (2005) referred to as:

...genuine ruptures in the fabric of our own histories, precise or fuzzy points at which we are irrevocably changed. A sentence, a luminous argument, a compelling paper, a personal incident—any of these can create a breach between what we practiced previously and what we can no longer practice, what we believed about the world and what we can no longer hold onto, who we will be as field-workers as distinct from who we have been in earlier research. (p. 1116)

Through reflection on this research experience, I am able to differentiate and challenge current thoughts and practices in healthcare simulation that I have seen. I can defend my values on perioperative simulation and the importance of postsimulation debriefing. I am aware of my limitations as a facilitator and can plan actions to improve my own performance and support other perioperative faculty in developing their teaching skills and expertise. I am working towards developing authenticity in teaching practice and “living a critical life” (Cranton & Carusetta, 2004).

My learning went far beyond the research. It made me aware of personal values of patience, discipline, process, endurance, reflection, and critical thinking. It humbled me to understand how little I knew about my topic of research as I have witnessed the proliferation of

information on healthcare simulation and debriefing in recent years. Although modest, I hope that this case study research brings better understanding of, and encourages innovations in, the design, implementation, and evaluation of simulation and postsimulation debriefing in healthcare.

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Appendix A

Simulation Typologies

Simulation Typology	Definition	Examples of Use
Task-specific simulators	Models/mannequins used to practice, gain and evaluate technical competencies	Specific skill with or without patient scenarios • venipuncture • ultrasonography
Peer learning	Students work together developing and mastering skills	Learn, develop, evaluate basic competencies • health & physical assessment
Computer simulation	Screen-based computer programs, CD Rom, video; for knowledge acquisition, competency assessment and provision of feedback related to clinical knowledge and critical-thinking	Learn, develop, evaluate and integrate specific theories and skill into patient scenarios that require critical thinking • auscultation heart sounds • pulmonary assessment (anesthesia) • radiographic interpretations and diagnosis • dysrhythmia interpretation
Virtual reality	Computer-generated environment with sophisticated, authentic tactile, auditory, and visual sensory stimuli	Learn, develop, evaluate competency for specific skills • intravenous catheter insertion • bronchoscopy • surgical procedures
Haptics	Simulator combining authentic and virtual reality exercises	Develop and evaluate competency in a specific skill with real-time tracking of performance. Example: surgical skills and procedures
Standardized patients	Case studies; patient role played by volunteers, actors in realistic simulated learning experience	Develop, explore, validate and discuss patient –based integration of communication, skills, competency and patient care plans while performing interventions
Full simulation Human Patient Simulators (HPS)	High fidelity mannequin provides physiologic responses to practitioner actions Require realistic environment, actual medical equipment supplies	Integrate, evaluate competencies, critical thinking, and clinical judgment related to synthesis of theory, technical and communication skills & interdisciplinary team management of patients with complex problems

Appendix B

Debriefing Models

Author	Type	Briefing / Debriefing Events
Thiagarajan 1980	Simulation debriefing model	Briefing List principles to be learned Ensure sufficient time for key events Air feelings before rationalizing experience. Debriefing - Elicit • Information related to a specific principle from experiences. • A statement of the principle in the learner's own words. • Examples of real-life applications of this principle.
Boud, Keogh & Walker 1985	Three stage debriefing	1. Systematic return to the experience. -Cognitively re-activate and re-visit using descriptive approach highlighting significant events and details -Focus on feelings generated by experience 2. Cognitive re-evaluation of the experience and associated principles. 3. Generate new cognitive map as consequence of developmental examination of experience
Thatcher & Robinson 1990		Identify the impact of the experience Identify and consider the processes which developed Clarify the facts, concepts, and principles Identify ways in which emotion was involved Identify different views each participant formed
Armstrong, O'Callahan, & Marmar 1991	Multiple stressor debriefing	Disclosure of distressing events Discuss feelings and reactions. Discuss coping strategies Termination: reflect on positive aspects of disaster response and discuss transition to home life and responsibilities.
Lederman 1992		Introduction to the systematic reflection and analysis Intensification and personalization of the analysis of the experience Generalization and application of the experience
Petranek, Corey & Black 1992		Events Emotions Empathy Explanations and analysis Everyday applicability Employment of information Evaluation

Author	Type	Briefing / Debriefing Events
McDonnell Jobe & Dismukes. 1997	C-A-L Model in Airline Debriefings	Crew Resource Management (CRM) • List management concepts. • Tie CRM concepts and techniques to operational issues. • Put CRM into practice. • Interactive crew discussion of Line Oriented Simulations Analysis and Evaluation of Line Oriented Simulation performance • Evaluate performance during simulation. • How effective was management of the situation? • What went well, and why? • What could be improved, and how? • Interactively analyze the situation • What happened? How was it managed and why? Line Operations - Apply lessons from simulation • How does performance relate to operations? • Discuss related incidents illustrating CRM issues. • How can simulation success apply to line operations? • How could things have been done differently to improve simulation outcome. • How can areas for improvement turn into strengths? • How can similar, future situations be managed?
Johns 2004	Post-simulation debriefing based on Carper's Ways of Knowing in Nursing	Empirical: What knowledge, skills, and experiences did you use? Aesthetic: What was patient's problem & what was your main goal? Personal: What influenced your actions, how did you feel and how satisfied are you with your interventions? Ethical: How did your personal values and beliefs influence your actions? Reflection: How did you know what to do in this situation and what you would do differently in the same scenario. Discuss how you will use the lessons learned in the future.
Rudolph, Simon, Dufresne & Raemer 2006	Debriefing with good judgment	Creates context for learning & change Genuine report of puzzlement & inquiry into how the trainee's actions can make sense. Respect for self Respect for trainee Approach as a genuine puzzle; not paralysis or indecision.

Author	Type	Briefing / Debriefing Events
Jefferies & Rogers 2007	Reflective thinking / debriefing	How did participant feel during simulation? Describe objectives that were met and not met. Do you have knowledge & skills to meet objectives? Were you satisfied with how you worked through the situation? If you could do this simulation again, what would you do differently? What did the group do well? What was the primary nursing diagnosis? What were key assessments & interventions? Is there anything else you would like to discuss?
Vashdi, Bamberger, Erez & Weiss-Meilik 2007	Israeli Air Force team-based briefing/debrief -General information -Constraints -Emphasis -Three specific goals for mission -Emphasis from last mission	Review of objectives Extent to which objectives were met Review of videos and data Why where the objectives not met, or what facilitated meeting the objectives? What can be improved for next time? Summary of the lessons learned
Centre for Medical Simulation 2009	DASH©	6 Elements of Debriefing reported separately in Appendix C

Appendix C

Debriefing Assessment for Simulation in Healthcare (DASH)©

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Introduction

Debriefing clinical simulation experiences is increasingly understood as a crucial step in clarifying and consolidating insights and lessons from simulations. The Debriefing Assessment for Simulation in Healthcare is designed to assist in evaluating and developing debriefing skills. Additional information, rating forms and contact information can be found by [clicking here](#).

Background on the debriefing process

In the context of healthcare simulation, debriefing is a conversation among two or more people to review a simulated event or activity in which participants explore, analyze, and synthesize their actions and thought processes, emotional states and other information to improve performance in real situations. High participant engagement is a hallmark of strong debriefings because it leads to deeper levels of learning and increases the likelihood of transfer to the clinical setting. Improving sub-optimal performance is a goal of most debriefings but debriefings can also explore excellence in performance: What actions or thought processes allowed a person or team to be so effective? Debriefers make an implicit comparison between a desired level of performance and the level of performance they observe in the simulation.

The gap between the “desired” and “actual” levels of performance is depicted in the figure below. Debriefers can help close the performance gap by critiquing, discussing, and suggesting ways to improve trainee’s actions. Alternately or additionally, they can help close the performance gap by exploring the “frames” that drove trainees’ actions. Frames are internal images and assumptions about external reality that guide actions. Debriefings can focus on

frames or actions or both. Healthcare professionals take psychological risks when they allow their performance to be watched and analyzed by peers and instructors. Thus, developing and maintaining a psychologically safe learning environment is important. To do this, skilled debriefers give participants the benefit of the doubt, and regard mistakes and good performance as a mystery to be analyzed rather than as a crime to be punished or success to be simply lauded. They develop and maintain an environment that is not harsh and negative, nor one that hides their opinion in a falsely non-judgmental way.

What is the DASH?

The DASH is a generalized assessment tool that allows assessment of debriefings from a variety of disciplines and courses, varying numbers of participants, and a wide range of educational objectives, as well as various physical, and time constraints. The setting might affect the ratings. For instance, if the setting is ideal and there is enough time, it may be reasonable and possible to see “extremely or consistently effective” ratings. If the setting is less than ideal and time is constrained, then it is reasonable to see the best ratings reach “somewhat or mostly effective” ratings.

The DASH evaluates the strategies and techniques used to conduct debriefings by examining concrete behaviors. It is based on evidence and theory about how people learn and change in experiential contexts. There are six elements in the DASH: (1) Sets the stage for an engaging learning environment. (2) Maintains an engaging context for learning; (3) Structures debriefing in an organized way; (4) Provokes interesting and engaging discussions and fosters reflective practice; (5) Identifies performance gaps. (6) Helps close performance gaps. Each of the six elements is defined by its dimension descriptions with positive, noted as (+), and negative (-), behavioral examples. There is some purposeful overlap between the Elements. Raters should

ignore the overlap and rate each Element independent of the others. Raters should bear in mind that the rating is for the Element and not for each Dimension, i.e., Dimensions and Behavioral Examples are provided only to help describe the Element to the rater. Element #1 is only used when the rater can observe the beginning of the simulation session.

Directions for Scoring

Raters score each Element using the dimension descriptions and example behaviors as guides. A DASH score is comprised of five (or six, if the introduction has been observed)

Element ratings. The scale for each Element is based on a 7-point effectiveness rating. Raters must study the

Elements and be completely familiar with each one. Once thoroughly familiar with the Elements, the scale will be very easy to use and provide reliable and valid scores. It is expected that short debriefings and ones that focus only on actions (not frames) are unlikely to be scored higher than a 4, 5, or occasionally 6.

Rating Scale / Rating Descriptor

7 Extremely Effective / Outstanding

6 Consistently Effective / Very Good

5 Mostly Effective / Good

4 Somewhat Effective / Average

3 Mostly Ineffective / Poor

2 Consistently Ineffective / Very Poor

1 Extremely Ineffective / Abysmal

Element #1 –Sets the stage for an engaging learning environment.

This rating has to do with how well the debriefer introduces the simulation experience and the course. Before any simulation or debriefing begins, the instructor helps participants be clear about what is expected of them, helps them understand the benefits and limits of the simulated clinical setting, provides guidelines that create an environment that is safe for sharing thoughts and feelings, e.g., that they won't be shamed or humiliated, and that the focus is on learning, not on "catching" people in a mistake.

Element #2 – Maintains an engaging context for learning.

This rating overlaps Element #1 and has to do with how well the debriefer maintains a good learning environment. Throughout the debriefing, the instructor helps trainees be clear about what is expected of them, helps them, learn from a simulated clinical setting, feel that the environment is safe for sharing thoughts and feelings, e.g., that they won't be shamed or humiliated; and that the focus is on learning, not on "catching" people in a mistake

Element #3 – Structures debriefing in an organized way.

This rating has to do with how effectively the debriefing is organized. An effective debriefing should have a start, middle and end; each phase has a purpose. In this instrument, the phases are collapsed into a starting reactions phase, a middle understanding phase (that includes both analysis and generalizing to other settings) and a summary phase. While some debriefers may use a different structure including more phases, this measure can still be applied. Ineffective debriefings do not have a logical sequence.

Element #4 - Provokes interesting and engaging discussions and fosters reflective practice.

This rating is an assessment of how well the debriefer engages the participants in interesting discussions and helps them to be reflective practitioners. The purpose of debriefing is to get participants to focus on important topics, and generate in-depth discussion. Debriefings should

not focus on simple elicitation of knowledge and facts alone. Rather, good debriefings require the participant to apply, analyze, synthesize and evaluate information. The ultimate goal of debriefing is to encourage participants to personally reflect on their approach to clinical practice and inspire improvement.

Element #5 – Identifies performance gaps.

This rating has to do with how well the debriefer describes the observed performance gap and explores the basis for the gap. Debriefings should provide participants concrete feedback about performance. When performance is sub-optimal, the debriefer explores the basis for the performance gap including knowledge, skills, and attitudes. In the event that performance was excellent, the instructor assists the participant in identifying the knowledge, skills and attitudes that contributed to that excellent performance.

Element #6 – Helps close performance gaps.

This rating has to do with how effective the debriefer helps learners to close negative performance gaps or to repeat excellent performance. Debriefings should assist participants to develop the knowledge, skills, and attitudes to close the gap between the level of performance the instructor desires and what was observed. In the event that the performance was excellent, the instructor assists the participant in identifying the knowledge, skills, and attitudes that contributed to that excellent performance. The skilled debriefer is knowledgeable in the subject area and is able to use performance gaps revealed in the simulation to generate discussions about how to improve or maintain clinical performance

Appendix D

Data Summary: Participant Demographics

Participant	Years Nursing	Nursing Specialty	Gender	Age	Educational Status	Previous Simulation
Amber	15	Critical care	F	42	RN BaH	no
Christie	17	Pediatrics	F	41	BScN	no
Minnie	20	Critical care	F	46	RN	no
Ellen	2	Ortho	F	25	BScN	no
Avril	1	Surgery	F	31	BScN	Yes 3-5
Lesha	7	Clinic	F	29	BScN	no
Veronica	20	Labour & Delivery	F	44	BScN	no
Caitlin	28	Labour & Delivery	F	48	RN	no
Kassidy	3	Surgery	F	24	BScN	no

Appendix E

Student Participant Information and Consent

Investigator: Debra Clendinneng PhD Candidate Faculty of Education,
University of Ottawa

Advisor: Dr. Colla MacDonald, Professor of Education, University of Ottawa

University of Ottawa

Please read the student volunteer information sheet and consent carefully and ask questions prior to deciding whether you wish to participate. If you decide to participate in this study, please sign and keep one copy of this form for your files.

Introduction:

The purpose of this research study, which is part of the requirements for my PhD, is to explore the experience of post-simulation debriefing to determine its impact on the learning process for healthcare professionals. Eight to ten nurses enrolled in the Clinical Skills Lab (NSG6769), part of the Perioperative Nursing Program at Community college, will be approached to participate in the study during the winter semester, 2009.

Procedure:

If you agree to participate in this study, you will take part in the usual six perioperative lab simulation sessions, two of which will be used for the study. During the simulations labs,

supervisor and me. It will be kept in this manner for five years after the completion of this study and then destroyed.

Non-disclosure of Information:

Due to the personal nature of the perioperative simulation/debriefing experiences, it is expected that participants will not disclose the nature of, or specific incidences of the discussions and personal information that may be disclosed during the debriefing sessions.

Ethics:

Both the Community college and the University of Ottawa Research Ethics Boards have approved this research. Any information requests or complaints about the ethical conduct of the project may be addressed to the Protocol Officer for Ethics in Research at the University of

Ottawa

My thesis

supervisor, Dr. Colla MacDonald, a professor in the Faculty of Education at the University of Ottawa, can be reached :

If you have any questions about this research now or at any time throughout the study, please email me .

Should you decide to participate in this study, please sign this letter and return it to me in the pre-addressed envelop provided. You may also want to keep a copy of this letter for your records.

Your time and cooperation is greatly appreciated.

Sincerely,

Your participation in this research will have no impact on your final grade in the Clinical Skills Lab. It is expected, however, that your involvement in this study will enable you to reflect and critically assess your learning and during this course. You may withdraw, without penalty, from this project at any time, refuse to participate in it or choose not to answer questions. If you withdraw, your data will be destroyed and not used in the study.

Risks and Discomforts of Participating:

You may make mistakes and experience stress or discomfort during the simulation/debriefing sessions, but these are reactions that can occur during any simulation/debriefing session and will be used as a learning opportunity.

Aside from a 20 minute personal interview that will be held outside class hours, all the simulation/debriefing will be done within regular lab hours.

Benefits of Participating:

You may experience a direct benefit from participating in this study as it is designed to provide time for review and guided reflection of your personal and group performance in the simulated perioperative environment. The opportunity to reflect on your knowledge and practice may help you identify your strengths in knowledge and practice as well as assisting you in identifying areas for improvement and action plans for future interventions.

Confidentiality:

Your identity will be kept anonymous and pseudonyms will be used in any direct quotations taken from either the course transcripts or interviews. Your name will not appear in the research or any publications or presentations resulting from the research. To ensure confidentiality all data will be stored in a secure manner and accessible only to my thesis

students will engage in typical operating room scenarios, such as preparing the patient and operating room environment for a specific type of surgery. Working in pairs, one will assume the scrub role, the other the circulating nursing role. These scenarios will last approximately 20 – 30 minutes and be audio and video recorded in the simulation lab. The simulation session will be immediately followed by a 20 minute debriefing facilitated by the researcher which will also be recorded.

Data will also be gathered through individual interviews held at the end of the Lab course. Students will also be asked to write a self reflective assignment specifically about their learning experiences during the simulation/debriefing sessions. The researcher will also contribute to the research data collection by keeping a journal of subjective impressions of debriefing sessions attended throughout the semester that were facilitated by other instructors and myself.

If you agree to participate in this study your involvement will consist of attending and taking part in this course, completing a brief demographic questionnaire that will take approximately 5 minutes to complete and participating and being video recorded in two simulation/debriefing sessions. A reflective, written assignment will be submitted to the researcher at course completion and a final individual interview will be conducted face-to-face and scheduled within two weeks of completing the second simulation/debriefing session. In the interview we will explore your experiences during the simulation/debriefing sessions and discuss your perceptions of the debriefing process and it's effect on learning. The interview will also be video-taped and transcribed. About two weeks after the interview you will be e-mailed a copy of your interview transcript which you will be asked to verify and will be able to add, delete, or clarify information.

Debra Clendinneng
Faculty of Education
University of Ottawa

Dr. Colla J. MacDonald
Thesis Supervisor
University of Ottawa

I voluntarily agree to participate in this research project that is exploring the importance of phenomenon of post-simulation debriefing as a learning opportunity. This study has been explained to me by _____ and I understand the Volunteer Information and Consent and Non-disclosure Form

I wish to receive a summary of the findings of this research, which will be sent to me by the researcher. ☐ Yes ☐ No

Participant Name _____

Signature of Participant _____ Date _____

E-mail Address _____

Telephone Number _____

Signature of Researcher _____

(Adapted from Morley, M., 2007 & Archibald, D., 2008)

Translated French Consent Form



Université d'Ottawa

Faculté d'éducation

University of Ottawa

Faculty of Education

Formulaire de consentement

Cette recherche sera menée en anglais.

Enquêteur: Debra Clendinneng Faculté d'éducation,

Université d'Ottawa

Collège Algonquin - bureau A133A

Conseillère: M. Colla MacDonald, Professeur d'Education, Université d'Ottawa

Lamoreux Hall, Bureau 4

Université d'Ottawa

Veuillez lire la fiche d'information des étudiants et le formulaire de consentement avec soin et posez des questions avant de décider si vous souhaitez participer. Si vous décidez de participer à cette étude, s'il vous plaît signer cette lettre et me la renvoyer dans l'enveloppe pré-adressée fournie par la poste et garder une copie de ce formulaire pour vos dossiers. Veuillez noter que cette étude sera faite en anglais.

Introduction: Le but de cette étude, qui fait partie des exigences de ma thèse de doctorat en éducation, est d'explorer l'expérience de débriefing post-simulation pour déterminer son impact sur le processus d'apprentissage pour les professionnels de santé. Huit à dix infirmières inscrites dans les compétences cliniques Lab (NSG6769), une partie de la Perioperative Nursing Program au Collège Algonquin, seront sollicités pour participer à l'étude pendant le semestre d'hiver, 2009.

Cette recherche est importante parce que la perspective et l'exploration de débriefing de l'étudiant et du facilitateur vont générer de nouvelles informations sur l'impacte du compte rendu sur l'apprentissage ainsi que les activités de simulation dans les soins de santé.

Procédure: Vous êtes invités à participer à cette étude parce que vous êtes infirmière pratiquante et apprenant motivé qui contribuera à la profondeur et l'ampleur personnelle de la situation subjective recueillie sur le thème de la simulation post-rendu.

Toutes les infirmières inscrites au cours NSG 6769 seront invitées à participer à l'étude. Si vous décidez de ne pas participer à l'étude cela n'affectera pas vos expériences d'apprentissage ni vos notes. Si vous décidez d'y participer il vous sera demandé de remplir un bref questionnaire démographique qui vous prendra environ 5 minutes de votre temps. Les deux dernières sessions de laboratoire consisteront à une participation par groupes à des exercices de simulation et de compte rendu qui seront filmées. Si vous acceptez de participer à l'étude vos données recueillies au cours de ces sessions seront utilisées. Mais si vous décidez de ne pas y participer vos données ne seront pas utilisées. Un travail écrit de réflexion, qui fait partie des exigences du cours, sera examiné par les instructeurs de laboratoire et remis à la chercheuse comme données à la fin du cours. La seule activité qui ne fait pas partie des travaux habituels du cours et à laquelle vous serez invitée à participer est une entrevue individuelle avec la chercheuse. Cette entrevue se déroulera au Collège Algonquin au moment qui vous conviendra au cours des deux semaines d'achèvement de la seconde session de simulation/compte rendu.

Au cours de l'entrevue, nous explorerons vos expériences au cours de la simulation / séances de compte rendu et discuterons de vos perceptions du processus de compte rendu et de son effet sur l'apprentissage. L'entrevue sera également filmée et transcrite. Environ deux semaines après l'entrevue vous recevrez par courrier postal une copie de la transcription de l'entrevue que vous serez invitée à vérifier afin d'ajouter, de supprimer ou de préciser des informations. La chercheuse collectera aussi des données par la tenue d'un journal d'impressions subjectives sur les séances de compte rendu tout au long du semestre. Il est prévu que les résultats de cette étude soient partagés avec d'autres à travers la thèse de doctorat et par le biais de publications.

Participation volontaire: Votre participation à cette recherche doit être entièrement volontaire. Vous décidez à tout moment de vous retirer de la recherche sans offrir la moindre explication et sans subir de conséquence. Vous pouvez aussi décider de ne pas répondre à des questions. Si vous décidez de vous retirer de la recherche, vos données seront détruites et ne seront pas utilisées dans l'étude. Votre participation à cette recherche n'aura aucune incidence sur votre note finale en laboratoire de compétences cliniques.

Les risques et les inconvénients de la participation: Il n'y a pas de risques connus ou anticipés en participant à cette recherche.

Il peut arriver que vous commettiez des erreurs et que vous viviez des expériences de stress ou un inconfort lors de la simulation / séances de compte rendu, mais sachez que cela se produit souvent et peut être utilisé comme une occasion d'apprentissage. En plus de 20 minutes en entrevue, qui aura lieu en dehors des heures de cours, toutes les simulations / bilan seront fait dans les heures régulières de laboratoire.

Avantages de la participation: Votre participation à cette étude pourrait comporter des bénéfices directs dans la mesure où elle est conçue pour donner un temps d'examen, de réflexion guidée sur votre performance personnelle et de groupe dans la simulation de l'environnement péri opératoire. L'occasion de réfléchir sur vos connaissances et votre pratique pourraient vous aider à identifier vos points forts dans la connaissance et la pratique ainsi que vous aider à identifier les domaines d'amélioration et les plans d'action pour des interventions futures.

Confidentialité: Votre identité sera conservée anonyme et des pseudonymes seront utilisés dans toute citation directe ou provenant de transcriptions de cours ou d'entrevues. Votre nom ne figurera pas dans la recherche ni dans aucune publication ou présentation résultant de la recherche. Afin de garantir la confidentialité, toutes les données seront conservées de façon sécurisée et seuls mon directeur de thèse et moi y aurons accès. Elles seront conservées de cette manière pour une durée de cinq ans après la fin de cette étude, puis détruites.

Non-divulgence de l'information: En raison du caractère personnel de la simulation / séances de compte rendu, il est attendu des participants qu'ils ne dévoilent à personne ce qu'ils auront entendu et vu pendant les sessions de compte rendu.

Ethique: Le Collège Algonquin et le comité d'éthique de la recherche de l'Université d'Ottawa ont approuvé cette recherche. Toute demande de renseignements ou toute plainte concernant la conduite éthique du projet peuvent être adressée au:

Responsable de la déontologie en recherche, Université d'Ottawa 550 Cumberland (Pavillon Tabaret Hall), salle 159, Ottawa, ON K1N 6N5. Tél: (613) 562-5841. E-mail: ethics@uottawa.ca

Vous pouvez aussi contacter le directeur de la recherche appliquée au Collège Algonquin

».

Si vous avez des questions à propos de cette recherche, maintenant ou à tout moment de l'étude, s'il vous plaît écrivez-moi .

Si vous décidez de participer à cette étude, s'il vous plaît signez cette lettre et renvoyez-la-moi par la poste dans l'enveloppe pré-adressée fournie. Veuillez également conserver une copie de cette lettre dans vos dossiers.

Votre signature ci-dessous apposée indique que vous comprenez les conditions de la participation à cette étude ci-dessus mentionnées et que vous avez eu l'occasion d'avoir des chercheurs les réponses à vos questions.

Votre temps et votre coopération sont grandement appréciés.

Dr. Debra Clendinneng
Faculté d'éducation
Université d'Ottawa

Colla J. MacDonald
Directeur de thèse
Université d'Ottawa

J'ai volontairement accepté de participer à ce projet de recherche qui étudie l'importance du phénomène de compte rendu post-simulation comme une opportunité d'apprentissage. Cette étude m'a été expliquée par _____ et je comprends le contenu de ce formulaire de consentement ainsi que le formulaire de non-divulcation.

Je souhaite recevoir un résumé des résultats de cette recherche qui me sera envoyé par le chercheur.

☐ Oui ☐ Non

Nom du participant _____

Signature du participant _____

Date _____

Adresse courriel _____

Numéro de téléphone _____

Signature de la chercheure _____

Appendix F

Student Participant Non-disclosure Form

Investigator: Debra Clendinneng PhD Candidate Faculty of Education,
University of Ottawa

Office A133A, Community college

Advisor: Dr. Colla MacDonald, Professor of Education, University of Ottawa

University of Ottawa

Please read the student volunteer non-disclosure clause carefully and ask questions prior to deciding whether you wish to participate. If you decide to participate in this study, please sign and keep one copy of this form for your files.

As mentioned, the purpose of this research study, which is part of the requirements for my PhD, is to explore the experience of post-simulation debriefing to determine its impact on the learning process for healthcare professionals. Eight to ten nurses enrolled in the Clinical Skills Lab (NSG6769), part of the Perioperative Nursing Program at Community college, will be approached to participate in the study during the winter semester, 2009.

Due to the personal nature of the perioperative simulation/debriefing experiences, it is expected that participants will not disclose the nature of, or specific incidences of the discussions and personal information that may be disclosed during the debriefing sessions.

Your identity will be kept anonymous and pseudonyms will be used in any direct quotations taken from either the course transcripts or interviews. Your name will not appear in the research or any publications or presentations resulting from the research. To ensure

confidentiality all data will be stored in a secure manner and accessible only to my thesis supervisor and me. It will be kept in this manner for five years after the completion of this study and then destroyed.

If you have any questions about this research now or at any time throughout the study, please email me at _____ Should you decide to participate in this study, please sign this letter and return it to me in the pre-addressed envelop provided. You may also want to keep a copy of this letter for your records.

Your time and cooperation is greatly appreciated.

Sincerely,

Debra Clendinneng
Faculty of Education
University of Ottawa

Dr. Colla J. MacDonald
Thesis Supervisor
University of Ottawa

I voluntarily agree not to disclose the nature of, or specific incidences of the discussions and personal information that may be disclosed during the debriefing sessions in this research project that is exploring the importance of phenomenon of post-simulation debriefing as a learning opportunity. This study has been explained to me by _____ and I understand the nature of this Non-disclosure Form

Participant Name _____

Signature of Participant _____ Date _____

E-mail Address _____

Telephone Number _____

Signature of Researcher _____

Collège Algonquin, seront sollicités pour participer à l'étude pendant le semestre d'hiver, 2009.

En raison de la nature personnelle des expériences de la simulation / séances de débriefing, il est prévu que les participants ne vont pas divulguer la nature, ou des incidences des discussions et des informations personnelles révélés au cours des séances de débriefing.

Votre identité sera conservée anonyme et pseudonymes seront utilisés dans toute prise de citations directes, ou provenant de l'entrevue. Votre nom ne figurera pas dans la recherche ni aucune publication ou présentations résultant de la recherche. Afin de garantir la confidentialité, tout les données seront stockées de façon sécurisée et accessible uniquement à mon directeur de thèse et moi. Il sera tenu de cette manière pour une durée de cinq ans après l'achèvement de cette étude, puis détruits.

Si vous avez des questions à propos de cette recherche, maintenant ou à tout moment de l'étude, s'il vous plaît écrivez-moi :

Si vous décidez de participer à cette étude, s'il vous plaît signer cette lettre et me la renvoyer dans l'enveloppe pré-adressée fournie par la poste. Vous devez également conserver une copie de cette lettre dans vos dossiers.

Votre temps et votre coopération sont grandement appréciés.

Cordialement,

Debra Clendinneng

Faculté d'éducation

Dr. Colla J. MacDonald

Directeur de thèse

Translated Version



uOttawa

Université d'Ottawa
Faculté d'éducation
University of Ottawa
Faculty of Education

Formulaire de non-divulgence

Cette recherche sera menée en anglais.

Enquêteur: Debra Clendinneng Faculté d'éducation,
Université d'Ottawa

Collège Algonquin

Conseillère: M. Colla MacDonald, Professeur d'Education, Université d'Ottawa

Bureau 4 Lamoreux Hall, Université d'Ottawa

S'il vous plaît lisez attentivement les clauses de non-divulgence et posez vos questions avant de décider si vous souhaitez participer. Si vous décidez de participer à cette étude, s'il vous plaît signer et garder une copie de ce formulaire pour vos dossiers.

Comme mentionné, le but de cette étude, qui fait partie des exigences de ma thèse, est d'explorer l'expérience de la simulation / séances de débriefing pour déterminer son impact sur le processus d'apprentissage pour les professionnels de santé. Huit à dix infirmières inscrits dans les compétences cliniques Lab (NSG6769), une partie de la Perioperative Nursing Program au

Université d'Ottawa

Université d'Ottawa

J'accepte de participer à ce projet de recherche qui étudie l'importance du phénomène de la simulation / séances de débriefing comme une opportunité d'apprentissage et je jure de ne pas divulguer la nature, ou des incidences des discussions et des informations personnelles révélés au cours des séances de débriefing.

Cette étude m'a été expliqué par _____ et je comprends ce consentement ainsi que le formulaire de non-divulgateion.

Nom du participant _____

Signature du participant _____ Date _____

Adresse courriel _____ Numéro de telephone _____

Signature de l'enqueteur _____

Appendix G

Demographic Questionnaire

Please complete the following questions. All responses will be kept confidential.

1. Name: _____
2. Email address: _____
3. Phone Number: (____) _____
4. Address: _____

5. Gender: Female _____ Male _____
6. Educational Status:
Diploma Nurse
BSN
Other education - please specify: _____
7. How many years have you been nursing?
8. What is your preferred specialty area or job?
9. Why are you taking the RN Perioperative Nursing Certificate Program?
10. Is this the first course in which you have participated in simulation/debriefing?
Yes _____ No _____

If No, how many courses with simulation have you taken?
____ 1-2 ____ 3-5 ____ 6 or more

Appendix H

Data Collected

Date	Perioperative Learners	Type of Data	Totals
March /April	Three learners per group X 2	Video recorded Simulation Scenarios - 30 minute	6
	Three learners per group X 2	Video recorded debriefing sessions - 30 minute	6
March / June 2009	Nine Nurse Learners	Written Laboratory Journal Entries	9
March / June 2009	Nine Nurse Learners	Written Reflective Clinical Journal Entries	9
March / April 2009	Nine Nurse Learners	Audio-recorded Semi-structured Interviews	8
	External Participants		
March 2009	Observation / Field Notes	Respiratory Therapy Simulation-Debriefing	5
	Observation / Field Notes	Practical Nursing Simulation-Debriefing	5
	Observation / Field Notes	Neurology critical care Simulation-Debriefing	3
	Observation / Field Notes	Maternity Simulation-Debriefing	2
April / June	Respiratory Therapy Facilitators Maternity Facilitator Youth and Justice Services Facilitator	Semi-structured interviews	2 1 1

Appendix I

Example of Perioperative Simulation Scenario

Scenario File: Mr Jones Right Inguinal Herniorraphy with complication of Latex Allergy determined post-set-up.

Location: Healthcare Simulation Lab Operating Room

Simulation Running Time: 30 minutes

Debriefing Time: 20 minutes

Simulation Learning Objectives

Scrub Nurse

1. Scrub Nurse demonstrates knowledge required to choose appropriate instruments and supplies for surgery.
2. Scrub Nurse demonstrates requisite psychomotor skill to set up the aseptic environment for surgical intervention in a timely fashion (10 minutes)
3. Scrub nurses understands and initiates correct sequencing of events i.e. surgical count.
4. Assists with draping
5. Reacts appropriately to latex allergy information.
6. Advocates for patient
7. Stops surgery
8. New set up

Circulating Nurse # 1

1. Inspects and prepares operating theatre for patient.
2. Observes aseptic practice.
3. Follows correct sequencing of events.
4. Ensures Scrub Nurse is fully prepared for patient.
5. Helps position patient
6. Reacts appropriately to latex allergy information.
7. Helps take down set up and get new supplies

Circulating Nurse # 2

1. Prepares anesthetic machine and monitoring equipment for patient
2. Determines patient position and gets proper devices
3. Admits and transfers patient to OR
4. Assists Anaesthesiologist with induction
5. Helps position patient
6. Preps patient
7. Surgical Pause
8. Reacts appropriately to latex allergy information.
 - a. Informs surgical team
 - b. Stops surgery
 - c. Helps take down set up and get new supplies

Appendix J

Debriefing Session Guidelines

1. Facilitator must observe simulation.
2. Immediately after simulation students are taken to the debriefing room.
3. Debriefing will take approximately 20 minutes.
4. Ask students how they felt during simulation.
5. Systematically and interactively analyze the scenario. Facilitator encourages student discovery of mistakes and, working through video replay, points out areas for improvement in skills, techniques, timing.
 - What went well, and why?
 - What knowledge, skills and experiences did you use?
 - What could be improved, and how?
6. What was the patient's problem & what was your main goal?
 - What happened when patient information changed?
 - How was it managed and why?
 - How did your personal values and beliefs influence your actions?
7. Ask students to describe what objectives were met and which they were unable to achieve.
 - How did you feel and how satisfied are you with your interventions individually and collectively?
 - Did you have the requisite knowledge and skills to meet objectives?
 - How did you know what to do in this situation?
 - What would you do differently in the same scenario to improve patient outcomes?
8. Discuss how you will use the lessons learned in the future.
 - How can areas for improvement turn into strengths and used to manage future situations?

Appendix K

Sample Semi-Structured Interview Questions

Thank you for agreeing to participate in this interview. The purpose of the interview is to review your participation and learning experiences in the simulation/debriefing sessions that were video recorded in Perioperative Clinical Labs NSG 6741. Simulation and debriefing are two educational strategies meant to give students the opportunity to experience, question, discuss and think about clinical issues. The reflective written assignment provides the freedom for personal thought, reflection on the events and the opportunity to make sense of the activity. Of particular interest to me is your perception of your individual and small group learning experiences during the perioperative simulation/debriefing sessions.

This interview will be video-recorded so that I can refer back to our discussion when I write my final report. During this discussion and when I write the report a pseudonym will be used to protect your identity. No one besides my supervisor and I will view the video. Please speak clearly so your voice is recorded clearly.

Please remember that your participation is voluntary and that there are no consequences if you choose to withdraw. The recordings of this discussion will be stored in a safe location and will only be accessible to my supervisor and me.

Sample Questions that may be created as a result of the quantitative findings:

Summarize simulation/debriefing objectives and review the experience systematically.

1. How did you feel during the two, small group-debriefing sessions?

- How did you find the learning environment?
- Did you feel you able to express yourself?
- How did you feel seeing yourself perform on video?

- Were you able to ask group members questions to clarify situations?
 - Do you feel the group was able to identify areas for individual and group improvement?
 - Did you feel comfortable discussing individual performances within your team?
2. How did your thoughts differ when you were able to see the whole scenario replayed versus thinking about your personal role?
 3. I noticed that during the debriefing you said / did _____. Can you tell me what was going through your mind at the time?
 4. When you had time on your own to reflect on the video, did any new insights come to you?
 5. How do you perceive the facilitator's role in the debriefing session?
 - How would you describe the debriefing environment?
 - What aspects contributed to the atmosphere?
 - Did the debriefer say or do anything that helped you think about your performance?
 - Did you have the time during the debriefing to reflect on your performance?
 6. When you reflect now on your participation in the simulation/debriefing sessions, can you recall any time you made a connection between the theory you have learned and patient interventions you performed? What triggered this connection?
 7. Can you tell me if your past nursing experiences relate to your new perioperative practice? If yes, how?
 8. Are there any other instances that you can identify as good learning experiences? If so, why?

9. When you were writing your personal reflections as a learner, I notice you made this comment _____. Can you elaborate more on that?
10. Can you tell me what your overall experience with simulation/debriefing has been like?

Appendix L

Debriefing Efficacy Using Debriefing Assessment for Simulation in Healthcare (DASH)©.

Element #1: Sets stage for engaged learning	Before any simulation or debriefing begins, facilitator is clear about what is expected of learners, helps them understand benefits and limits of simulated clinical setting, creates safe environment for sharing thoughts and feelings.
Dimension	Debriefing Self-rating
Clarifies course objectives, environment, roles, and expectations.	In all simulations learners were provided with written learning objectives two weeks prior to the event. Learners were told that the rationale for the choice of the surgical case was because it was a simple procedure that they would likely encounter in their clinical experience. Learners read the specific responsibilities and tasks for each of the three roles they had practiced in the labs. On the day of the simulation, the patient profile was reviewed but not the specific details of the nursing roles. Facilitators were not explicitly briefed on how to act and respond as surgeon and anesthesiologist.
Establishes a “fiction contract” with participants	A fiction contract between the learners and facilitators sets the level of realism in the simulation. The facilitators’ obligation is to make the simulation as real as possible with existing resources and participants act within these limitations. Although the scenarios were created using appropriate technology and props, the fiction contract was more implicit than overt. This resulted in some learners being more effective actors while others missed using some of the equipment available because it was not discussed in the brief. I did not brief the facilitators on what they could ask the learners to do, thus complicating some tasks learners tried to perform.
Attends to physical care and comfort	Learner comfort was attended to on all occasions. After the simulation experience a short break allowed learners to use the facilities and get a drink before the debriefing began. The debriefing took place in the debriefing room which was environmentally controlled with comfortable chairs and a table. This e-classroom allowed for audio/video review of the simulation on large screen.
Commitment to respecting learners and understanding their perspective.	During the debriefing I told the learners that this experience is not meant to expose their performance weaknesses but to emphasize practices they were doing well and point out areas for improvement. I treated learners with respect by: - giving each learner an opportunity to express their feelings and opinions and to ask questions - not interrupting discussions - adhering to timelines

Score	Deb's Score: 4 Somewhat Effective/Average
Element #2 – Maintains engaging learning context.	How well does the debriefer maintain a good learning environment? Throughout the debriefing, the facilitator helps trainees be clear about what is expected of them, helps them, learn from a simulated clinical setting.
Dimension	
Clarifies debriefing objectives, roles, and expectations	Upon commencing each of the first three debriefing sessions I explicitly discussed that my role as facilitator was to guide the conversation and help learners identify practice issues that were relevant learning opportunities. Learners were told the goal of debriefing was to allow them to see and comment on their performances and to think about how it could be improved in the future. For the last three sessions I briefly mentioned how the session would unfold with the overview, video review and finish time.
Helps participants cope with and learn in a limited realism context Sets a tone regarding realism	During the debriefing on the occasions that learners acknowledged their discomfort about being videoed, I acknowledged and empathized their concerns, but kept moving the debriefing forward by focusing on the case, not the simulation technology. For example: When Minnie voiced her concern about the scenario not being like the real operating room, I responded “Minnie, one of the things you did really well was to check all the equipment when you came in the room.” Minnie: “But I couldn’t find anything! I couldn’t find the oxygen mask, the blood pressure on the anesthesia machine. I was looking for the connection to put the mask on like in real life”. I responded: “Yes, it was difficult not having all that equipment but the fact that you looked for it actually exceeded my expectations.” (Debriefing Session #2 April 27, 2009).
Acknowledges the participant's issues or complaints and sympathizing	An example of effective acknowledgement of an issue occurred when I started the debriefing session by asking the trio an open-ended question: “So as an overview, how do you think you did?” Kassidy: “I could have improved”. “So Kassidy, you think you could have improved? How come?” Kassidy, proceeded to discuss her performance in more detail. In some debriefing sessions I was not effective and used humor to gloss over complaints.
Conveys respect for learner	I always maintained a respect for learners as indicated by my tone of voice and collegial, friendly demeanour towards the participants. Learners consistently remarked that I created a welcoming atmosphere showed consideration for their feelings acknowledged their strong practice points before identifying, in a constructive way, aspects of the simulation that needed improving Ellen remarked; “Never during the debriefing did I feel that I was being singled out or criticized for my mistakes.” (E.S. Lab Journal, April, 2009)

Score	Deb's Score: 5 Mostly Effective / Good
ELEMENT #3 – Structures debriefing in organized way.	An effective debriefing should be organized; have a start, middle and end; each phase has a purpose. The start is the reactions phase, middle, an understanding phase that includes both analysis and generalizing to other settings) and a summary phase.
Dimension	
Beginning – reactions Middle – analysis phase Ending – summary	In all debriefing sessions I consistently followed the three phases of the debriefing as described in the DASH© Tool that were congruent with my Phases 2, 3, and 4 of my Debriefing Conceptual Framework used for this study. I started debriefing encouraging learners' affective responses. For instance, after the first simulation I asked Caitlin how she felt. Caitlin: "What bothered me was not being able to count the way I have been doing it for 20 years." (V.C.L. Debriefing file, April 27, 2009). When learners were relaxed and receptive, I reviewed their performances using video replay of the simulation. I stopped the video when appropriate and used open-ended questions to elicit reflection and analytical thinking. When queries come up, I asked other team members to clarify techniques or describe the way things should be done to clear up misconceptions (V.C.L. Debriefing file April, 2009). Amber remarked: "She also guided us by asking questions that allowed us to further our questions but also to clear up any areas we seemed to be having difficulties with" (A.S. Lab Journal April, 2009). All debriefing sessions ended with a review of learning points -Learners were asked to verbally develop a strategy for improved performance, be it in the simulation or clinical setting - Learners were given a copy of the simulation video, reminded to review it on their own time and journal reflective thoughts - Asked to bring any new revelations back to the classroom for discussion
Score	Deb's Score: 6 Consistently Effective / Very Good
ELEMENT #4 - Fosters interesting, discussions and reflective practice.	How well does debriefer engage participants in interesting discussions and help them to be reflective practitioners. Good debriefing requires participant to apply, analyze, synthesize and evaluate information and to personally reflect on their approach to clinical practice and inspire improvement.
Dimension	

Uses observable actions and outcomes as basis for inquiry and discussion	Video replay allowed learners to see their actions. During the video replay I stopped the video and asked; “What could you have done differently here Kassidy? Amber was there with the count sheet in her hand and you were covering the mayo stand cover.” Kassidy: “Umm, I could have counted first.” I responded: “Yes, count first. Forget the mayo and count first. You will have time to set up your mayo afterwards.” (K.A.E. Debriefing file, April, 2009).
Reveals own reasoning and judgments	This was done by asking questions that required learners to think critically. Example: The dispersive pad for the electrocautery (ESU) machine has to be as close to the incision site as possible to avoid current concentration and burns. During video review a learner asked where the circulating nurse should place the electrosurgical dispersive pad on the patients’ body. I asked: “Where will the incision be for a right hemicolectomy?” Kassidy: “In the midline. That means that the dispersive pad could be on either the right or left thigh.” I reasoned that when you have the choice, it is better to put it on the same side as the ESU machine so you do not have to crawl under the table to get the cord and it is easier to attach the cords after the patient is draped (K.A.E. Debriefing file, April, 2009).
Video, replay if available	All simulations were video-recorded for this case study. Video review was used consistently in all debriefings
Recognizes and manages the upset participant	This was not done effectively in all instances. When it was apparent that Christie was upset, although I acknowledged her feelings, this did not make her feel better. Instead of delving deeper into her feelings, the issues were glossed over with humour until a later time when she was emotionally ready to discuss them (C.M.A. Debriefing file, April, 2009).
Score	Deb’s Score: 4 Somewhat Effective/Average
Element #5 – Identifies performance gaps.	How well does the debriefer describe and explore observed performance gaps? Participants need concrete feedback about sub-optimal, performance so debriefer explores basis for performance gaps including knowledge, skills, and attitudes. Facilitator assists participant in identifying attributes that contributed to excellent performance
Dimension	
Describes gaps in performance	Clear feedback on how participant performance either falls short of or exceeds the objectives for the simulation course is crucial for learning.
Explores the basis of the performance gap going beyond the “what” to the “why”	There was a skill performance gap in the time it took to Kassidy to gown and glove - 3 minutes versus the amount of time it should take – under a minute. I pointed out the need to practice to get this skill faster so surgery would not be delayed (K.A.E. Debriefing file, April, 2009). There is a protocol that states the surgical counting of sponges and instruments cannot be interrupted as this can lead to mistakes. In one scenario Kassidy identified the error the nurses made of interrupting the count to gown the surgeon. To rectify this performance gap, I questioned the rationale for this behaviour and the team decided the reason for this performance gap was

	to be courteous to the surgeon. I asked, "What should you have done?" The learners unanimously concluded that the surgeon should be asked to wait for a moment until the count was completed (K.A.E. Debriefing file, April, 2009).
Score	Deb's Score: 6 Consistently Effective / Very Good
Element #6 – Helps close performance gaps.	Debriefers effectiveness in helping learners close negative performance gaps or to repeat excellent performance. Facilitator assists participant in identifying knowledge, skills and attitudes that contributed to excellent performance and is knowledgeable in subject area so is able to use performance gaps revealed in the simulation to generate discussions about how to improve or maintain clinical performance.
Dimension	Deb's Score: 6 Consistently Effective / Very Good
Helps close performance gap through discussion and teaching	In one scenario the scrub nurse turned her back to the sterile field going against the standards of practice. I stated the problem in a conversational tone of voice. The nurse asked "What should I have done?" I responded in a practical, non-demeaning manner that she should have asked the surgeon to come closer to her side so she did not have to turn around. Another example of facilitating the closure of the performance gap was when Amber asked: "We were late on our time?" Deb: "Yes, after 30 minutes you got to the point where you were prepping the patient. So what does that tell you?" Ellen: "We need to be faster and more organized." (K.A.E. Debriefing file, April, 2009).
Facilitator demonstrates firm grasp of the subject	When intubating a patient to keep them anesthetized, the nurse must sometimes assist the anesthesiologist by applying pressure to the throat area. In the discussion of this cricoid pressure, the group asked how much pressure you had to put on the trachea to compress it. I demonstrated good subject matter knowledge by responding that it takes 32lb pressure and to get a sense of what that feels like, take your thumb and index finger and press on the bridge of your nose until it hurts (K.A.E. Debriefing file, April, 2009).
Meets the important objectives of the simulated case.	One of the main objectives of both simulations was to be ready to do the incision within 30 minutes. Teams who accomplished this goal were praised at the beginning of the debriefing. For teams who were slower, time was mentioned at the end of the debriefing and identified as a performance gap. After having reviewed their performances on video learners had to strategize how they could become more time efficient and thus close the performance gap (A.E.A. Debriefing file, March, 2009).
Score	Deb's Score: 6 Consistently Effective / Very Good
Total Score Average	5.5 points out of possible 6 points

Appendix M

Healthcare Debriefing Workshop

This one-day experiential workshop offers a dynamic environment for healthcare educators to learn about and practice post-simulation debriefing skills through participation and role play activities.

Design for learning for outcomes

- Knowledge
- Skills
- Judgment
- Briefing pre-simulation
- Clarifying roles and objectives
- Ensuring familiarity with equipment and HPS mannequins
- Establishing a fiction contract
- Working with Standardized patients
- Defining simulation facilitator roles

Debriefing

- Purpose
- Goals
- Types
- Oral
- Video review
- Written / Journaling

Designing debriefing sessions

- Using a Debriefing Framework
- Time allotment

Role of the Debriefing Facilitator

- Debriefing qualities
- Elements of debriefing
- Environment
- Privacy
- Confidentiality
- Communication to effect learning
- Principles of effective communication
- Group dynamics
- Communicating with distraught learners
- Debriefing challenges

Conclusion