THE ORGANIZATIONAL CULTURES OF ONTARIO SCHOOLS OF NURSING: A GROUNDED THEORY STUDY TO EXPLAIN THE ADOPTION AND INCORPORATION OF SIMULATION

By

KARYN TAPLAY, R.N., B.Sc.N., M.S.N.

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AUTHOR: Karyn Taplay, R.N., B.Sc.N. (University of Toronto), M.S.N. (University of Texas Pan-American)

SUPERVISOR: Dr. Susan Jack, R.N., Ph.D.

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Abstract

Background: Internationally, simulation has been widely used as a teaching strategy in health science education programs. In Ontario, Canada, over the past decade, simulation has gained increasing acceptance and use in nursing education and has been met with a parallel investment of resources to support its integration into curricula. While current literature offers insights into individual-level factors that contribute to the adoption and incorporation of simulation there is a lack of understanding of the organizational factors that influence how this educational strategy is adopted and integrated into nursing curricula.

Objective: The purpose of this grounded theory study was to create a mid-range explanatory theory that describes how the organizational cultures of undergraduate nursing programs shape the adoption and incorporation of mid- to high-level simulation as a teaching and learning strategy.

Methods: Constructivist grounded theory was used to guide this research.

Results: A seven-phase process related to adopting and incorporating simulation into nursing curricula was uncovered: (a) securing resources, (b) nursing leaders working in tandem, (c) getting it out of the box, (d) learning about simulation and its potential for teaching, (e) finding a fit, (f) trialing the equipment, and (g) integrating into the curriculum. Sites that moved through the phases of the process and integrated simulation into all levels of the curriculum where nursing-specific

content was taught were classified as high-uptake. The level of uptake of simulation by nursing programs influenced the potential outcomes.

From the findings, a theory was developed: the Organizational Elements that Shape Simulation in Nursing (OESSN). This mid-range substantive theory explains the five key organizational elements that shape the successful adoption and incorporation of simulation in nursing curricula, namely: (a) shared nursing leadership, (b) information exchange, (c) physical locale, (d) shared motivators, and (e) scaffolding to manage change.

Conclusion: This grounded theory provides nursing programs with insight about the core organizational concepts that influence the adoption and incorporation of simulation within their curricula. The OESSN highlights the organizational elements to be cognizant of when adopting and incorporating simulation and perhaps other technological innovations within nursing curricula. This research uncovered aspects of a new role in nursing education, specifically simulation leaders, and provided a voice to individuals in this role. It was discovered that their role in combination with other nursing leaders is key in facilitating the adoption and incorporation of simulation.

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All things are possible to him that believeth. Mark 9:23

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Listen to advice and accept instruction, and in the end you will be wise.

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Wisdom is sweet to your soul; if you find it; there is a future hope for you.

Proverbs 24:14

Table of Contents

List of Figures

List of Tables

List of Appendices

Declaration of Academic Achievement

This sandwich thesis includes three manuscripts that have each been submitted to different scholarly journals to be peer-reviewed.

My supervisor, Dr. Susan Jack and my committee members, Dr. Pamela Baxter, Dr. Kevin Eva, and Dr. Lynn Martin were instrumental in offering guidance on study design, recruitment, implementation, data analysis and theory construction. My original contributions to the study include the conception of the idea, the submission of the proposal to the research ethics boards at two separate universities, recruitment of participants, and conducting interviews. Recorded interviews were transcribed by a professional transcriber. All authors contributed to the analysis of the data and the development of the theory. I wrote all chapters contained within this thesis and all committee members contributed to revisions. All members have approved the final version.

Chapter 1

Introduction: Organizational Culture

Organizational culture is defined as the ways in which people know and understand the values and beliefs of a specific group of people or an institution (Schein, 1985). These values and beliefs are established over time, are considered valid, and are taught to new members who enter into the culture (Pettigrew, 1979; Schein, 1985). Organizational beliefs and values are guiding principles that influence the development of individuals' attitudes towards the organization and how individuals within that culture make decisions or invest their time (Schein, 2004, 2010). Academic nursing programs are situated within challenging and complex organizational cultures (Kantek & Baykal, 2009) characterized by the combination of the traditional research, teaching, and service requirements of academia coupled with professional practice requirements (Moody, Horton-Deutsch, & Pesut, 2007). Added to the complex culture of academic nursing is the integration of new technology in conjunction with a demand for diverse teaching strategies (Moody et al., 2007). Simulation, specifically of mid- to high-fidelity equipment, closely mimics real-life experiences without the real-life risks (Gaba, 2004). Simulation of this type is considered relatively new technology within the field of nursing. Although simulation has been used in nursing education programs since the early nineteen hundreds (Herrmann, 1981; Poole, 1948), the advances in the technology and types of simulator equipment available today reinforce the notion of simulation being viewed by nursing faculty members as a

new teaching strategy. Additionally, there have been inconsistent levels of adoption and incorporation of simulation among individual nurse educators and across nursing programs (Akhtar-Danesh, Baxter, Valaitis, Stanyon, & Sproul, 2009). Individual-level factors that shape faculty members' integration of simulation into nursing curricula have been studied (Kardong-Edgren, Starkweather, & Ward, 2008; King, Moseley, Hindenlang, & Kuritz, 2008; Nehring & Lashley, 2004). However, there is a gap in the literature related to how organizational cultures shape the adoption and incorporation of simulation into nursing curricula. Appendix A provides a comprehensive list of terms and their definitions that will be used throughout this dissertation.

The Ontario Comprehensive Nursing Strategy: Antecedent Events

In 1982, the Canadian Nurses Association (CNA) recommended that the minimal educational requirement to practice nursing change from a college diploma to a baccalaureate degree. In 2000, the Ontario government accepted this recommendation, which has subsequently been in effect since 2005 (CNA, 2013; CNO, 2013). Since the acceptance of this entry-level requirement change, colleges in Ontario have worked in partnership with universities to offer collaborative nursing programs where students can obtain a baccalaureate degree. In Ontario, most degree programs are offered via a collaborative model. There are two types of collaborations. The first is an integrated model, which is offered over four years, where the same curriculum is delivered at all of the partnering sites, and the faculty members from all sites are involved throughout each year of the

program (Williams, 1998). The second is an articulated model, also called a two-plus-two model. This means the first two years of the degree are offered at the college and the final two years are offered at the university (Williams, 1998).

In 2004, the Ontario Ministry of Health and Long-Term Care (MOHLTC) committed to enhance nursing in Ontario from practice, policy, and educational perspectives. During this time the Provincial Chief Nursing Officer (Dr. Sue Matthews), was commissioned to look at every avenue of nursing and make recommendations on how best to facilitate this transformation. Dr. Matthews acknowledged that investigating the practice and policy aspects of nursing was considerably easier than investigating the educational aspects because they are under the umbrella of the MOHLTC whereas nursing education is under the Ministry of Training, Colleges and Universities (2011). To examine the educational phase of this initiative, the Provincial Chief Nursing Officer met with the Deans of Nursing and the government representatives and asked both groups what would transform nursing education. Simulation, specifically the use of mid- to high-fidelity simulation equipment, was identified by both groups as a strategy to address the declining number of clinical placements available to nursing students in acute care settings as a result of fiscal planning by the hospitals. Additionally, the Provincial Chief Nursing Officer spoke with clinical nurses at this time and heard that new nursing graduates needed greater proficiency with psychomotor skills. It was thought that simulation would allow nursing students

to increase their skill level and confidence prior to graduation (S. Matthews, personal communication, July 17, 2012).

The Provincial Chief Nursing Officer stated the intent of this simulation initiative was for Ontario college and university nursing programs to implement simulation and then evaluate this technology as a teaching strategy. As there was minimal evidence to support simulation as an effective or superior educational tool, the hope was that Ontario programs of nursing would be cutting edge, would set and implement standards, and would be the forerunners in simulation education and research in nursing. She further stated the hope was that if every school in the province received the simulation equipment then it would make a broad impact and transform nursing education in Ontario (S. Matthews, personal communication, July 17, 2012)

As a result of this inquiry by the Provincial Chief Nursing Officer, in 2004 the Ontario Comprehensive Nursing Strategy was initiated. One aspect of the initiative was "funding for the purchase of hardware and software for clinical simulation equipment" (Nursing Secretariat, 2004, p. 9) in the amount of 20 million dollars. Monies, ranging from $196.300 - $706.400 were distributed to all 34 nursing education programs. The average amount was $500,000 dollars (MOHLTC, 2005). Despite comparable allocation of resources over a narrow window of time, the consistency of the adoption and incorporation of simulation into nursing programs varies considerably across the province (Akhtar-Danesh et al., 2009).

Background

Adoption of an innovation.

Although simulation in nursing is not new, the recent advancements, different typologies, and various levels of fidelity of the equipment was (at the time) considered new technology among many nursing faculty members and therefore met the definition of an innovation (Rogers, 2003). What was required of nursing faculty members when presented with mid- to high-fidelity simulation equipment was the need to make decisions about its validity and usefulness, and many nursing faculty members chose not to adopt it nor embrace it as a teaching strategy (King et al., 2008; Starkweather & Kardong-Edgren, 2008). This is not a unique phenomenon when people are faced with a new idea or innovation (Lee, 2004; Rogers, 2003). Rogers states that technological innovations typically will have an advantage over what is currently used, but this advantage is not always apparent to potential adopters. When presented with an innovation, Rogers suggests the process of diffusion needs to occur in order to make appropriate decisions about whether or not to adopt.

Rogers' (2003) process of diffusion involves first the development and identification of the innovation; then information about the innovation is then transferred through communication channels to the specific social system or group, which requires time. Generally, innovation is a perceived new idea, action, or standard. In this study, the innovation under consideration is the integration of mid- to high-fidelity simulation into nursing curricula. The communication

channels are the ways in which people generate, understand, and share information. In the process of diffusion, the communication is specifically about the innovation. Time is the third aspect in the process of diffusion. This pertains to the time in which the innovation was first introduced, the time required to access more information about the innovation, the time to potentially use the innovation, and then the time needed to make a decision about the adoption or rejection of the innovation. The final aspect of the diffusion process is the social system. A social system is a division of a larger system. In this study, the nursing program is part of the university or college system. It is essential to examine a social system as it pertains to the process of diffusion since it influences the rate of adoption, the views and attitudes of the people involved, and the decisions made related to the adoption. As with all innovations, decisions about appropriateness, usability, and effectiveness are required prior to adopting, incorporating, or distinguishing it as a valid alternative to what is currently used. This is achieved at an individual level but also at the level of the social system (Rogers, 1995, 2003).

During the process of diffusion, early and late adopters emerge (Rogers, 1995). The current literature surrounding the adoption of simulation as an innovation depicts this spectrum. Kardong-Edgren and colleagues (2008) reported that faculty members positively view the integration of simulation due to the high levels of reported student satisfaction with the teaching strategy. However, some faculty may also hold negative perceptions about the uptake of simulation,

specifically pertaining to time demands, lack of appropriate training, limited technical supports, and scarce resources (Akhtar-Danesh et al., 2009; Arundell & Cioffi, 2005; King et al., 2008; Nehring & Lashley, 2004). Melnyk and Davidson (2009) suggest the adoption of an innovation requires more than individual buy in; it requires a culture that supports innovation. To date, the literature has examined individual-level factors but not organizational factors that shape the adoption and integration of simulation into nursing curricula.

Simulation.

The use of simulators was first documented as a teaching strategy in hospital-based nursing programs in 1911 (Hyland & Hawkins, 2009) when the life-size doll "Mrs. Chase," the first documented simulator (Herrmann, 1981) was created for the purpose of clinical skill acquisition and refinement (Poole, 1948). This was the first low-fidelity interactive simulator with realistic features such as hinged joints and open nares (Hyland & Hawkins, 2009). Although "Mrs. Chase" was modified over the years and subtle changes in size and function were made, she remained a low-fidelity simulator. She was used in nursing until the late 1970s and early 1980s (Herrmann, 1981). Further evolution of simulators led to the development of "Resusci-Anne" created in 1960 which was used to teach obstructed and un-obstructed airway management and cardiopulmonary resuscitation. This simulator was equipped with a neck that could be hyper-extended for mouth-to-mouth resuscitation and mimicked the movements required for cardiopulmonary resuscitation through the spring-loaded chest (Bradley, 2006;

Cooper & Taqueti, 2008; Rosen, 2008). In 1968, "Harvey the Cardiology Simulator" was developed to recreate cardiac disease processes so students could learn the appropriate skills to assess cardiac conditions (Bradley, 2006; Cooper & Taqueti, 2008). Both of these simulators are still in use today.

Simulators are generally categorized by fidelity. Fidelity is the level to which the simulator equipment is able to imitate a real-life phenomenon (Kuhrik, Kuhrik, Rimkus, Tecu, & Woodhouse, 2008; Marlow, Spratt, & Reilly, 2008). Partial task trainers such as an arm to practice intravenous skills are considered low-level fidelity. Low-level fidelity includes, but is not limited to, individualized anatomical structures that allow for the practice of a specific skill (Decker et al., 2008). Alternately, high-level fidelity includes life-like mannequins that can be programmed to respond to interventions. Human patient simulators, both for adult and pediatric situations, (Nehring, & Lashley, 2004) are considered high-fidelity because they closely resemble humans and are able to mimic human physiologic reactions in response to user actions, specifically respiratory movements, heart rates with corresponding pulses, bowel sounds, and blood pressure changes (Issenberg, Gordon, Gordon, Safford, & Hart, 2001). Many simulators have interchangeable anatomical parts or accessories that can mirror many medical conditions and depending on the software, high-fidelity simulators can be programmed to respond at a physiological level to medications that are administered (Hammoud et al., 2008; Kuhrik et al., 2008; Maynes, 2008; Struys, De Smet, & Mortier, 2008). Additionally, one type of simulator can give birth to

an infant simulator that is capable of portraying authentic traits of a well/unwell newborn, such as limp tone, cyanosis, various cries, a patent umbilicus with pulse, and palpable fontanels that are interchangeable and anatomically correct (Laerdal, 2010). Over time, simulators have developed to the point of being life like, because they are capable of interacting and responding to those who engage with them.

Maynes (2008) along with Hull and colleagues (2010) have further defined the concept of fidelity by suggesting that environmental or psychological fidelity can enhance a simulated experience. This concept is often referred to as realism. The purpose of incorporating realism into a simulated experience is to blur the lines between the simulated and the real experience, allowing participants to become immersed in the learning (Carroll & Messenger, 2008; Maynes, 2008). Multiple venues exist to enhance realism. These include role play among participants, incorporating expert or standardized patients (using real people such as actors), incorporating moulage (artificial blood or body fluids), using authentic equipment, and setting the context of the learning within a case scenario (Cannon-Bowers, 2008; Gettman et al., 2008; Hudson & Tonkin, 2008; Knudson et al., 2008; Roberson, Neil, & Bryant, 2008).

Nurse Educators' Professional Practice Expectations: Examining the Effectiveness of Simulation as a Teaching Strategy.

The nursing profession is driven by practice expectations including the incorporation of evidenced-based practice into clinical, teaching, and policy

environments. The Canadian National Forum on Health recommends that nursing decisions be based on research evidence (Health Canada, 2013), and this expectation extends to academic nursing. One decision nurse educators are required to make is choosing the best teaching strategy to transfer professional nursing knowledge to undergraduate students. The effectiveness of simulation as a teaching strategy among students across multiple health profession programs, including nursing, has been examined.

To assess the effectiveness of simulation as a preferred teaching strategy a literature search using the Cochrane database of systematic reviews was conducted using the keywords *undergraduate nursing, simulation, effectiveness and/or outcomes*. This review of the literature resulted in the identification of three relevant reviews: one by Laschinger and colleagues (2008), another by Cant and Cooper (2010), and one by Harder (2010). An additional search of the databases Medline, Pubmed, CINAHL, and ERIC, using the aforementioned key words, was conducted. This search was limited to quantitative studies in English published between January 2009 and September 2013 to assess for research not included in the three systematic reviews. This search resulted in seven studies, one experimental design (Gates, Parr, & Hughen, 2012), three pretest-posttest designs (Baxter & Norman, 2011; Pauly-O'Neill & Prion, 2013; Shinnick & Woo, 2013), two non-experimental designs (Sinclair & Ferguson, 2009; Bruce et al., 2009), and one descriptive survey (McCaughey & Traynor, 2010). Only two studies (Baxter & Norman, 2011; Sinclair & Ferguson, 2009) were conducted in

Canada, four in the United States (Bruce et al., 2009; Gates, Parr, & Hughen, 2012; Pauly-O'Neill & Prion, 2013; Shinnick & Woo, 2013), and one in the United Kingdom (McCaughey & Traynor, 2010).

Laschinger and colleagues' (2008) systematic review examined the effectiveness of simulated learning experiences using partial task trainers and whole body simulators with nursing, medicine, and rehabilitation therapy students in studies conducted from 1995-2006. This review included participants from all three disciplines as well as a combination of these groups. The inclusion criteria of this review were limited to experimental and quasi-experimental designs. The outcomes that were measured included gains in knowledge and skill, satisfaction with learning, critical thinking, and self-confidence. Of the twenty-three studies included, six included nursing students, (Alinier, Hunt, Gorden, & Hartwood, 2006; Alinier, Hunt, & Gordon, 2004; Bearnson & Wiker, 2005; Feingold, Calaluce, & Kallen, 2003; Jeffries, Woolf, & Linde, 2003; Madden, 2006) and all included the use of whole body or human patient simulators. One study included both medical and nursing students (Engum, Jeffries, & Fisher, 2003) and used a virtual IV partial task simulator (Bearnson & Wiker, 2005). The other study was a single-group intervention, post-test survey, descriptive study. Outcomes from the studies found improvement of psychomotor skills (Alinier et al., 2006; Alinier et al., 2004; Madden, 2006) and improvement in cognitive gains and skill with documentation (Engum, Jeffries, & Fisher, 2003). Conversely, Jeffries and colleagues (2003) found no difference between groups related to cognitive gains,

satisfaction of experience, or self-efficacy. Bearnson and Wiker (2005) reported that the simulation experience was positive for participants, and that the learning environment was safe. Feingold, Calaluce, and Kallen (2003) found that the students viewed the simulations as "realistic and valuable" (p. 295), but only half of the participants in this study felt that the skills could be transferable to the clinical setting.

Overall, recommendations from this systematic review reveal the evidence as inconclusive related to the effectiveness of simulation. Although the authors support the use of simulation as a satisfactory and enjoyable method of teaching within a safe environment, caution was offered that simulation should not be used to replace clinical practice but used only as a tool to complement it. Uncertainty remains surrounding the transferability of skills learned via simulated experiences to the real world (Laschinger et al., 2008).

Cant and Cooper's (2010) systematic review focused on the quantitative evidence between 1999 and 2009 examining the effectiveness of simulation as a teaching strategy as compared to traditional teaching strategies in nursing education. All articles differed from the systematic review conducted by Laschinger and colleagues (2008) with the exception of one by Alinier et al. (2006). This review focused on the use of mid- to high-fidelity human patient simulators and included eleven experimental designs (Birch et al., 2007; Brannan, White, & Bezanson, 2008; Brown & Chronister, 2009; Griggs, 2003; Howard, 2007; Jeffries & Rizzolo, 2006; Linden, 2008; Ravert, 2004; Ruggenberg, 2008),

only one of which was a randomized controlled trial (Shepherd, 2007), and one quasi-experimental design (Scherer, Bruce, & Runkawatt, 2007). Primarily, participants were undergraduate nursing students although registered nurses and new graduate nurses comprised the sample in two of the twelve studies (Scherer et al., 2007; Shepherd, 2007). Although Birch (2007) was included in this review, no participants in this study were nurses therefore the results of that study are excluded. The findings suggest simulation is an effective teaching strategy that can improve participant clinical knowledge, skill, and critical thinking. Additionally, confidence is perceived to have increased after this type of education strategy as compared to usual or typical strategies (Cant & Cooper, 2010). Usual or typical strategies in these studies included lecture, case studies tests, or self-directive learning (Cant & Cooper, 2010). Simulation was also reported to be a satisfactory method of learning among nursing students.

Harder's (2010) systematic review examined the use of high-fidelity simulation as a teaching strategy for clinical skills and performance in health science educational programs. This review was limited to quantitative studies and "comparative research" (p. 24) published from 2003-2007. The measured outcomes included clinical skill competence and perceived confidence. Of the twenty-three studies included, twelve involved undergraduate nursing students.

This systematic review categorized articles into practice areas, methods of evaluation, types of study, and influence on student performance. While undergraduate nursing education was differentiated within the practice area and

types of study categories, it was not differentiated in the methods of evaluation or the student performance categories resulting in overall outcomes but not nursing-specific outcomes. Overall, the results indicated that high-fidelity simulation increased student clinical skills and perceived confidence as compared to traditional teaching methods.

Of the remaining seven studies, the following effectiveness outcomes were measured: preparation for clinical practice, making the transition to a registered nursing position (McCaughey & Traynor, 2010), as well as evaluating the effectiveness of high-fidelity simulation for knowledge acquisition (Bruce et al., 2009; Gates, Parr, & Hughen, 2012), skill acquisition (Pauly-O'Neill & Prion, 2013), critical thinking (Shinnick & Woo, 2013) and self-assessment related to performance in an emergency simulation (Baxter & Norman, 2011).

Sinclair and Ferguson (2009) found that while the self-efficacy scores among the intervention group increased from pre- to post-learning, the overall pre- and post-self-efficacy scores were also higher in the control group. The researchers attributed this to participants in the control group having had more health care experience than the intervention group.

Knowledge, skill, and critical thinking outcomes related to simulated learning have been reported in the literature. McCaughey and Traynor (2010) found that simulation enhances student nurses' learning experiences and contributes to a perceived increase in confidence and an ability to practice safely. Additionally, they suggest that simulated learning provides a fairly realistic

learning experience that could assist in the transition from student to nurse. The researchers noted the experience was anxiety provoking for some students. Bruce and colleagues (2009) found that simulation provided an opportunity for nursing students to develop knowledge and gain confidence in skills to manage a crisis event. The students expressed satisfaction with the learning. Although the student outcomes were positive at the time of the event, student knowledge decreased over time indicating that learning needs to be repeated. Gates and colleagues (2012) found that students who participated in high-fidelity-simulation-based learning scored significantly higher in knowledge acquisition than students taught by more traditional teaching strategies. Pauly and Prion (2013) supported this finding and reported that enhancing hospital clinical experiences with simulated learning improved student knowledge and self-reporting of confidence related to the skill of medication administration. While Shinnick and Woo (2013) also supported gains in knowledge related to simulation-based learning, they found that increased knowledge did not correlate with increased critical thinking skills.

Baxter and Norman (2011) used a one-group pre-test, post-test design to evaluate how accurately senior nursing students assess their performance as compared to their performance being observed and rated by an examiner. The results indicated that students reported an increase in perceived confidence related to the emergency situation, but their self-assessments did not reflect the actual level of competence, suggesting that student self-assessments may not be the most accurate form of evaluation.

Despite the years that simulation has been available as a teaching strategy, coupled with the resources that have recently been invested, there is minimal evidence supporting the use of simulation as a superior teaching strategy compared to traditional methods such as lecture and case studies. As evidenced-based decision-making is a professional expectation in nursing it is imperative to gain sensitivity to the research surrounding this topic (CNO, 2002). Understanding the norms, beliefs, attitudes, and practices of a particular culture or profession is essential when investigating the organizational culture that influences the adoption of an innovation (Rogers, 1995). Despite the lack of strong evidence for its effectiveness, simulation is an intervention that is widely promoted and implemented within health sciences curriculum.

Researcher Perspective

The researcher's perspective is an essential part of qualitative research because it provides the reader with the opportunity to consider the ideas and assumptions held by the researcher that are based on personal and professional experiences, as well as to consider how this perspective may influence the analysis and interpretation of the phenomenon under study (Charmaz, 2006). As the principal investigator of the phenomenon under study, I engaged in regular reflection during this study process. I have been a nurse for 20 years. My first five years of practice included providing direct nursing care as both a staff and charge nurse in labour and delivery, postpartum, and day surgery units. I then transitioned into a new career role, and for the last 15 years I have been a nurse

educator in a range of academic settings in both the United States and Canada. These experiences provide me with an understanding of what is required to be successful in practice and what is needed in education to transfer skills to the real-world setting. For most of my time as a nurse educator, I have taught primarily in undergraduate nursing programs. I have worked at three different universities in two different countries and have used various teaching strategies with students. In 1998, when I first started teaching, students primarily developed their clinical skills in hospital settings by providing supervised care to patients. Throughout this time, I have seen a substantial decrease in the quality and quantity of hospital- and community-based clinical practice experiences for students. Recently, I have been involved with students learning both psychomotor and critical thinking skills in low- and high-fidelity simulation labs. During my time in the United States, the Ontario government committed 20 million dollars toward simulation equipment for all programs of nursing in the province (MOHLTC, 2005). In 15 years of being an educator, I have never witnessed this type of financial support distributed to nursing programs. Upon returning to Canada and working at two separate universities, I became aware of the struggles nursing programs were having with using this simulation equipment. Some equipment was used while some remained in storage or on a stretcher not used at all. I was intrigued by the seemingly diverse contributing factors that impacted the use of simulation equipment. Having worked in multiple academic institutions I was cognizant of the influences that organizational culture can have on workload, decision making, and

prioritizing work demands. This motivated me to explore the multifaceted organizational aspects that impact the adoption and integration of simulation as a teaching strategy into undergraduate nursing curricula in Ontario.

Statement of Purpose

The purpose of this study was to develop a mid-range explanatory theory to understand and explain the influence of organizational culture in nursing programs that shapes the adoption and incorporation of mid- to high-fidelity simulators as a teaching and learning strategy into the curricula.

Research Question

How do the organizational cultures of Ontario undergraduate nursing programs shape the adoption and incorporation of simulation as a teaching strategy within the curricula?

Thesis Content

This thesis is written as a sandwich thesis containing six chapters. Chapter one provides an overview and introduction to the phenomenon under study. In Chapter two, I have provided a detailed account of the methods used to conduct this qualitative study. Chapters three, four, and five are manuscripts that at the time of submission of this thesis for defence have been submitted to peer-reviewed journals and are under review. A condensed version of the study context and methods are summarized in a format appropriate for publication in these three chapters. Chapter six offers conclusions and implications.

Chapter three is a manuscript titled THE PROCESS OF ADOPTING AND INCORPORATING SIMULATION INTO UNDERGRADUATE NURSING CURRICULA: A GROUNDED THEORY STUDY. It has been submitted to a nursing journal and it is currently under peer-review. In this manuscript, the overall process of adopting and incorporating simulation into nursing curricula is described and explained. The organizational factors that were found to influence the successful uptake of simulation are also identified and described. This article suggests that the level of uptake is related to potential outcomes. Examples of the outcomes that occur as a result of this process are also offered.

Chapter four is a manuscript titled ORGANIZATIONAL CULTURE SHAPES THE ADOPTION AND INCORPORATION OF SIMULATION IN NURSING CURRICULA: A GROUNDED THEORY STUDY. It has been published in *Nursing Research and Practice*. This manuscript discusses the theory developed and the resulting depiction titled Organization Elements that Shape Simulation in Nursing (OESSN). It provides an in-depth understanding of the five key organizational elements that shape the adoption and incorporation of simulation. These key elements impact the process and uptake discussed in chapter three.

Chapter five is a manuscript titled NEGOTIATING, NAVIGATING, AND NETWORKING; THREE STRATEGIES USED BY NURSING LEADERS TO SHAPE THE ADOPTION AND INCORPORATION OF

SIMULATION INTO NURSING CURRICULA: A GROUNDED THEORY STUDY. It has been published in *International Scholarly Research Network - Nursing (ISRN -Nursing).* The focus of this manuscript is a description and discussion of the nursing leaders who were identified as the key organizational driving force that shaped the adoption and incorporation of simulation. It discusses the separate and shared roles of the leaders and provides insight into a newly developing role within the nursing profession.

Chapter six provides the summative conclusions of all of the findings from this research. Implications for practice, education, and policy, as well as suggestions for future research are also outlined in this chapter.

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Chapter 2

INTRODUCTION TO CHAPTER 2

METHODOLOGY

This chapter offers an in-depth review of the qualitative approach used to guide all sampling, data collection, and analytic decisions in this study. As the primary objective of the study was theory development, the constructivist approach of grounded theory as developed by Charmaz (2006) was utilized. In this chapter, I provide a detailed overview of the study design, philosophical underpinnings, sampling, data collection, and analysis procedures.

Chapter 2

Methodology

Design

A qualitative approach was used in this study to explain how the organizational cultures among nursing programs in Ontario shape the adoption and incorporation of simulation into curricula. A qualitative approach was selected to address this specific research objective because it uses naturalistic research methods to investigate complex issues from multiple perspectives (Creswell, 2007). A qualitative approach gives a voice to the participants' experiences and perceptions. It is an interactive and interpretive approach to research (Charmaz, 2006). The researcher engages with participants to gain an understanding of the problem from their perspectives and to understand what the problem means to them (Creswell, 2007). There are numerous approaches to qualitative research; the specific approach used in this study is grounded theory. Grounded theory as a specific research tradition moves past independent interpretation typically associated with general qualitative research to a co-created interpretation (Charmaz, 2006). Grounded theory is an approach to qualitative research that provides the researcher with an opportunity to examine processes, actions, or events that are focused on a specific goal or that produce change (Charmaz, 2006; Creswell, 2007; Glaser & Strauss, 1967).

Grounded theory methodology was originally developed by Glaser and Strauss (1967) and has subsequently evolved and been adapted by several

methodologists, all of whom stress particular nuances within the approach. This research study was guided by the grounded theory approach developed and advanced by Charmaz (2006) because her approach provided the best opportunity to examine the context and content of the process of adoption and incorporation of simulation as well as the participants' perspectives. Charmaz takes a constructivist approach and suggests that the purpose of grounded theory is to co-create an interpretation of the phenomenon being studied and develop theories that emerge from the data. She also states that a grounded theory approach allows the researcher to study how people construct meaning related to the processes they experience and how the development of those meanings shapes their decisions and actions that resonated with the purpose of this study.

Schein's organizational culture theory (2010) was used to sensitize the researcher to concepts of organizational culture. While grounded theory research is not typically conducted using an existing framework, Schein's model was used to ensure that core constructs associated with organizational culture were explored during data collection. The aim of this study was to interpret data and draw theoretical conclusions that relate to this process at an organizational level, not at an individual level. Therefore, this study was approached from the perspective that all schools of nursing have unique cultures and organizational processes. This study sought to uncover the analogous concepts of organizational culture that emerge across a heterogeneous sample and develop a mid-range explanatory

theory related to the adoption and integration of simulation in nursing curricula across Ontario.

Philosophical Paradigm

Although various philosophical viewpoints are associated with the grounded theory approach, this research study will be rooted in a constructivist paradigm as suggested by Charmaz (2006). Research conducted from a constructivist perspective focuses on the participants' perspectives to gain knowledge about the experience or process (Creswell, 2007). Constructivist research is approached with an appreciation for the complexity of life and an understanding that multiple realities exist and are individually constructed (Lincoln, 1992). Interaction between the investigator and the participant to construct the findings is a fundamental aspect of constructivist research because leads to a co-created representation of the participants' experiences (Charmaz, 2006; Lincoln, 1992; Merriam, 1998).

Sampling and Recruitment

The sites selected for this research study consisted of thirteen programs of nursing drawn from each of the four geographical regions in the province of Ontario (North, South, East, and Central), (MTCU, 2011). The different nursing education models offered across the province were included within the sample. Criteria for the purposeful selection of nursing program sites included (a) programs listed on the College of Nurses of Ontario (CNO 2010a) web site that specify accredited nursing programs that provide baccalaureate level education in

Ontario, (b) the program must offer a four-year baccalaureate degree either on its own or in collaboration with a university, (c) collaborative programs must have the collaborative university partner located in Ontario, and, (d) the nursing program must be offered in English. After applying these criteria there were 13 university and 19 college nursing programs from which participants could be recruited. Sites were then randomly selected from each geographical area ensuring that all types of program delivery were included. This resulted in 12 sites initially; the thirteenth site was identified through snowball sampling.

Once the nursing program sites were selected, a range of purposeful sampling strategies were used to populate this grounded theory study. Purposeful sampling is a distinctive strategy used in qualitative research and specifically in grounded theory research (Charmaz, 2006; Creswell, 2007; Patton, 1990). It is used to achieve depth of information about specific cases that leads to an understanding of the issue being studied (Patton, 1990). In this study, purposeful samples of diverse nursing programs, individuals, and documents were included to provide rich, detailed data and to ensure that regardless of heterogeneity, core elements or variables that could inform the process would be identified. The purposeful sampling strategies used in this study included maximum variation, random stratified, theory-based, snowball, and theoretical sampling. Table 1 provides a description of each type of purposeful sampling and the rationale for its use.

Table 1

Purposeful Sampling

Type	Intent
Maximum variation	• Used at the level of site selection to ensure inclusion of a range of delivery models because the organizational structure can affect the organizational culture. • Used at the level of recruiting individual participants to enhance comprehensiveness by including participants from different roles within the institution. This was achieved by including nursing administrators, nursing faculty members and, simulation leaders.
Random stratified sampling	• To choose sites fairly to be included because the sample size was larger than what was feasible for this study. • To ensure that both types of collaborative models were included and all geographical regions represented.
Theory-based sampling	• To capture and explore specific theoretical components related to organizational culture that emerged in the iterative process of data collection and analysis. • To identify specific documents that represent different levels within the organization.
Snowball sampling	• To enhance recruitment of participants, sites, and documents.
Theoretical sampling	• To develop the classification of categories, extend the attributes of individual categories, and to establish relationships between categories.

The strength of using maximum variation sampling in grounded theory research is that it allows central or core themes to emerge that transcend variation thus highlighting areas of significance or value that are worthy of further investigation (Patton, 1990). There are various models of program delivery therefore; purposeful sampling was used to capture this diversity of organizational

cultures among programs of nursing. It was essential in this study to include sites using a range of delivery models because the organizational structure can affect the organizational culture (Schein, 1985).

Maximum variation was also used to represent the diverse roles of the participants (Morse, 1994). This was achieved by including nursing administrators, nursing faculty members, and simulation leaders. The inclusion criteria for participants were: they must be employed in one of the nursing programs, speak English, and have experiences or expertise with simulation.

Random stratified sampling was used for the selection of sites because the potential sample size was larger than study feasibility would allow. This type of sampling served to increase credibility because it reduced any suspicion as to why certain sites were selected. In order to facilitate random stratified sampling and still have all types of collaborative models, geographical stratification was used. The regional divisions in Ontario were obtained from the Ministry of Training, Colleges and Universities web site (2011). Charmaz (2006) and Patton (1990) support this type of sampling because it reflects a greater opportunity for variation.

Theory-based sampling was used to guide the sampling of pertinent documents. Documents are a type of official communication that can be representative of social norms and behaviours, can serve to organize and share ideas, and assist in the development and maintenance of traditions and customs (Miller & Alvarado, 2005; Prior, 2003). This closely reflects the principles of how

organizational culture of an institution is transmitted (Schein, 1984, 1985, 2004). Charmaz (2006) supports the use of analyzing text in qualitative research and suggests that extant texts can be used as either primary or supplementary data sources. Extant texts are documents that are currently in existence. Charmaz suggests that organizational documents are considered extant texts and advocates using them as a data source. This allows the participants to disclose what the information in the text means to them, and how it influences their views and guides their actions (Schein, 2010). In this study, information-rich documents that relate to organizational culture were sampled. Sampling of key documents included the mission, vision, philosophy, or value statements that represented the institution, the Faculty, and the nursing program levels. All of these documents were publicly available. Additionally, during interviews, participants were asked to provide a blank copy of the school's annual evaluation or appraisal documents. This purposeful sample of documents provided discussion points during interviews.

Snowball sampling is another form of purposeful sampling that serves to identify additional key informants who can provide substantial insight to the topic being researched (Creswell, 2007; Miles & Huberman, 1994; Patton, 1990). This technique was used in three different instances throughout the research study to enhance recruitment of participants, sites, and documents. First, participants who were interviewed were asked if they could recommend anyone else within their nursing program or collaboration that would be beneficial to include in the study.

Second, participants were asked if there were other nursing programs they would recommend that should be invited to participate in the study. Third, participants were asked if there were any other documents that influenced the uptake of simulation. The goal of snowball sampling was to have the participants identify other data sources or types that could provide insight related to the questions being explored, thus providing information-rich data (Patton, 1990).

Theoretical sampling was the last form of purposeful sampling utilized in this study. Theoretical sampling is a hallmark of grounded theory research, and it is a process that allows the researcher to develop emerging themes and return to original participants or find new participants who can clarify a concept or add further detail to an emerging theme (Charmaz, 2006; Patton, 1990). While the previous sampling strategies were used primarily for initial sampling, theoretical sampling was used later to aide in the classification of categories, help to develop the attributes of individual categories, and to establish relationships between categories (Charmaz, 2006). Theoretical sampling involved obtaining discerning data that developed or refined the emerging theoretical categories and helped the theory to surface. It was used "until no new properties emerge[d]" (Charmaz, 2006, p. 96), signifying theoretical sufficiency (Dey, 1999) or saturation (Charmaz, 2006; Glaser & Strauss, 1967). This was achieved by adding new questions and probes to the semi-structured interview guide to fully explore the emergent categories and themes. Data collection and analysis occur in tandem during this process therefore theoretical sampling began as soon as tentative

categories started to emerge and continued until the final interviews when no new information or ideas were shared.

Charmaz presents a flexible approach to sample size and suggests the focus be on the quality of the data. Data should include a variety of participants, provide detailed descriptions, and have enough depth to develop categories and understand the experience from the participants' perspective, and be ample enough to support the conclusions (Charmaz, 1990, 2004, 2006). The sample in this study consisted originally of twelve nursing programs. Two additional programs were identified through snowball sampling. Potential participants from both sites were contacted by publicly available email addresses. There was no response from anyone at the first site and only one participant from the second site agreed to participate. In total, 27 participants from 13 nursing programs consented to participate in the study. All of the participants completed a first interview (n=27) and 16 participants completed a second interview for a total of 43 completed interviews. Participants included nursing administration, nursing faculty members, and simulation leaders. A total of 67 key documents were reviewed from across all of the institutions.

Data Collection Procedures

In keeping with a grounded theory approach, semi-structured interviews were the primary source of data for this study, but were supplemented by a review of pertinent documents (Charmaz, 1990, 2004, 2006; Creswell, 2007). Concepts from Schein's model of organizational culture provided a guide as to which

documents should be collected. Schein suggests that artifacts represent the most superficial level of organizational culture. Artifacts include the observed characteristics of an organization, such as the architecture, physical layout, and manner of dress (Schein, 1985). Data were collected primarily through telephone interviews and there was not equal opportunity to examine the artifacts at all of the sites; therefore they were excluded from this study. Schein suggests that the best way to understand the organizational culture is by examining the values and beliefs that provide insight to the culture at a deeper level. The values and beliefs were explored through the documents at the institutional, Faculty, and nursing program levels, and further elaborated upon during the interviews. The basic assumptions, the deepest level of organizational culture, were examined during the interviews.

Initial interviews were semi-structured and lasted approximately 60-75 minutes; two were conducted in person and the remainder by telephone. Second interviews lasted approximately 30-45 minutes and were all conducted by telephone (Charmaz, 2006; Smith, 2005). While the decision to utilize telephone interviews was a pragmatic decision to enhance participation across the province, literature suggests both telephone and in-person interviews are comparable in terms of the quality and validity of data obtained (Musselwhite, Cuff, McGregor, & King, 2007; Siemiatycki, 1979; Smith, 2005). This decision to use both in-person and telephone interviews is justified because it enhances the feasibility and increases the potential for a greater sample size to be achieved.

To arrange the timing of the interviews, mutually convenient times were agreed upon via e-mail. In advance of each interview, the semi-structured interview guide and the key institutional documents were sent to participants to enhance their readiness to promote rich, deep descriptions of their experiences. Consent forms and demographic data questionnaires were sent to the participants in Word format for ease of use to fill out electronically and return to the researcher. The consent forms were also sent in PDF format for the participants' own records. Consent to participate (see Appendix B) included two interviews, completion of a demographic data form (see Appendix C), and a review of select documents. Participants interviewed by phone were encouraged to have access to a computer with Internet access to facilitate the transfer of the consent form and demographic data questionnaire.

Consent was obtained via hard copy for those interviewed in person and by e-copy for those interviewed by telephone. The participants had the opportunity to review the consent prior to the interview. At the beginning of the interview, the principal investigator or research assistant reviewed the consent with the participant and then the participant was given the opportunity to confirm or decline involvement in the study. E-copy consents were obtained by having the participants type their name in the signature box and return it by email or print, sign, then scan the consent and return it by email or fax. All consents were signed prior to the commencement of the interviews. Typed or signed signatures served as the participants' informed consent. Consent was implicit for second interviews,

but participants were reminded of the previously signed consent form and the purpose of the study. Included on the consent was the request to audio record the interview. Participants had the choice to have the interview recorded or not; all were in favour and indicated so on the consent form. The process for attaining the demographic data followed the same procedure as the consent form. Three participants chose not to complete the demographic data questionnaire.

An initial semi-structured interview guide was developed to facilitate data collection (see Appendix D). It was developed using concepts from Schein's model (2010) and the literature on organizational culture (Alvesson, 2012). It was pilot tested by interviewing one simulation leader who provided feedback about the wording and clarity of the questions. This feedback was used to modify the questions and enhance readability. As data collection progressed and new concepts and patterns emerged from the documents and the interviews, the interview guide was adapted and expanded to explore and capture the properties and dimensions of these key concepts. The initial interviews explored the participants' perspectives of the organizational culture (both currently and at the time of the initial provincial funding) and the processes used related to the adoption and incorporation of simulation. As interviews and document analysis progressed, tentative categories developed. The successive interviews served to clarify information on the timelines and investigate the emerging categories and theoretical components (Charmaz, 2006). This was achieved by eliciting additional information and gathering precise data that served to: (a) identify the

properties of each theoretical code, (b) provide sufficient information to validate the essence of each theoretical code, and (c) illuminate relationships between the theoretical codes (Charmaz, 2006). This continued until each theoretical code was fully developed and no new theoretical concepts or perceptions emerged (Charmaz, 2006).

To enhance understanding of organizational culture, participants were asked to reflect on their institutional documents and respective organizational culture as they pertained to the adoption and incorporation of simulation. The documents represented the three levels of the organizational structure in which nursing programs exist. They were comprised of: the institutional mission/vision statement or philosophy, their Faculty institutional mission/vision statement or philosophy and appraisal template, and their nursing program mission/vision or philosophy. These documents align with documents Schein (2010) suggests provide insight into the values and beliefs at different levels within the organizational structure.

During the interviews, field notes were maintained to capture thoughts, ideas, and contextual details. Charmaz (2006) recommends that the use of field notes is important to highlight the significant problems or ideas of the participants.

Data Management

Qualitative data management software can assist the researcher with organizing large amounts of data, and can allow the researcher to apply multiple

codes to the same data, and retrieve data and codes quickly while maintaining the integrity of the data as a whole (Barry, 1998). Qualitative software can provide a means of keeping an audit trail of the process (Barry, 1998). NVivo9 software was used to organize and reduce all electronic data collected as part of this study. NVivo9 and the electronic files were housed within a secure network system located on a central server that had automatic back up and a firewall in place and was managed by the principal investigator. All computers used were password protected. Interviews were audio-recorded and transcribed verbatim by a research assistant and then the transcript was proofed against the recording to verify accuracy. Field notes were attached to the transcripts. All identifying information was removed from the transcripts and replaced with a numeric code indicating participants' role, their institution, and if it was the first or second interview.

Documents were assigned a numerical code and linked to each institution. Documents were scanned or converted to Word format to facilitate analysis. A spreadsheet was used to track the documents collected and identify if the documents are publicly or privately available (Miller & Alvarado, 2005). NVivo9 was also used to store documents. Hard copy information and monthly back up data keys were secured in a locked file cabinet inside the researcher's locked office.

Data Analysis and Interpretation

Data analysis followed the process outlined by Charmaz (2006). Initially, data were coded; analyzing the data line-by-line and incident-by-incident. This

resulted in many codes that highlighted events, actions, experiences, and processes that were compared within and across sites. Initial coding involved the use of *in vivo* codes. *In vivo* codes are unique terms presented by the participants and represent the participants' voices (Charmaz, 2006).

What resulted was a substantial amount of data and multiple codes about each organization. To make sense of these data, the process in which individual institutions engaged needed to be explored and understood before examining the organizational cultural elements that shaped the process. To do this, the analysis technique of process mapping was used. This involved consolidating all data from each institution into an eight-year time line that focused on process, including antecedent events, the specific timing or sequence of events, and the rationale as to why certain events or processes happened (Miles, & Huberman, 1994). An example of a site specific timeline is located in (Appendix E). The constant comparative method of analysis was used to further understand, compare, and contrast strategies used by programs to navigate the adoption and incorporation process (Glaser, 1965). A seven-phase process emerged from the data that was evident across several of the institutions. From there, those institutions that had incorporated all of the phases of this process were examined to explore commonality and determine consistency resulting in a definition of high-uptake. This served to differentiate the institutions and provided a means of comparison to then return to the data to examine the elements of organizational culture that

shaped the adoption and incorporation of simulation into institutions with varying levels of uptake.

At this point, initial codes specific to organizational elements moved to focused codes by memoing and theoretical sampling (Charmaz,2006). Focused codes serve to develop analytical categories providing me with ideas for further examination and exploration. Using the constant comparison method, tentative categories started to emerge. Tentative categories led to further theoretical sampling and once the tentative categories were further explored and developed, they were raised to conceptual categories. Conceptual categories are more abstract which led to the nascent structure of the theory. During this process, I looked for confirming and disconfirming examples to challenge the developing theoretical structure. This strategy was utilized until all categories were fully developed and other interpretations were deemed implausible. Constant comparative method of analysis is essential in grounded theory research and requires that data collection and analysis occur simultaneously (Charmaz, 2004, 2006).

Data analysis of the documents included content analysis to identify key themes and categories (Miller & Alvarado, 2005) as they pertain to organizational culture and the adoption and implementation of simulation into the curricula. Additionally, context analysis strategies were used (Miller & Alvarado, 2005). This type of approach enables appreciation of the social or organizational meaning or significance of the documents (Miller & Alvarado, 2005). Context analysis was achieved by evaluating the meaning (or ideas) the participants had

about the documents related specifically to the adoption and incorporation of simulation (Charmaz, 2006).

A secondary review of the literature occurred during the data analysis phase and aided in the development of the theory. It allowed the researcher to compare and contrast existing literature against the developing theory, reveal gaps in knowledge, and suggest how the emerging theory would fill them (Charmaz, 2006). The final analytical process was the development of a mid-range explanatory theory; this was achieved through diagramming to depict the theoretical categories and display the links and relationships among the categories (Charmaz, 2006).

Charmaz states that memo writing and field notes are fundamental components of data analysis in grounded theory. Both were used throughout the data collection, data analysis, and the writing phase. They provided a means to understand the process of adoption and incorporation of simulation into nursing curricula and they facilitated the advancement of concrete categories toward abstract theoretical concepts (Charmaz, 2006). In this study, memoing was used specifically to explore the data, compare the transcripts to the field notes and to the documents, identify and define codes, and make comparisons and connections among the data and the codes. Memoing was used to identify gaps in the data, direct data collection, illuminate characteristics of emerging codes, and raise the codes to categories. Finally, memo writing was used as an audit trail in this study. All memos and diagrams were saved and dated throughout the study. These

memos and diagrams were shared on a regular basis with the researcher's supervisor and committee members. Committee members challenged the findings, and identified gaps and potential deficiencies of the emerging theory. This process enhanced the quality and credibility of this study.

Rigour

Quality and Credibility.

Quality and credibility of this study were achieved by strictly adhering to Charmaz's (2006) approach to grounded theory research thereby maintaining methodological congruence (Morse & Richards, 2002, 2007). Charmaz advocates that credibility be further enhanced by following the constructivist approach to grounded theory. The constructivist approach is based on studying participants in their natural setting, understanding there are multiple realities, and a mutual creation of knowledge that seeks to interpret and appreciate the significance for the participants (Charmaz, 2000, 2006). Credibility was therefore enhanced by the strong rapport that was established between participants and the researcher. This allowed for a deeper understanding of the data (Charmaz, 2006; Creswell, 2007; Guba & Lincoln, 1981; Sandelowski, 1986).

Member checking is a common strategy used in qualitative research to enhance credibility (Guba & Lincoln, 1981). This was achieved during the second interviews when participants had the opportunity to review site-specific timelines for accuracy and comprehensiveness. Member checking was also achieved through theoretical sampling as supported by Charmaz, 2006. Theoretical

sampling provided the participants and the researcher the opportunity to examine emerging conceptual and theoretical categories and to evaluate whether the proposed categories reflected the participants' experiences. It allowed for a deeper level of engagement and enabled the properties of the categories to emerge (Charmaz, 2006).

Triangulation of data sources and data types was another strategy used to augment the quality and credibility of this study. Triangulation of data types was achieved by collecting data through interviews and key documents. Triangulation of data sources was achieved by including participants who held different roles in the same institution, thus offering varied perspectives. A comparison of the data among and between data types served to provide a more holistic understanding of the organizational factors that shaped the adoption and incorporation of simulation (Creswell, 2007; Krefting, 1990; Lincoln & Guba, 1985). Triangulation provided a means by which all aspects of the inquiry were explored and various points of view offered. This served to allow convergence in the data, thereby reducing the likelihood of a particular or solitary viewpoint being represented (Krefting, 1990; Lincoln & Guba, 1985).

Transferability.

Transferability of the study findings was promoted by providing a clear, specific description of the context (Charmaz, 2006). The description and details are substantial enough that, when disseminated, readers who have had similar experiences could relate to the findings of this study (Guba & Lincoln, 1981;

Krefting, 1990). Providing rich information about the types of nursing programs and the circumstances related to the adoption and incorporation of simulation into the nursing curricula further enhances the potential transferability of these findings (Krefting, 1990).

Dependability.

Dependability was enhanced by the researcher and thesis supervisor analyzing the early data and co-developing initial codes. Frequent interaction and discussion of the findings between the researcher and the supervisor, as well as the thesis committee, during the analysis stage and throughout the development of the theoretical framework further enhanced dependability (Creswell, 2007; Lincoln & Guba, 1985; Krefting, 1990).

Confirmability.

Confirmability was accomplished by memo writing. Through this activity an audit trail emerged that allowed for tracking critical decision-making points within the research process. The memos also served as a way to reflexively journal to provide a way to compare my thoughts, ideas, and preconceived notions to the data, codes, and categories. Memo writing served to increase trustworthiness by making the decision-making points transparent and auditable so that they could be replicated by another researcher (Guba & Lincoln, 1981; Sandelowski, 1993).

Ethics

Ethical approval was obtained by the Hamilton Health Sciences and McMaster University Faculty of Health Sciences Research Ethics Board prior to the commencement of this research project. All potential participants were contacted initially through publicly available email addresses. An introduction to the study and a letter of invitation to participate was included in the original email (see Appendix F). At the beginning of each initial interview, a verbal explanation of the purpose of the study and the potential benefits were shared. Participants were assured that: (a) participation was voluntary, and choosing not to participate would not result in negative consequences, (b) they could withdraw from the study at any time or refuse to answer any questions, (c) all personal information would remain confidential, and (d) there were no foreseeable risks, discomforts, or inconveniences associated with participating in this research study. After the verbal explanation was offered, written consent was obtained.

Upon the conclusion of all interviews, participants received a certificate that reflected their participation in professional research which can support their College of Nurses Quality Assurance Program requirements (CNO, 2010b), and they had their names entered into a draw for one of three $50.00 gift certificates to a local bookstore. To ensure anonymity, demographic data questionnaires had all identifying information removed and were number coded as were all documents obtained. Interviews were digitally recorded and transcribed verbatim by a transcriptionist. Transcripts also had all identifying information removed and

were assigned a number code that corresponded with the demographic data. All data were and will continue to be stored in a secured office in a locked file cabinet. Data will be kept for a period of five years after the completion of this research study. The only individuals who will have access to this information include the researcher, the thesis committee, and the research assistant.

Potential risks related to this research were minimal, and the following strategies were implemented to reduce risk. The primary researcher for this study is a full-time faculty member in the Brock-Loyalist nursing program, therefore additional considerations were made to reflect principles contained within the Tri-Council Policy Statement (2010). Firstly, once the research ethics board at McMaster University approved the study, a copy of the approval as well as all supporting documents were forwarded to the research ethics board at Brock University for expedited approval. Secondly, because both Brock and Loyalist were potential research sites, the research assistant initially contacted participants at those sites. Those who chose to participate were given the option of being interviewed by the research assistant or by the primary researcher. The participants who chose to be interviewed by the research assistant had the digital audio recording of the interview proofed against the transcript by the research assistant, and the transcript had all identifying information removed prior to the researcher viewing it. These measures were in place to prevent the researcher's colleagues from feeling coerced into participating and to maintain anonymity

while also giving them a voice in this research study if they chose to participate (Creswell, 2007).

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Chapter 3

INTRODUCTION TO CHAPTER 3

Chapter three is a manuscript titled
THE PROCESS OF ADOPTING AND INCORPORATING
SIMULATION INTO UNDERGRADUATE NURSING CURRICULA:
A GROUNDED THEORY STUDY
It was submitted to a professional nursing journal
formatted to the specific requirements and is currently under peer review.

Chapter 3

The Process of Adopting and Incorporating Simulation into Undergraduate Nursing Curricula: A Grounded Theory Study

Abstract

Aim. To explain the process of adopting and incorporating simulation as a teaching strategy in undergraduate nursing programs, define uptake, and discuss potential outcomes.

Background. In many countries simulation is increasingly adopted as a common teaching strategy. However, there is a dearth of knowledge related to the process of adoption and incorporation.

Design. An interpretive, constructivist approach to grounded theory was used to guide this research study.

Methods. The study was conducted in Ontario, Canada during 2011-2012. Multiple data sources informed the development of this theory including in-depth interviews (n= 43) and a review of key organizational documents, such as mission and vision statements (n=67) from multiple nursing programs (n=13).

Results. The adoption and uptake of mid to high-fidelity simulation equipment is a multi-step iterative process involving various organizational levels within the institution that entails a seven-phase process: (a) securing resources, (b) nursing leaders working in tandem, (c) getting it out of the box, (d) learning about simulation and its potential for teaching, (e) finding a fit, (f) trialing the equipment, and (g) integrating into the curriculum.

Conclusion. These findings could assist nursing programs in Canada and internationally that wish to adopt or further incorporate simulation into their curricula and highlight potential organizational and program level outcomes.

Introduction

Internationally, the use of mid to high fidelity simulation as a teaching and learning strategy has evolved for over two decades within nursing and health sciences (Gaba, 2004; Lane, Slavin, & Ziv, 2001; Nehring & Lashley, 2004; Yuan, Williams, Fang, & Ye, 2012). While simulation can be an effective educational strategy to improve clinical knowledge, skill, and critical thinking (Cant & Cooper, 2010), the adoption and incorporation of simulation into curricula has been variable. This article reports findings from a study of how organizational culture shapes the adoption and incorporation of simulation. A seven-phase process emerged that illustrated how simulation is integrated into nursing curricula. The purposes of this paper are to: (a) outline the stages of this process of adoption and incorporation of mid- to high-fidelity simulation equipment as a teaching strategy into curricula, (b) define level of uptake, and (c) discuss potential outcomes. While the focus of this study is mid- to high-level fidelity simulation that often includes the use of equipment that is life size and has the ability to replicate physiological responses to medical conditions, (Decker, Sportsman, Puetz, & Billings, 2008; Gaba, 2004), the general term “simulation” will be used throughout this paper.

Background

Current research has focused on the integration of simulation into specific nursing courses or individual nursing programs. The literature consists primarily of anecdotal descriptions (Brown, 2008; Kardong-Edgren, Starkweather, & Ward, 2008; Parr & Sweeney, 2006; Robertson, 2006) and accounts of nursing programs' experiences with simulation equipment which serves to meet specific learning needs (Hodge, Martin, Tavernier, Perea-Ryan, & Alcala-Van Houten, 2008; Hyland & Hawkins, 2009; Irwin, 2011; Seropian, Brown, Gavilanes, & Driggers, 2004). While this is informative, there remains a dearth of literature related to the processes that yield successful adoption and incorporation of simulation. This is problematic because resources are limited and nursing programs cannot afford to purchase equipment without using it or not utilizing it to its fullest capabilities. Understanding these processes is valuable as the use of simulation equipment permeates nursing education, provides an adjunct to traditional clinical learning and, in some nursing programs, replaces a percentage of in-hospital clinical experiences (NLN, 2008).

The studies conducted to date have primarily focused on nurse educators' experiences with using simulation. Smitten and Myrick (2010) conducted a qualitative grounded theory study in a single Canadian baccalaureate nursing degree program to investigate the process used to prepare nursing faculty to use high-fidelity simulation. This study found that extensive planning was required before using the equipment and that continuing education for nursing faculty

members was necessary. The authors further claimed that nursing faculty members had to "find their own way" (p. 413). While there was some insight to assist nursing faculty to navigate their way through the process of implementation, there was no explanation of what that process was.

Within the context of an American associate degree-nursing program, King, Mosley, and Hindenlang (2008) conducted a two-phase study. In the first phase, a survey was administered to 34 Associate degree nursing faculty to evaluate their attitudes about using high-fidelity simulators. In phase two, 16 faculty members participated in an educational intervention that was developed as a result of the first phase findings. Aspects of the process of adopting simulation as a teaching strategy included educating nursing faculty members about the purpose and uses of simulation and then providing an opportunity to practice and experiment with the equipment. This study focused on individual level factors that were required to adopt and incorporate simulation for a select group. The findings indicated that the views of administration, peers, and students were factors that nursing faculty took into consideration when making decisions about whether or not to incorporate simulation as a teaching strategy. While this study provided insight into faculty members' beliefs and perceptions of simulation there was limited discussion regarding the processes involved.

Two additional anecdotal case studies drawn from the field of anesthesia add to the literature related to the process of adopting and incorporating simulation (Kurrek & Devitt, 1997; Seropian, Brown, Samuleson, & Driggers,

2004). Kurrek and Devitt examined the cost of creating the Canadian simulation centre and found that significant planning and resources beyond the cost of the equipment were needed. They highlighted that training, administrative work, and additional salaries needed to operate the simulators and the simulation labs were required. Seropian et al. added to this, stating that some of the steps in the process of developing a simulation program included: creating a vision, developing a business plan, constructing the lab, educating faculty, and developing the curriculum. They stated that while these aspects are essential, they are not "always intuitive" (p.170) and that, overall, there is a lack of expertise in this area for people to access when developing a simulation program.

The literature suggests that there are a number of factors beyond individual faculty preferences that impact the adoption of simulation, but there is a dearth of studies looking across programs or at a broader institutional level to identify why some programs readily adopt simulation and others do not. What is lacking from the literature is an explanatory theory developed from an examination of multiple nursing programs to outline a consistent process that could be followed by other nursing or health science programs wanting to adopt or incorporate simulation. This is an area that needs further investigation as more nursing programs turn toward simulation as a teaching strategy.

Context of the study

Nursing programs in Ontario, Canada provided an opportune setting to explore the processes of adopting and incorporating simulation into nursing

curricula. In this province, a baccalaureate degree is the minimum requirement to enter practice; consequently, education programs are delivered either by universities or through university/college collaborations. In 2004/2005, all 34 provincial nursing programs received an average of $500,000 to purchase simulation equipment (MOHLTC, 2004/2005). This initiative removed one of the main barriers to simulation implementation, funding, and prompted nursing programs to undergo the process of adopting and incorporating mid- to high-level fidelity simulation into the curricula. As multiple programs were dealing with the same initiative during a short time period with variable degrees of success, it provided the ideal setting to explore commonalities or consistencies regarding processes implemented across varied and multiple nursing programs. In this article, the process of adoption and incorporation, the factors influencing this, and the outcomes associated with varying levels of adoption and incorporation will be outlined.

The Study

Aim

The aims of this study were to: (a) explain how adoption and incorporation of simulation occurs in baccalaureate degree nursing programs across Ontario, Canada, (b) offer a definition of uptake, and (c) discuss potential outcomes that mid- to high-level sites experienced as a result of adopting and incorporating simulation.

Design

The procedures and principles of constructivist grounded theory (Charmaz, 2006) guided this research study. This approach provided an opportunity to discover the core elements of the process.

Sampling

This study was conducted in 2011/2012 over eleven months in Ontario, Canada. Nursing programs were selected based on the following criteria: (a) listed on the College of Nurses of Ontario (CNO) web site as an accredited program offered in English, and (b) offered a four-year baccalaureate degree either on its own or in collaboration with another educational institution located within Ontario.

Nursing programs were divided geographically and then selected by random stratified sampling to ensure programs from all four regions (North, East, West, and Central) of the province were included (MTCU, 2011). Additionally, both types of collaborative programs were included; these two strategies served to enhance maximum variation. Within each institution, purposeful sampling was used to identify key informants who had experience with or expertise in simulation. Maximum variation among the participants was achieved by including individuals from multiple roles. This included nursing administrators, nursing faculty members, and simulation leaders. All participants were contacted by publicly available email addresses. A purposeful sample of publicly available institutional documents such as the mission, vision, philosophy, or value

statements were retrieved and reviewed. Snowball sampling was used by asking participants to identify additional key people or documents (Patton, 1990). Theoretical sampling was used later during data collection to explore emerging categories. This continued until theoretical saturation was achieved (Charmaz, 2006).

Data collection

Data collection included up to two in-depth semi-structured interviews with nursing administrators, nursing faculty members, and simulation leaders. In the first interview, participants were provided with their key institutional documents and asked whether or not these documents shaped the adoption and incorporation of simulation and if they did, 'how' they did. Participants were asked about the processes their organizations went through when adopting and incorporating simulation since the time of the provincial funding. Individuals' roles related to simulation, and the processes involved were also explored. Initial interviews lasted 60-75 minutes. All data related to each institution was consolidated into site-specific timelines. During the second interview, participants were provided with the opportunity to review their institutional timeline to elaborate on the findings and make adjustments. These interviews lasted approximately 30-60 minutes. Second interviews were offered to all participants to further clarify the emerging categories and developing themes. A reflexive journal, memos, and field notes were maintained through data collection. All but one of the interviews was conducted by the primary investigator (KT). QSR

international NVivo version # 9 software was used to store, manage, and organize all data.

Ethical considerations

Ethics approval was received from two university research ethics boards. Consent, both written and verbal, was obtained from all participants. Participants were informed that participation was voluntary and they could withdraw from the study at any time or choose not to answer questions. Identifying information was removed from all documents to maintain anonymity and confidentiality.

Data analysis

Concurrent data collection and analysis, a characteristic of grounded theory research, was used (Charmaz, 2006). Process analysis as well as the constant comparative method of analysis was used to code and categorize the data. Each interview was transcribed verbatim and then analyzed line-by-line and incident-by-incident to identify emerging codes. Codes were then compared, and tentative categories started to emerge. The reflexive journal, memos, and the field notes facilitated analysis because they were used to compare data, identify gaps, and direct further data collection. Theoretical sampling facilitated the development of categories which then formed the structure of the developing theory. Data from the key documents were analyzed for context, then merged with data from the interviews and consolidated into individual institutional timelines from 2004 to 2012, tracking all steps and strategies used to facilitate the adoption and incorporation of simulation into curricula. The consolidated timelines

provided an organizational perspective based on multiple data sources (Miles & Huberman, 1994). To advance an understanding of the data, the constant comparative method of analysis (Glaser, 1965) was used to compare and contrast strategies used by the various institutions to navigate through the process. This allowed for further exploration and expansion of emerging categories thus facilitating theoretical sampling until theoretical saturation was reached (Charmaz, 2006). To stay true to the participants' voices, in vivo codes were used (Charmaz, 2006) and are represented in the paper through the use of single quotation marks**.**

Rigour

Rigour was achieved by member checking during second interviews (Charmaz, 2006). Credibility was achieved through triangulation of data sources and data types. Transferability was enhanced by the inclusion of multiple sites (Krefting, 1991). Confirmability was achieved by maintaining an audit trial and using memos, reflexive journaling, and field notes (Guba & Lincoln, 1981; Sandelowski, 1993).

Findings

Sample characteristics

Individuals from seven university and six college nursing programs from across the province of Ontario participated in this study. All four geographical regions of Ontario were represented (MTCU, 2011). A total of 43 semi-structured interviews were conducted with 27 participants. The participants were all female

registered nurses who ranged in age from 20 -70 years with 75% between the ages of 41-60. Roles consisted of nursing administrators (n=5), simulation leaders (n=6), and nursing faculty members (n=12), as well as those serving in a combined role (n=4). All had a baccalaureate degree with the majority (66.6%) holding a master's degree. The primary place of employment of participants was almost evenly divided between universities (55.5%) and colleges (44.4%). Participants (37.5%) had an average of 3-5 years (range 1-20 plus years) of experience using mid- to high-fidelity simulators. Documents (n=67) included the mission, vision, or philosophy statements representative of the institution, the Faculty and the nursing program for each site. The majority of documents were publicly available, but some documents were provided by participants.

The thirteen institutional timelines revealed a multitude of steps and strategies that institutions used to adopt and incorporate simulation into nursing curricula. Seven key phases emerged. These phases, which are iterative in nature and not always sequential, are identified as: (a) securing resources, (b) leaders working in tandem, (c) getting it out of the box, (d) learning about simulation and its potential for teaching, (e) finding a fit, (f) trialing the equipment, and (g) integrating into the curriculum. Figure 1 depicts the seven phases and provides a brief description of each. These phases will be discussed using Charmaz's (2006) format which includes analytical descriptions of the phases and supporting data to illustrate the interpretation. Afterward, a definition of uptake will be offered followed by a description of potential outcomes.

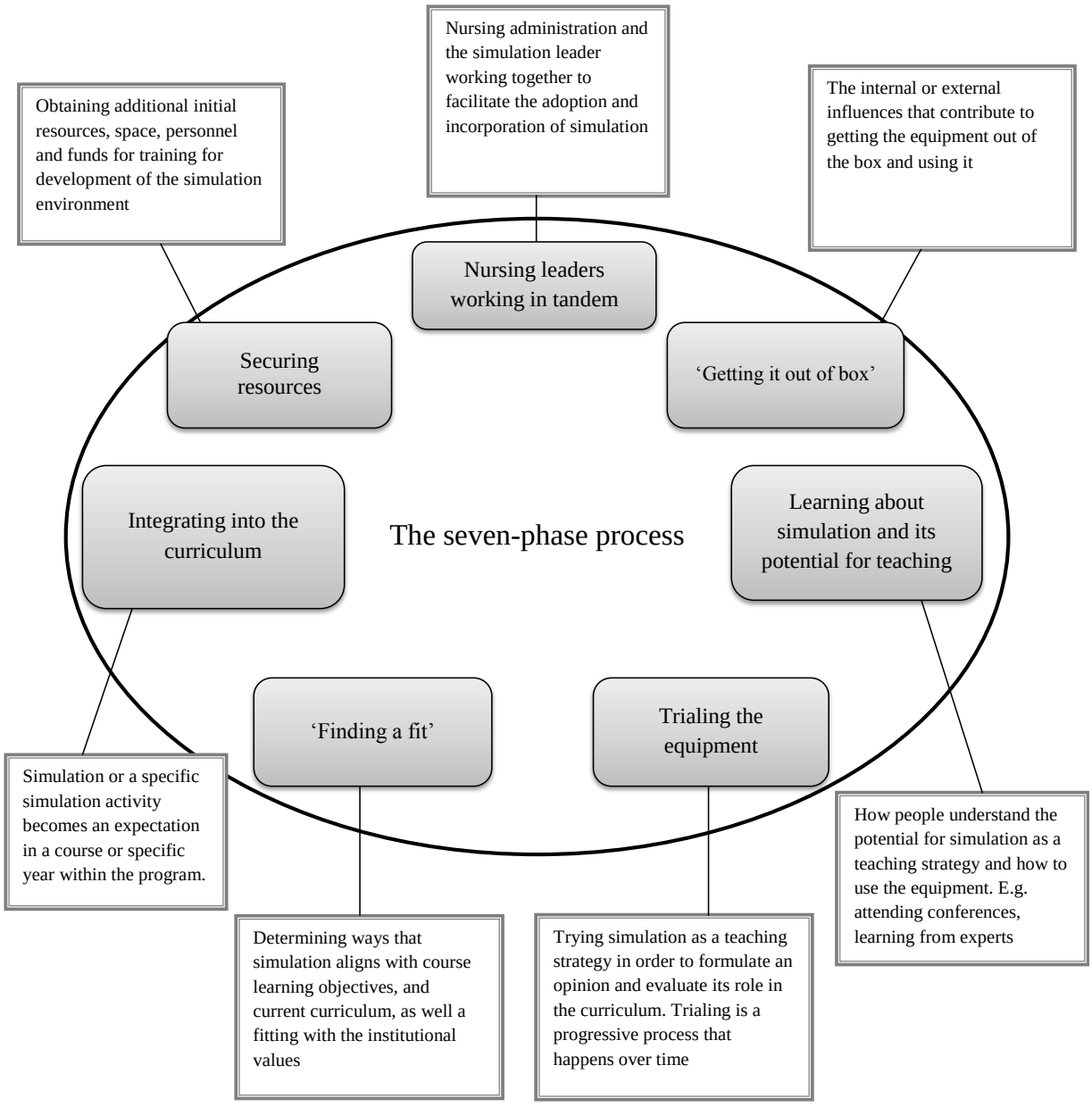

Figure 1. The seven-phase process

The seven-phase process

Securing resources

There is a range of costs associated with the incorporation of simulation into a nursing program. Substantial resources are required for equipment, but in the context studied, initial resources for equipment were provided through provincial funding. In addition to purchasing the equipment, organizations must plan for various costs and secure resources for physical space, renovations, equipment maintenance, additional supplies, and human personnel. Physical space was one of the most difficult resources to secure and required communication and collaboration among the leaders within all levels of the organization, including the nursing program, the Faculty in which it was situated, and the overarching academic institution. Some institutions had to find a new space, which was extremely time-consuming and costly; other institutions renovated space that was already allocated for nursing. As one nursing administrator explained, "We had to involve our purchasing department, our facilities department in terms of redesigning the space, and our [nursing] faculty in terms of what their interests were, what types of equipment would be useful in their curricula" (006). Sites that used space already allocated for nursing, either using it as it was or modifying it, moved through this phase with greater ease than sites that had to negotiate additional or new space. Several sites created innovative strategies for funding. Some re-allocated clinical education funds, sought out private donors or worked to secure research grants. Sites that did not secure additional funding experienced

significant delays in introducing simulation. Securing resources was required during the initial stages, but is also ongoing resources are needed as a simulation program develops.

Leaders working in tandem

Leaders working in tandem took time and resources because the development of a new role in nursing academia was first required: the role of the simulation leader. For the majority of programs, this role was developed to facilitate the integration of simulation into the curricula. This aligns with securing additional resources because a leader is required to implement, manage, and coordinate a project of this magnitude. Within the organization, individuals chosen to lead simulation initiatives were selected in a variety of ways. As a new position, potential candidates lacked the skills and knowledge required for the position. However, existing employees, generally a lab manager or coordinator, were re-assigned to assume this role even though they did not have experience with simulation. In some organizations, a faculty member was asked to assume additional responsibilities related to simulation. Typically, the simulation leader was selected by nursing administration or was self-identified as having an interest in simulation. One nursing administrator stated, "our full-time lab manager in place took on the role of sim coordinator … and her role was reassigned to include sim" (005). The key simulation leader working in tandem with nursing administration proved to be a driving force in adoption and incorporation of simulation. It provided a division in work and responsibility. Leadership in

tandem also allowed the task of adopting and incorporating simulation to be approached from different perspectives. All levels of the organization shaped this phase because it involved workload, reallocation of personnel, and new role development.

'Getting it out of the box'

A key transition point in the adoption of simulation was getting the equipment out of the box. While seemingly obvious, this was a stumbling block for many institutions. While some institutions readily received, unpacked, and began to experiment with the equipment, for many others, this activity was an impediment that took upwards of three years and caused an obstruction in the process of adopting and incorporating simulation. Sites that struggled with this phase often lacked a designated person whose role included unpacking and setting up the equipment, or lacked direction from nursing administration as to how simulation would connect with or fit into the current education structure. Many sites that experienced this obstacle needed additional pressure, both from within and beyond the institutional boundaries (either real or perceived), in order to move through this phase. Internal pressure came from nursing administration, nursing faculty members, or the simulation leader. One nursing faculty stated, "the administration was stressed out and wanted the equipment out of the box...It took a lot of perseverance by a couple of faculty [saying] we got it, let's use it" (017).

External pressure came from on-site accreditation, the development of a new curriculum, or real or perceived pressure from other schools. This was articulated by a nursing administrator who stated that the driving force to get the equipment out of the box and start using it came from "wanting to be on the same playing field as all the other schools" (026). Acquiring the equipment was one aspect, but actually getting it out of the box was another. It implied a readiness to adopt and integrate simulation. Some institutions were not ready for this which resulted in disconnects between what was expected and what happened. Pressure was the motivating factor that assisted sites challenged by getting the equipment out of the box.

Learning about simulation and its potential for teaching

Significant learning about simulation equipment and the potential for simulation as a teaching strategy was required by nursing administrators, simulation leaders, and nursing faculty members to gain knowledge about how to use the equipment to enhance and/or support their current teaching strategies. The acquisition of knowledge occurred on a continuum and is ongoing. Support from the institution was required to approve work-time for simulation leaders and faculty to develop their knowledge regarding simulation and to understand the capabilities of the equipment and the outcomes it could achieve in terms of student learning. In addition to allocating time for professional development, the organization at the program level had to secure financial support and balance faculty workloads. Initially, learning was about the potential uses for simulation

and how to operate the equipment while ongoing education involved further development of knowledge, refinement of skills, and brainstorming about continued or varied uses for simulation within the curricula.

To develop knowledge about the equipment and its potential uses in nursing curricula, simulation leaders and nursing faculty members engaged in a variety of strategies that included out-of-country conferences, literature reviews, research projects, and learning from experts. The experts were typically equipment representatives or experienced interdisciplinary partners within the same institution. Sites where professional development was financially supported and prioritized by the institution facilitated movement through this phase. In comparison, other sites were stalled when leaders and faculty had to use their own time and resources to independently support their learning. This was summed up by two simulation leaders: The first stated, "just trying it...we had to just use the equipment and learn from our errors and successes" (001).

The second stated, "I had to use my own resources to learn about [simulation] and go to conferences. There was no money from the [institution], so I was limited" (027). While significant support was required throughout all levels of the institution, what was not anticipated, and therefore often lacked sufficient support, was the amount of time required to learn, try the equipment, and gain enough confidence to use it. One key simulation person shared her perspective on this, claiming, "I was probably given 3-6 [hours] a week for a special program such as simulation, but I probably put in 8 times that amount of work" (011).

'Finding a fit'

'Finding a fit' entails considering if, and where, simulation aligns with courses and curricula. To do this requires decision making, taking risks, and investing time to consider simulation as a possibility. This phase is multifaceted, iterative, and occurs repeatedly over time. Evaluating whether simulation aligns with the curriculum involved consideration and contemplation about how simulation could be used with current and future teaching activities. Additionally, reflection on the capability of the equipment to meet the course and curricular learning objectives was required. As one key simulation person mentioned, everyone in the program (nursing faculty members, administration, and simulation leaders) was heavily involved and "ideas needed to be generated about how and where to use this equipment and for what purpose" (002). Initially, this resulted in simulation being tried in certain courses where there seemed to be a natural fit. Typically this occurred in clinical courses because, as one key simulation person stated, "It was felt that because the course … was very clinically focused, that [simulation] would fit well" (007). Eight years into this initiative, 'finding a fit' still continues as programs look for further ways to incorporate simulation into theory-based courses.

There were several factors that contributed to the facilitation of this phase. First, continued learning needed to occur about the potential uses for simulation and other nursing programs' use of simulation. Second, envisioning how the learning objectives could be met by using simulation equipment better than,

instead of, or in addition to what is currently being used was a significant aspect of 'finding a fit'. Third, identify gaps in courses or curriculum that could be filled by using simulation. This concept was explained by one nursing administrator as "content not covered well or areas that students found difficult to learn" (006). Once gaps were identified, 'finding the fit' involved considering if simulation could be used to meet the learning objectives. This was highlighted by another nursing administrator who stated:

> We have the birthing mannequin for instance and knowing that half of our students don't have an obstetrical clinical placement, it's been a phenomenal substitute for that clinical placement whereas before we would have a video or something. Now we can actually have students taking on the role of the nurse in a labour and delivery situation (025).

Working through this phase involved contemplating on and considering simulation as an option or an alternative to mitigate some of the challenges in nursing education.

Trialing of the equipment

While 'finding a fit' entailed the intellectual aspects such as contemplation and consideration, trialing of the equipment involved the physical act of using it. Trialing involved allowing people to sample, try, practice, or experiment with the simulation equipment as a teaching strategy. Nursing faculty members and simulation leaders were encouraged to trial the equipment in order to formulate an opinion and evaluate its capabilities and potential role in a course or in the curriculum. Trialing provided an opportunity to create learning experiences using the equipment. Typically trialing started in one course which allowed for

refinement of the simulation, reflection on its use as a teaching strategy, and time to generate ideas for the future. This phase was a slow process that happened over time. As simulation leaders and nursing faculty members gained expertise and confidence, and more people became interested, trialing happened in other courses and years within the program. One simulation leader emphasized this by stating, "We just gradually brought it in bit by bit in our first year courses … then over time we got more instructors in the lab, and I showed them how to do things with the simulators" (001). In addition to initial trialing, ongoing trialing was also required to meet the changing needs of the students or adapting to curricular changes. Strategies used by some sites to facilitate movement through this stage included creating templates, using pre-programmed simulation scenarios and modifying them to align with the curricula, and embracing continued opportunities to experiment with the equipment.

Integrating into the curriculum

This phase occurred when simulation or a specific simulation activity became an expectation in a course or specific year within the program that, despite change in personnel, continues to be used. Integrating happened over time and required a "shift in thinking" (015) among the personnel within the nursing program. The shift in thinking implies movement between and among the previous phases of the adoption and incorporation process. Simulation as a teaching strategy moved from idea to action to the belief that it was a viable

choice that could fill curricular gaps or be used as an adjunct for clinical experiences. This concept was supported by a nursing faculty member who stated:

> If we can structure the learning opportunities, we are better preparing the students ... I would never say simulation replaces ... actual real human patient contact. However, I think it's a great alternative. I think it allows us to expose [students] to things they might not get otherwise (008).

Integrating simulation into the curriculum happens slowly and is an iterative process recurring each time simulation is considered as an option.

Each of the seven phases requires substantial support from all levels of the institution. This support is crucial for movement through the phases. Institutional commitment in the form of space, personnel, professional development time, trialing, decision-making, and linking simulation to the curriculum is what facilitates the process of adopting and incorporating simulation into nursing curricula.

Uptake of simulation

Adoption and incorporation takes place across a continuum both in terms of level of uptake and amount of time required. Within this study, seven of the thirteen sites were identified as high-uptake sites. These were sites that moved through all of the phases of the process and successfully integrated simulation into all levels of the curricula in which nursing content is taught. A close examination of the characteristics of these specific organizations resulted in the identification of four strategies that facilitated progression through the seven-phase process leading to greater uptake. This included (a) using formal strategies, (b) creating a team approach, (c) connecting with required learning, and (d) securing ongoing

resources. Detailed descriptions of these specific factors and their subsequent influence on uptake strategies are outlined in Table 2.

Table 2

Uptake strategies

Uptake strategies	**Factors that facilitate progression through the seven-phase process and promote high-uptake**
Formal strategies	• Create or revise strategic plans to include simulation • Plan scheduled time frames in which these documents will be reviewed or revisited to enhance accountability • Evaluate simulation as a teaching strategy or evaluating students perceptions of simulation • Create and utilize templates to increase ease in planning, developing, and implementing simulation activities
Team approach	• Allows different perspectives to be included • Eases the heavy workload associated with simulation • Some teams include members from other disciplines, institutions, or community agencies which enhances collaboration and the potential for interprofessional simulation • Aides in securing resources if multiple programs can utilize the same resources
Connecting with required learning	• Connecting simulation to a course or curricular objective rather than a onetime simulation event or research study promotes uptake • Can fill curricular gaps • Can augment or replace clinical learning • Can equalize learning opportunities for all learners
Securing ongoing resources	• Once the simulation leader's role has been established it needs to be maintained year after year • Increased use of simulation, or purchasing additional or replacement equipment requires an ongoing budget or consistently allocated funds • Creates an environment where simulation can be considered as a teaching strategy

Institutions used a variety of unique and creative strategies that contributed to the adoption of simulation. Two of the high-uptake sites were

quicker at meeting the criteria, taking approximately two years instead of three to five years, which was typically the time frame required to integrate from the onset of the initiative. One of these rapid sites had made the decision to consider simulation as an option prior to receiving any funding, and the other site had considerable experience with integrating new technology into their curriculum. Noteworthy is the fact that one of these sites follows a collaborative model of delivery where the students spend two years at a college site then transfer to the university. This means the site only had two years instead of four to incorporate simulation into the curriculum. Institutions that were able to complete fewer than the seven phases of the process (but greater than zero) were classified as mid-uptake (n=5). The one site that did not move through any of the phases was classified as low-uptake. The most significant difference between the low- and mid-uptake sites and the high-uptake sites was the lack of consistent nursing leaders working in tandem toward adopting and incorporating simulation into the curricula.

Outcomes

The outcomes of adopting and incorporating simulation varied among institutions, but the institutions classified as high-uptake experienced a higher number of outcomes across more levels in the institution compared to mid- or low-uptake sites. High-uptake of simulation gives value to simulation as a teaching strategy, creates an environment of possibility and consideration of simulation as a teaching strategy, and reinforces the need for ongoing

organizational funding and resource allocation. Figure 2 depicts the seven-phase adoption and incorporation process, and the multiple levels of uptake and how these connect with the outcomes. The mid-uptake sites typically had outcomes only at the level of the nursing program whereas, the low-uptake site did not experience any of the outcomes noted among the other sites.

The primary institutional-level outcome that was experienced by high-uptake sites was the enhanced profile of the institution. This means that the institution recognized and publicized the work that was being done in the simulation lab and in the nursing program in particular. Examples of this were seen with the simulation lab being highlighted on the institutional website or the promotion of simulation as a recruitment strategy for potential students. One simulation leader commented on this stating:

> [Our university] puts a lot of weight on innovative teaching strategies. That is one of the ways they really market themselves … different methods of teaching, not just groups and seminars but really doing some different types of things, like simulation (001).

Outcomes at the Faculty level involved sharing, connecting, and collaborating with other educational programs in the same institution or with community members. The outcomes typically benefited all involved through the sharing of resources and expertise. This facilitated working together on interprofessional simulation activities rather than just those that were nursing specific. The outcomes at the level of the nursing program were multiple and varied and included the potential for individual role development and advancement,

enhanced student engagement and satisfaction, as well as program-level advancements.

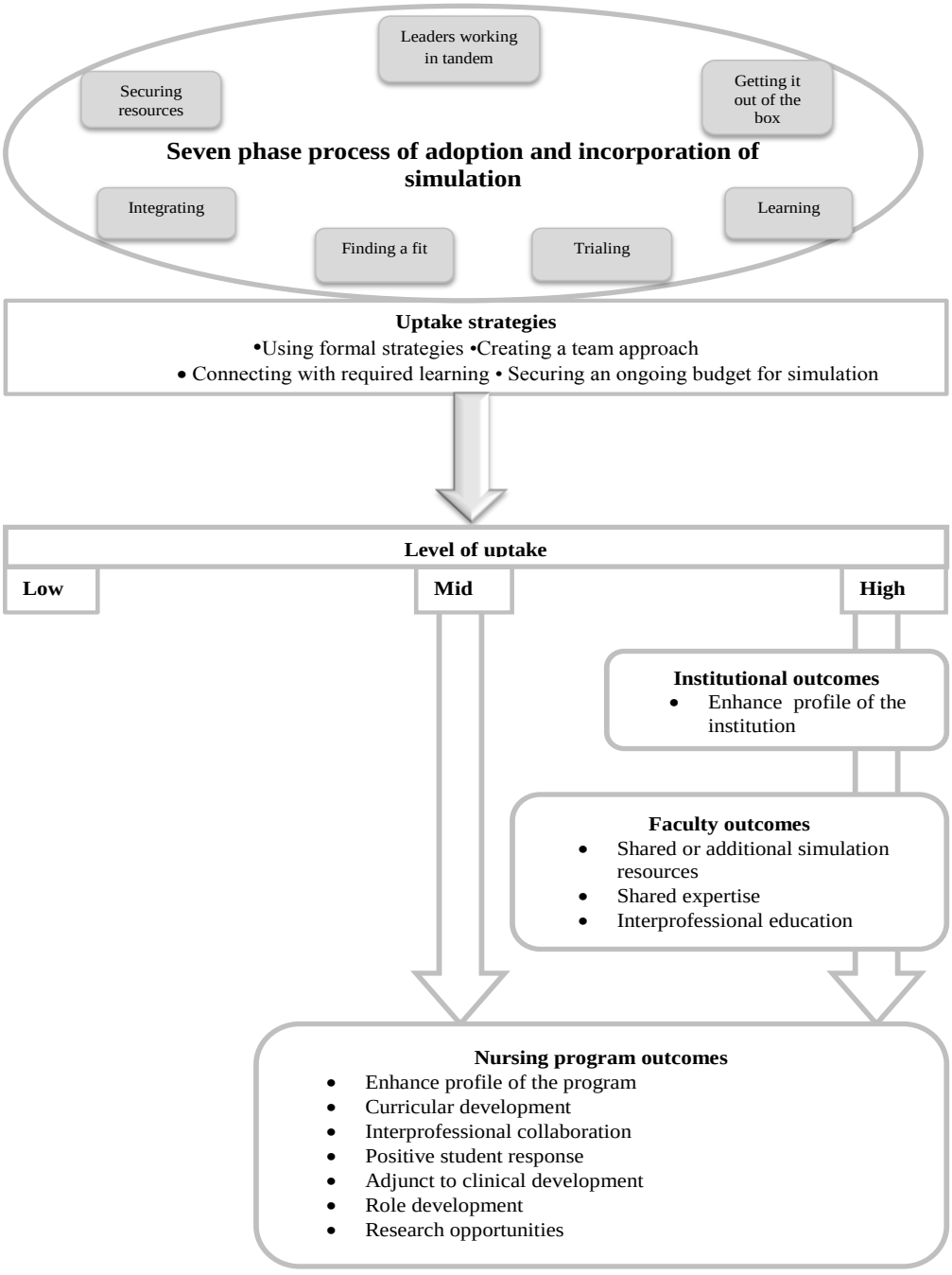

Figure 2. Process, uptake, outcomes

Discussion

This grounded theory study is the first to explain and conceptualize the seven-phase process of adoption and incorporation of simulation into undergraduate nursing programs. The process is multifaceted, iterative, time consuming, and requires much more than simply individual buy-in. In fact, it takes tremendous effort from all levels in the organization. As King et al. (2008) concluded, simulation would be utilized more in nursing education if there was institutional support in the form of time, resources, education, and training.

We found resources in the form of time, personnel, financial support, training, and space (both initially and ongoing) are essential in order to adopt and incorporate an initiative of this magnitude. It is important for nursing programs and the institutions in which they exist not to underestimate the substantial level of resources that must be secured and maintained beyond the purchase of the simulation equipment to facilitate a full integration of this teaching strategy into curricula. This is facilitated by a major shift in thinking, both at the level of the organization and the nursing program, to view simulation not just as an interesting teaching strategy to try but rather as a teaching strategy that augments, replaces, or enhances current teaching strategies. Both Kurrek and Devitt (1997) and Seropian et al. (2004) highlighted the additional financial resources required, but Seropian et al. described the planning phase of adopting and integrating simulation. This planning phase is where they suggest the organizational shift in thinking occurs. To facilitate planning Seropian et al. offered a template that

included training, curricular and faculty development, and infrastructure considerations. This aligns with the phases of trialing, learning, securing resources and finding a fit as discussed in this study. Seropian et al. suggested a planning phase of at least a year prior to starting to use simulation. This was not the case within the context of this study because the call for funding for the equipment occurred before planning could take place. If a year-long planning phase was an option in the context of this study it may have reduced the time needed to integrate simulation into all levels of the nursing program. While the planning phase suggested by Seropian et al. would enhance the seven-phase process, much of what was included was represented in the findings from this study. What this study adds is the need for nursing leaders to work in tandem and the struggle with getting it out of the box. For nursing leaders to work in tandem, the new role of simulation leader needed to be developed and supported at the organizational level. Recommendations would be to secure this role as part of the planning phase if possible and provide the support, time, and resources for the person in this role to develop the necessary knowledge and skill. It is vital to appreciate this role as crucial and view it as a permanent and ongoing position.

Getting it out of the box proved to be more challenging than anticipated. It represented a concrete example of the pending change. This is an aspect that nursing leaders should be cognizant of when adopting and incorporating simulation or other innovations. Anticipation of this challenge could be dealt with during a planning phase. Recommendations would be to prepare people for

change, share expectations, and pay particular attention to the workload of the simulation leaders as that role develops in nursing. When change impacts workload and there is not an assigned person to manage it or a designated person who has been freed of some or all of their current obligations, it can become a barrier or an obstacle that can impede the process.

Interestingly, our data did not suggest that evaluation was a key phase in the implementation processes that took place at the studied institutions regardless of degree of uptake. While evaluation, as a result, is not a component of the seven-phase process presented here, that does not mean that evaluations were not performed. Most evaluations that participants spoke of related to specific research projects or written or verbal feedback from students. Very little evaluation was done related to the implementation process of simulation into the curriculum. The lack of focus on evaluative measures may be an outcome of the rapid turnaround time from the call for funding to the due date for the proposals. Data indicated that there was insufficient time for nursing programs to adequately plan for this change and therefore the lack of formal evaluation measures may not have been thoroughly incorporated. Despite the lack of discussion about evaluation in our data, we would recommend advance planning of evaluation strategies when implementing simulation into nursing curricula. Saunders and colleagues (2005) state the process evaluation can serve to measure implementation of a process or program, identify if outcomes are met, or recognize the need to implement further evaluations.

The process identified in this study aligns with Rogers' Diffusion of Innovation theory (1995) which is often used to guide the adoption of an innovation, but in several ways it also expands upon the understanding of adoption of an innovation in this specific context. Rogers suggests that there are five characteristics of an innovation that contribute to adoption: relative advantage (the innovation is better than what is currently being used); compatibility (does the innovation match current values and beliefs); complexity (how difficult is it); trialability (the ability to try the innovation and still reject it); and observability (having the ability to observe peers try the innovation). Within this study, the phases of learning about simulation and its potential for teaching, trialing the equipment, finding a fit, and integrating are similar to Roger's characteristics. This study, however, found that it was more than the characteristics of the innovation that were required for adoption and incorporation. Supports from various levels within the organization were crucial. This was highlighted in the securing resources phase. Initial and continuous financial and personnel resources are essential for successful adoption and incorporation. Nursing administrators and institutional leaders should create and maintain a budget for simulation.

While Rogers' theory (1995) supports the concept of a champion to move the adoption of an innovation forward, this study expands on this understanding as it relates to the use of simulation in nursing curricula. This study proposes that leadership in tandem between the nursing administrator and the simulation leader is the driving force. Shared workload and responsibility allowed the task of

adopting and incorporating simulation to be approached from different perspectives. This study revealed the complexity and multifaceted interconnectedness of the phases of the process, offering sufficient detail that would allow the process to be replicated.

Limitations

The letter of invitation for this study was a potential limitation because it indicated that people were contacted because of their experience and expertise in the area of simulation. This may have prevented some individuals or sites from participating because simulation was relatively new in most nursing programs, and the simulation leader role was in its early stages of development. As a result, some individuals may not have considered themselves expert enough or thought their institution had enough experience with simulation to warrant participating. This could have impacted the findings from this study because some sites may have contributed additional strategies, whereas, other sites may have identified additional obstacles that needed to be overcome in order to have more success with adoption and incorporation.

The institutional timelines that were developed were based on key institutional documents and the perceptions of the participants from each site. Some timelines were developed with information from only one or two participants. This could have resulted in less than robust detail on the timelines and may have impacted the findings to represent a narrow or individual

interpretation. This in turn could impact the transferability of the findings to other nursing programs.

Context that needs to be considered regarding the transferability of these findings is that the adoption and incorporation of simulation was an expectation of nursing programs when they applied for the funding. Consequently, some of the decision-making and planning about what equipment to buy and how to use it was not fully considered due to the short turn-around timeframe in the call for funding.

Conclusion

This research presents new insights into the process that shapes the adoption and incorporation of simulation into nursing curricula. The seven-phase process provides insight into the complexities involved when adopting a new innovation into an existing program within an academic institution. It demonstrates that the process is multifaceted, the phases are interconnected, and all levels of the institution contribute to the process. The phases of the process have sufficient detail that they could be used as a guide for other programs wanting to or struggling to adopt simulation or perhaps other innovations.

This study provided a definition of uptake that does not exist in the literature. This definition allows other institutions to gauge their progress compared to the institutions in this study. It adds to the literature on simulation and provides the impetus for this definition to be expanded upon.

More research needs to be conducted using the phases of the process identified in this study to guide or evaluate the adoption of simulation into nursing

and other health-related academic curricula. Additionally, further research should be done to evaluate this process for other innovations.

Conflict of interest

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Author contributions

All authors meet at least one of the following criteria: substantial contributions to conception and design or acquisition of data, or analysis and interpretation of data, or drafting the article, or revising it critically for important intellectual content and have agreed on the final version (ICMJE, 2013).

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Chapter 4

INTRODUCTION TO CHAPTER 4

Chapter four is a manuscript titled

ORGANIZATIONAL CULTURE SHAPES THE ADOPTION AND INCORPORATION OF SIMULATION INTO NURSING CURRICULA: A GROUNDED THEORY STUDY

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Chapter 4

Organizational Culture Shapes the Adoption and Incorporation of Simulation into Nursing Curricula: A Grounded Theory Study

Abstract

Purpose. To create a substantive mid-range theory explaining how the organizational cultures of undergraduate nursing programs shape the adoption and incorporation of mid- to high-level technical fidelity simulators as a teaching strategy within curricula. *Method*. A constructivist grounded theory was used to guide this study which was conducted in Ontario, Canada during 2011-12. Semi structured interviews (n=43) with participants that included nursing administrators, nursing faculty, and simulation leaders across multiple programs (n=13) informed this study. Additionally, key documents (n=67) were reviewed. Purposeful and theoretical sampling was used and data were collected and analyzed simultaneously. Data were compared among and between sites. *Findings*. The Organizational Elements that Shape Simulation in Nursing (OESSN) theory depicts five key organizational factors at the nursing program level that shaped the adoption and incorporation of simulation: 1) leaders working in tandem, 2) information exchange, 3) physical locale, 4) shared motivators, and 5) scaffolding to manage change. *Conclusions.* The OESSN theory provides an explanation of the organizational factors that contributed to the adoption and incorporation of simulation into nursing curricula. Nursing programs that use the OESSN theory may experience a more rapid or broad uptake of simulation when

organizational factors that impact adoption and incorporation are considered and planned for.

1. Introduction

Organizational culture is defined as the ways in which people know and understand the values and beliefs of a specific group of people or an institution [1]. These values and beliefs are established over time, are considered valid, and are taught to new members who enter into the culture [1, 2]. Organizational beliefs and values are guiding principles that influence the development of individuals' attitudes towards the organization and how individuals within that culture make decisions or invest their time [3]. Academic nursing programs are situated within challenging and complex organizational cultures [4] characterized by a combination of the traditional research, teaching, and service requirements of academia coupled with professional practice requirements [5]. Added to the complex culture of academic nursing is the integration of new technology in conjunction with a demand for diverse teaching strategies [5]. Simulation, specifically using mid- to high-fidelity equipment, which closely mimics real life experience without the real life risks, [6] is considered new technology. Although simulation has been used in nursing education programs since the early nineteen hundreds [7, 8], advances in the technological capabilities and the types of simulator equipment available today reinforce the notion of simulation being viewed by nursing faculty as a new teaching strategy. Additionally, there have been inconsistent levels of adoption and incorporation of simulation among

individual nurse educators and across nursing programs [9]. Individual factors such as faculty members' attitudes and perceptions of simulation have been studied [10, 11, 12], but there is a gap in the literature related to how organizational culture shapes and contributes to attitudes, perceptions, and behaviors that impact the adoption and incorporation of simulation into nursing curricula.

Akhtar-Danesh and colleagues (2009) conducted a q-methodology study in Canada of nursing faculty members' perceptions related to the adoption and integration of simulation. Benefits included aligning with students' positive perceptions about the use of simulation as a valuable teaching strategy, but challenges were identified about the usefulness and practicality of simulation in undergraduate education. Other researchers have reported that having the time to learn about and use simulation as well as having the resources to coordinate simulation-based education are the most significant barriers related to adoption and incorporation [12, 13, 14].

In the nursing education literature, identification of the individual perceptions, values, and concerns that influence the uptake of simulation have been well documented. While there has been some preliminary work to identify organizational influences on this issue such as the lack of faculty time and resources to implement this new technology [12, 13, 14], what has been consistently lacking is an examination of the organizational culture that leads to the development of attitudes, values, beliefs, and perceptions among nursing

faculty as they respond to change or adopt an innovation. There is more to integrating simulation into nursing curricula than faculty buy-in. The choices people make and the activities they invest in are not always guided by personal choice but by the culture of the organization. Organizational factors have been shown to significantly impact organizational change [15]. Therefore, it is important to examine how organizational factors impact the adoption and incorporation of simulation as a teaching strategy as it is becoming more prevalent in nursing education and as institutions look for ways to facilitate this change.

Schein`s (2010) theory of organizational culture was used to sensitize the researcher about concepts of organizational culture. This theory provided both a clear definition of organizational culture and distinguishable levels of culture that should be considered [16]. Although grounded theory research is not typically conducted using an existing theoretical framework, Schein's model was used to ensure exploration of core constructs associated with organizational culture. Schein defines organizational culture as the ways of knowing within a specific group that have been established over time and have been shown to be effective in managing problems. They are considered valid, taught formally and informally to new members, and include both explicit and tacit knowledge [1]. Schein suggests there are three major tenets to consider when analyzing organizational culture: artifacts, espoused beliefs or values, and basic assumptions, each representing different levels of culture. Artifacts are predominantly the observed characteristics

of organizational culture such as building design and structure, and dress norms; these represent the most superficial level of organizational culture. Schein suggests that the best way to understand organizational culture is to examine it at deeper levels.

Beliefs and values are considered legitimate and significant guiding principles of an institution [1, 2]. They are considered ethical rules or philosophies of practice. They are the goals, aspirations, and ideologies that signify what is most important to an organization or for what the organization is ultimately striving. Beliefs and values are often represented in public statements such as mission and vision statements [10]. At the deepest level of Schein's model are the basic assumptions which are thought to guide actions, contribute to attitudes and behaviours, and impact thoughts and feelings. They are often at an "unconscious or taken for granted" [10] level and need to be uncovered to understand the influence they hold.

Nursing programs in Ontario, Canada provided ideal circumstances in which to consider this issue. In 2004, the Ontario Ministry of Health and Long-Term Care demonstrated a commitment to nursing education through a $20 million investment for the purchase of simulation equipment for undergraduate nursing programs [17]. Monies were distributed to all 34 programs, ranging from $196,300 -$706,400, with the average institution receiving $500,000. Simulation equipment was the only allowable expense and nursing programs were expected to secure funds to ensure the continued operation and use of the equipment [18].

Charged with this expectation, nursing programs had to undergo a process of adopting and incorporating simulation into the curricula. So many nursing programs dealing with this initiative at the same time provided a good opportunity to examine the organizational elements that impacted this change. As the focus of the funding was mid-to high-fidelity simulation equipment, virtual simulations and standardized patients were excluded from this study.

2. Methods

2.1. Design. The procedures and principles of constructivist grounded theory [19] guided this research study. Charmaz's approach served to answer the research question: how do the organizational cultures of Ontario undergraduate programs of nursing shape the adoption and incorporation of simulation as a teaching and learning strategy within the curricula?

2.2. *Research setting.* This study was conducted in Ontario, Canada. Since 2005, a baccalaureate degree has been the entry to practice requirement [20]. As a result, colleges in Ontario have worked in partnership with universities to offer collaborative nursing programs where students can obtain a baccalaureate degree. Collaborative programs are offered as articulated or integrated models. In articulated collaborations, the first two years of the nursing program are offered at the college and the second two years are offered at the university. In integrated collaborations, the delivery of the program happens at all of the sites, and the faculty members from both the college and university are involved throughout each year of the program. Nursing programs were selected based on the following

criteria: (a) listed on the College of Nurses of Ontario web site [20] as an accredited program, (b) offered a four-year baccalaureate degree in English either on its own or in collaboration with another educational institution located within Ontario.

2.3. *Sampling.* Nursing programs that met the inclusion criteria were separated into geographical regions and then selected by stratified randomization to increase variability and reduce bias. Maximum variation among institutions was achieved by including both types of collaborations. Theoretical sampling as a form of purposeful sampling was used to ensure the core constructs and the deepest levels of organizational culture were examined [15]. The examination of artifacts was excluded from this study since there was an absence of equal opportunities to examine the artifacts at all of the sites. Knowledge about the beliefs and values was obtained by studying guiding documents such as the mission, vision, or philosophy statements at the level of the institution, the Faculty, and the nursing program. Sampling to investigate basic assumptions, the deepest level of organizational culture, occurred at the level of the nursing program through in depth semi-structured interviews with participants. Participants from multiple roles within the program included nursing administrators, nursing faculty members, and key simulation leaders, thereby facilitating maximum variation sampling. All participants were contacted by publicly available email addresses. Snowball sampling was used to identify additional participants and documents [21, 22]. Theoretical sampling was used as data collection progressed and

categories and themes started to emerge. This continued until data were sufficient to provide detailed descriptions of the experience from the participants' perspective. That is, sampling continued until theoretical sufficiency was obtained [19, 23].

2.4. *Data Collection.* Multiple data types and sources were collected as part of this study. This included up to two in-depth semi-structured interviews with nursing administrators, nursing faculty members, and simulation leaders. First interviews lasted approximately 60-75 minutes and explored organizational factors involved in the processes of adoption and incorporation of simulation. Second interviews, lasting 30-60 minutes, were conducted to further develop the categories emerging from the data. To gain a rich description of the organizational culture, key documents were collected. These documents were compiled and sent to participants in advance of the interview. During the interviews, participants were asked if and how the documents shaped the adoption and incorporation of simulation into the curricula. Participants were also asked if any other documents contributed to this process and to share those documents when possible. All but one interview was completed by the primary investigator KT. NVivo 9 qualitative software was used to store, organize, and manage all data [24].

2.5. *Data Analysis.* A characteristic of grounded theory research is concurrent data collection and analysis [19]. Interviews were transcribed verbatim; then data were analyzed line-by-line and incident-by-incident resulting in multiple codes, many of which were unique terms used by the participants (*in vivo* codes). Coding

of data followed process outlined by Charmaz (2006) [19]. The initial codes moved to focused codes that served to develop analytical categories for further examination and exploration. As concurrent data collection and analysis continued tentative categories started to emerge. Once the tentative categories were further explored and developed, they were raised to conceptual categories which are more abstract and led to the nascent structure of the theory. Documents were analyzed for key concepts and compared to interviews to see if the concepts were captured implicitly, explicitly, or at all. During data analysis a seven-phase process of adoption and incorporation emerged which resulted in the differentiation of high, mid, and low-uptake sites [25]. Then, the constant comparative method was used to explore how organizational culture impacted or shaped the process [26]. To facilitate this, memoing and theoretical sampling were used to capture thoughts, define codes, illuminate properties, make connections, and explore emerging themes. During this process the researcher looked for confirming and disconfirming examples to challenge the developing theoretical structure. This allowed for further exploration and expansion of emerging categories thus facilitating theoretical sampling until saturation was reached [19]. Once categories were condensed the structure of the theory emerged.

2.6. *Ethics.* Approval was obtained through two university-based research ethics boards. Verbal and written consents were obtained from all participants. Participation was voluntary and participants could withdraw from the study at any

time or choose not to answer questions. Identifying information was removed from all documents to maintain anonymity and confidentiality.

3. Results

3.1. *Characteristics of the participants, the documents and the institutions*. Representatives of thirteen nursing programs across the province of Ontario, including seven universities and six colleges, participated in this study. Of these sites seven were identified as high-uptake, five as mid-uptake and one as low-uptake. 55.5% of participants worked in the high-uptake sites, 40.7 % at mid-uptake sites, and 3.7% at the low-uptake site. All four geographical regions of the province were represented. 43 semi-structured interviews were conducted with 27 participants. The participants were all female and all registered nurses. Their roles included simulation leaders (n=6), nursing administrators (n=5), nursing faculty (n=12), and those serving in a combined role (n=4). All had a baccalaureate degree with the majority having a master's degree (85.1%); 14.8% had a PhD. The majority (75%) were between the ages of 41 and 60 years. See Table 3 for a detailed summary of the demographics.

A total of 67 documents were collected and analyzed and each organization contributed documents. Refer to Table 4 for a summary of the type of documents and the level of the institution they represent.

Table 3

Demographic information

Age	
20–30	0
31–40	8.3%
41–50	37.5%
51–60	37.5%
61–70	16.6%
Primary place of employment	
College	44.4%
University	55.5%
Years of experience using mid to high level simulators	
No experience	12.5%
1–3 years	16.6%
3–5 years	37.5%
5–10 years	25%
10–15 years	4.1%
20 plus	4.1%

3.2. Organizational elements that shape simulation in nursing (OESSN) theory.

To explain how educational organizational cultures influence the adoption and incorporation of simulation, a theoretical depiction identified as the Organizational Elements that Shape Simulation in Nursing (OESSN), Figure 3 was developed. A brief description of the full theory will be followed by an in depth explanation of each of the key organizational components. The concentric circles represent the different levels of the organization that impact the adoption and incorporation of simulation into nursing curricula. The outermost circle

represents the institution. The next circle represents the Faculty of Health (or otherwise named) and the innermost circle represents the nursing program. Each of these three levels has within it values and beliefs, which are termed guiding philosophies, and contributes to the organizational culture of the nursing program. Within the level of the nursing program, five key elements of the organizational culture emerged. They represent what Schein (2010) asserts are basic assumptions in that they influenced perceptions and attitudes, and impacted behaviours and actions related to the adoption and incorporation of simulation. They are: (a) nursing leaders, (b) information exchange, (c) physical locale, (d) shared motivators, and (e) scaffolding to manage change.

The central organizational element among the five was the nursing leaders who were typically nursing administration and the key simulation person (simulation leader). The arrow from the nursing administrator to simulation leader indicated the distribution of power required in the creation of a new role to manage the simulation initiative.

The five key organizational elements impacted the seven-phase process of adoption and incorporation, represented by the large downward arrow. The phases include: (a) securing resources, (b) nursing leaders working in tandem, (c) getting it out of the box, (d) learning about simulation and its potential for teaching, (e) finding a fit, (f) trialing the equipment, and (g) integrating into the curriculum [25].

Table 4

Documents reviewed

Level within the institution	Type of Documents	Total reviewed	Publicly available	Provided
Institutional	Institutional philosophy Institutional mission statement Institutional vision statement Institutional values statement Institutional core values statement	24	24	--
Faculty	Faculty philosophy Faculty mission statement Faculty vision statement Staff performance evaluation Performance appraisal Faculty annual appraisal template Annual performance evaluation report Support staff performance appraisal	9	5	4
Nursing program	Nursing program philosophy Nursing program mission statement Nursing program vision Nursing program learning outcomes	24	23	1
Simulation specific	The original simulation proposal Simulation centre strategic plan Simulation development template Sim center mission statement Sim centre vision statement Simulation strategic plan Strategic plan for simulation in nursing Application to nursing secretariat for simulation funding Simulation centre strategic plan	10	--	10

The seven-phase process leads directly to the levels of uptake which occurred across a continuum. High-uptake was defined as nursing programs that moved through all of the seven phases of the process, and successfully integrated simulation into all levels of the curricula in which nursing content is taught.

Institutions that met some, but not all, phases of the process were classified as mid-uptake and institutions that were not able to progress through any of the phases were classified as low-uptake [25]. Institutions that were classified as high-uptake experienced more outcomes than the other sites, and the outcomes had the potential to cross all levels of the organization. The remainder of this paper will provide in depth explanations of the organizational elements that shape the adoption and incorporation of simulation into nursing curricula and will, at times, be discussed in relation to the level of uptake.

3.3. *Guiding philosophies.* Before discussing each of the organizational components in detail it is useful to discuss the relationship between the level of uptake and the guiding philosophies. The guiding philosophies, in the form of mission, vision, value or philosophy statements, impacted on nursing programs' capacity to adopt and incorporate change. They are rooted within the Faculty and institutional levels of the organization. Each level has beliefs and values that stem from the overarching organizational culture. These beliefs and values influence actions and decision making when managing change.

The explicit knowledge and use of the organizational guiding philosophies varied considerably across the uptake continuum. Many of the high-uptake sites consciously used the mission and vision statements of the institution, Faculty, and nursing program as a method to make decisions and situate simulation within the curricula. When asked about adopting and incorporating simulation, one simulation leader indicated this by stating: "[simulation] relates to

the mission, it's innovative …being involved in things that are innovative is part of our mission" (006). Specifically, the terms innovative, research focused, experiential learning, quality of students' experiences, as well as the institutional teaching and research components facilitated decision making with regards to simulation.

This conscious explicit use of the guiding philosophies was not unidirectional. Nursing leaders used the guiding philosophies as a strategy for change but also as a tactic to acquire necessary resources. This is represented by the two-way arrow in the OESSN depiction between the leaders and the concentric circles representing the guiding philosophies. One nursing simulation leader reinforced this when stating:

> So anything that we do …has to somehow relate – if we're asking for resources, financial or human, it has to relate to the mission, vision, or values in order to be accepted. So any proposal that I bring forward, I ensure that it relates to those statements and I include rationale as to how this meets our mission, vision, or values (002).

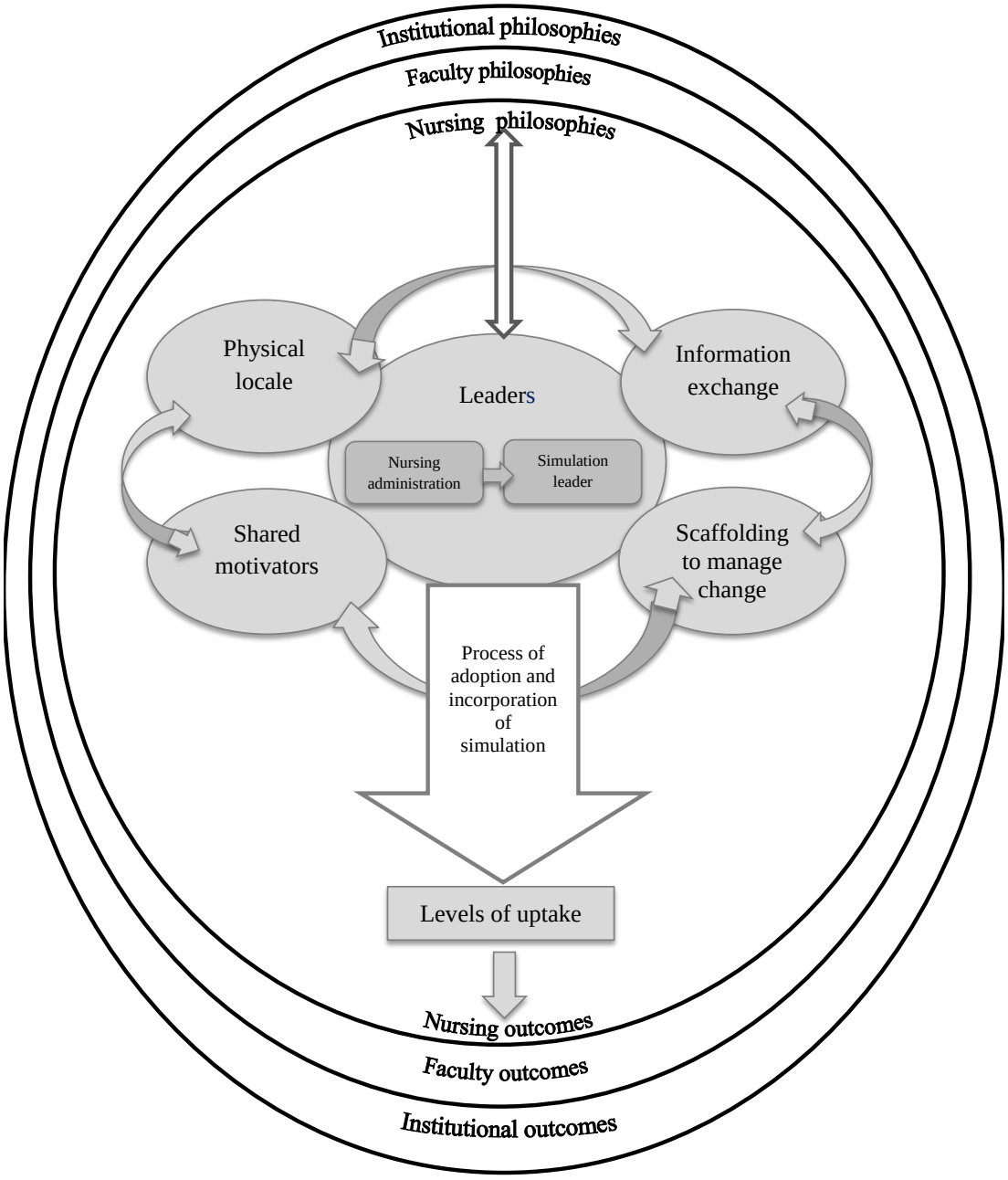

Figure 3. The Organizational Elements that Shape Simulation in Nursing

In the mid-uptake sites the impact of guiding assumptions was much more implicit. Participants used language such as ‘cutting edge,’ ‘engaging students in learning’, and ‘evaluating simulation’ during the interviews that mirrored or resembled the key concepts of the institutional, Faculty, or nursing program guiding documents. When questioned directly about the influence these documents had on the adoption and incorporation of simulation, participants needed to refer back to the guiding documents in order to make connections. One simulation leader emphasized this stating: “I’m sitting here looking at the two mission statements… I see the words innovation and developing and disseminating knowledge …I see that as related [to simulation]” (020). On the other end of the spectrum is the low-uptake site. When questioned about how the guiding philosophies shape the adoption and incorporation of simulation a nursing a faculty member responded saying “there is nothing in our statements specific to simulation” (027). The findings show that it is was not necessarily the specific language of the underlying beliefs and values but the way in which leaders and nursing faculty members chose to use them that shaped the adoption and incorporation of simulation.

3.4. *Leaders*. With an initiative as extensive as this one, multiple resources and people were needed. Many nursing administrators had this insight realizing they would not be able to do it all themselves, so simulation leaders were appointed or volunteered. This was the beginning of the shared leadership that has shaped the adoption and incorporation of simulation in nursing curricula. This was noted by

one simulation leader: “our former chair… was instrumental in giving me…. the green light to go ahead and take the lead on this” (001). This shared leadership became the driving organizational force that was required to implement simulation as a teaching and learning strategy in nursing curricula. The leaders consisted primarily of nursing administration and the simulation leader. They were the key organizational element and served as the axis on which the other essential organizational elements interacted. The leaders did not act as individual leaders working on separate tasks, but shared strategic leadership working in tandem toward a common goal. One nursing administrator highlighted this saying:

> In any successful venture one person can’t do it all… it was a joint effort… everybody brings their own unique knowledge and skill to the table. The ideas for the strategic plan were mine but without [the simulation leader] it wouldn’t have gone anywhere and still would be an idea (012).

The nursing leader’s role is multifaceted and required the leader to engage multiple strategies to facilitate the simulation initiative. These strategies included negotiating, navigating, and networking. Negotiating involves working with nursing faculty members within the nursing program as well as with groups or individuals at the level of the Faculty and the institution to exchange ideas and secure necessary resources. Navigating includes mapping out a certain course or plan for simulation within the nursing curriculum. Networking consists of generating a support system within the institution or among community members who have similar interests in simulation or can assist with the navigating process [27]. Much of what drove the leaders to support the simulation initiative were the

overarching guiding philosophies. These statements articulate what is significant or important to the institution, Faculty, and nursing program, and, in turn, imply value. For example, institutions that promoted innovation within their mission or vision statements had nursing leaders that used that value statement as a rationale to secure resources and promote the implementation of simulation into the curriculum because it ultimately aligned with and supported the mission of the institution. Another driving factor among nursing leaders was the expectation of use and the shared motivators that are discussed in relation to the four remaining organizational elements.

3.5. *Information exchange.* Information about simulation, its potential for enhancing the teaching and educational experience, and information about the additional resource requirements needed to support it had to be shared between nursing leaders, nursing faculty members, collaborative partners, and among different levels within the institution. The exchange of information about simulation was required at the onset of adoption and incorporation to get it started, but ongoing communication was also required to maintain simulation as part of the nursing curriculum. Information was communicated in a variety of ways and was significantly influenced by the nursing leaders who used formal and informal as well as written and spoken communication. One formal strategy used by several high-uptake sites was student evaluations of simulations. These evaluations included student feedback about the satisfaction with, or perceptions of, simulation as a teaching/learning strategy. The summaries of these evaluations

were presented at formal meetings as a way to facilitate the formal exchange of information among individuals or groups that were using simulation and those who were considering using it or uncertain about using it. The nursing leaders who facilitated this type of formal communication placed value on simulation, and provided ongoing opportunities for simulation to be considered as a teaching/learning opportunity. One nursing administrator explained this saying:

> We've built in evaluation all along … then twice a year we invite the sim coordinator to do a presentation to faculty about the events and activities that have occurred … and I think what that does is keep the thinking process alive and help faculty members anticipate what they might consider in their own courses (025).

All sites used some formal information exchange strategies such as introducing simulation at faculty or curricula meetings, or learning about simulation at conferences. However, the majority of low and mid-uptake sites used fewer formal exchanges of information and used them less frequently than the high-uptake sites. This was articulated by one faculty member stating "we don't have a formal process, it's more informal discussions" (023). This informal exchange of information was also more prevalent and diverse in the high-uptake sites and occurred in a variety of ways. Predominantly, it was centered on one-on-one or small group discussions. Also included were email updates about simulation, discussions about research findings, or displays of the findings. One simulation leader maintained this saying "our manager would just send something out via email and it was by word-of-mouth" (021). Informal information exchange strategies often served to promote interest and generate ideas about simulation.

Multiple and diverse ways of communication facilitated movement through the seven-phase process of adoption and incorporation. Exchange of information was needed for all of the phases but was crucial in the phases of learning about simulation and its potential for teaching, finding and fit, and securing additional resources. The transfer of information about simulation between all levels of the organization was needed to secure a place for it in the curriculum.

Information exchange is not only influenced by the communication strategies of the leaders, but also shaped by the physical environment. One faculty member recognized this stating: "our offices were across the hall from each other so [we were] always bouncing ideas off of each other" (024). Having people work in close proximity allowed for spontaneous conversations and sharing of ideas related to simulation. This concept of physical environment leads to the subsequent organizational element, physical locale that shaped the adoption and incorporation of simulation into nursing curricula.

3.6. *Physical locale.* A significant amount of space is required to store, maintain, and utilize simulation equipment. When the initial request for funding was advertised, institutions were required to show the appropriate allocation of space or a renovation plan. This resulted in many nursing administrators having to fight for space and many simulation leaders having to deal with the space provided. A multitude of solutions regarding the physical location of the simulation lab ensued. Space was rented that was located away from the nursing program on another campus, in a different part of the city, or on another campus. Many

nursing labs were renovated to accommodate the simulation equipment. Many participants claimed the physical environment of the lab shaped the adoption and incorporation of simulation into nursing curricula. Often the remote physical location of the lab was isolating for many simulation leaders and created disconnects between people making it difficult to share or generate ideas. One simulation leader stated: "The labs are completely separate from the [nursing program] and that also is a little bit tricky… because sometimes people don't want to come over here" (007). The isolated location of many simulation labs leads to feelings of frustration and the perception that simulation as a teaching strategy was undervalued or unsupported by the institution. This impeded the ability of some institutions to move successfully through all of the phases in the process.

Despite the isolation and disconnect that occurred in many new spaces, institutions which renovated spaces also had their own unique challenges. Renovated spaces were often described as inadequate or inefficient because of lack of knowledge about simulation equipment during the planning of the renovations. One simulation leader summed this up stating "The way our simulation area has been set up it's not the best layout. Our control room is actually down the hall …it's not even connected to the space that we're in… it wasn't a well thought out design"(027). Renovations completed during the early stages of this initiative before stakeholders had a full understanding of the complexity of the equipment often resulted in frustration among simulation leaders and other users and ineffective use of the equipment.

The physical locale proved to be a significant organizational element that shaped the adoption and incorporation of simulation in shared nursing curricula being offered among collaborative partners. Within the context of this study, nursing programs are offered in collaboration with college and university partners; typically collaborations are comprised of two or three institutions. There is a physical distance between the institutions as most collaborative partners are not housed in the same location. Despite sharing curricula, the physical locale of the lab in separate physical environments provided a greater organizational influence than the collaborative partnership. One faculty summed this up saying "although we are a collaborative program we are not really collaborative with regard to sim. [Our partner] has been very slow… I have no idea what is being done [there] and they have no idea what we do here" (011). The expectations and philosophies of the physical institution where the lab is housed took precedent over the collaborations, meaning that the institution where the simulation lab was located had greater influence in shaping the adoption and incorporation of simulation than collaborative partnerships delivering the same curricula. Two participants provided insight to this: one simulation leader stated "The barrier is … the collaboration… the two philosophies are so different… They do utilize simulation in some respect; they certainly run their simulation much differently than we" (022); while a nursing administrator added "collaborative programs… are extremely difficult to work with because… there are substantial differences

just between colleges and universities in terms of how they think but also I mean programs take on the personalities of their people as well" (015).

3.7. *Shared motivators*. Collective or shared social responses or "common experiences" shared by many proved to be motivating factors of the organizational culture that shaped the adoption and incorporation of simulation. The initial reaction experienced by most institutions was one wanting to take advantage of a rare opportunity. The reaction of some programs was to apply for the funding and then, later, figure out how to use the money. One simulation leader explained, "we're going to take it [the provincial simulation funding] and we'll … learn what to do with it after" (010). Wanting to take advantage of a onetime funding opportunity was a significant motivator experienced by all institutions.

What followed for most institutions were the common experiences of uncertainty and concern. Once the funding and equipment was in place the uncertainty set in. People were unsure of what to do with the equipment, of what the equipment was capable, and of how simulation might impact their workload and teaching responsibilities. This resulted in avoidance in many organizations, some not even opening the boxes until two to three years had passed. What helped some institutions move past the uncertainty was primarily the creation of the simulation leader role. Once this person was employed, expectations of this role developed and included learning about the potential of the equipment, how to set it up, and how to use it. While the uncertainty dissipated over time in the high-

uptake sites, the low-uptake site continues to be immobilized and indecisive about simulation. This was highlighted by one faculty member there who stated, “we got the equipment out of the boxes and put it in a closet, we do not use it very often and there really is no one to show us how to use it” (027).

Concern, as a shared motivating factor, was related to not wanting to ‘be left behind’ and to sustainability. Many mid-uptake sites and some high-uptake sites that moved slower through the process of adoption and incorporation experienced uneasiness about not being as competitive as other institutions that were utilizing simulation to a greater level or with more consistency. They expressed concern over recruitment of students and felt that the slow or minimal uptake of simulation could be a deterrent for some students. Several participants also shared the belief that simulation was an expectation in all health related education programs and, if they were not able to implement simulation as a teaching strategy, they would ‘be left behind’. The angst about being left behind is driven by the concept of time as a measurement of success. While there was neither an expected timeline nor clearly articulated time sensitive goals required in the initial proposal, many institutions measured their success in terms of time. The high-uptake sites, because of the leadership and past experiences managing this type of change, navigated the adoption more rapidly than other sites and placed a value of success on this as noted by one nursing administrator expressing pride in the short time frame her nursing program took from “conception to integration” stating “it was less than one year” (012). Time was also emphasized

by a nursing faculty member at a mid-uptake sight who stated "I have shamed a few people into doing it because everybody else was doing it[simulation], so we better get going with it [simulation]" (017). On the far end of the uptake spectrum is the low-uptake site where the simulation leader expressed frustration and embarrassment stating "despite being eight years into this initiative to have it only in one course it is just kind of weird … we are so far behind in simulation" (027).

The other concern common among all mid and high-uptake sites was the issue of sustainability. Since the funding was a one-time non-sustainable resource, there was insecurity as to how to implement and sustain it once in place. There were also concerns about the equipment breaking, or implementing it to a level within the curriculum where the demand would outweigh the availability, thus resulting in the need to purchase additional equipment but not having the funds. While the concern about being 'left behind' has lessened for some institutions, it remains a concern for many, especially for the sites which have collaborative partners who outrival them with simulation. Concern regarding sustainability remains consistent among all institutions and is not lessening over time.

Two additional shared motivational factors were positive student experiences and institutional expectations. Nursing programs are in the business of educating student nurses. Since nursing is a practice based profession, much learning comes from interaction with and practice of psychomotor skills on patients. The adoption and incorporation of simulation does not negate nor replace the learning from and with patients but it provides an opportunity to practice and

refine skills prior to them taking place with patients. This enables students to practice in a safe and secure setting without concern for patient safety. One faculty member summed this up stating:

> [Students] need to demonstrate before they can do it [on patients], [simulation] allows them to experiment, make mistakes, and figure it out for themselves. Clinical teachers are out there to protect the patient so [during simulation] their mindset isn't "this isn't a patient that needs protecting but a group of students who can learn from making mistakes" (008).

Positive student responses to simulation provided the most significant motivating factor for moving forward with the implementation of simulation. Participants consistently reported on students' feelings of security working with simulated patients, relief that they could practice without harm, and that all students could benefit from the learning instead of the one lucky enough to have an experience during clinical training. Participants said it reduced anxiety and competition between students because they were all provided with the same experience. One simulation leader clarified this this stating

> Instead of having only one or two students have the learning experience in the clinical setting we can set up experiences … with simulation we can make sure all of our students have experiences they may not always get (001).

The students' responses were a profound motivating factor for participants of this study consistently among all of the mid and high-uptake sites. Two statements by participants summed this up, one by a faculty member who stated "I think what motivates us to do [simulation] is the student's reaction" (010), and the other by a simulation leader who stated "the feedback we get is so positive from

the students and the instructors…we feel like we can see the learning happening" (020). Student responses appeared to energize the participants and spur them on to further use simulation as a teaching/ learning strategy.

The final motivating factor of the organizational culture stemmed from the overarching institutional expectations such as workload and the value of independence. Workload expectations are a significant driving force when adopting a new innovation, particularly one as extensive as simulation. There is a considerable amount of learning, trialing, and time required to become proficient in running the equipment, developing learning experiences, and implementing them. Some institutions have no way to accommodate this into workload assignments which results in people taking this on in their own time, aligning the work required with their own personal goals or research interests, or not participating at all. One simulation leader highlighted this saying:

> It's hard to know [if] it's an expectation of the organization. It seems like if you're tenure track you would never do this kind of work load… I have …70% teaching and they would have 40% teaching and 40% research… Their teaching work load allocation is really different because their research is way up (024).

Due to the different workload agreements, some of the college sites were able to adjust workloads to include simulation placing them at the higher end of the uptake continuum.

Independent organizational culture that holds the time-honoured practice of academic freedom above other values provides unique challenges for nursing programs wanting to adopt or integrate simulation. One nursing administrator

confirmed this point stating “the university culture is such that we all have to be individuals to get ahead, to get tenure and promotion, and do research which becomes a very competitive, isolating experience” (005). A faculty member shared her view of this stating: “if the expectation came from on high that thou shall implement [simulation], I can’t see that happening because we could always preach academic freedom; I don’t see how they could ever tell us we had to” (003). This level of independence that is the standard in many academic nursing programs creates unique challenges when trying to adopt and incorporate an innovation that requires a significant amount of extra time and a high degree of teamwork. The shared dynamic is a key organizational element that drives people to act and make decisions.

3.8. *Scaffolding as a way to manage change*. This element of organizational culture included support and structure as a framework to facilitate movement through the process of adoption and incorporation. It involved reaching outside the nursing program and linking with in-house partners to share resources. This proved to be beneficial in many high up-take sites, especially when requesting resources that benefit more than one program within the same institution. It also included the sharing of personnel resources and expertise which in turn provided an institutional cost saving strategy. Securing the framework to support simulation outside of the nursing program served to move simulation forward and to contribute to incorporation as it became a Faculty wide initiative rather than just a nursing program initiative.

As this option was not available to all institutions some chose to secure support by linking with community partners to share resources and expertise. Essentially this provided the similar support as noted with the institutions that linked with their in-house partners; it made the simulation initiative larger than just the nursing program. The benefit of connecting and linking with others for support in turn raises the profile of the initiative, as summarized by one nursing faculty member who stated "a new building was built for the Faculty… there was space in that new building allocated for clinical education, and simulation for all the health sciences and we also rent it out to groups like the hospital educators" (014). Sharing resources was a way to manage change, using the same lab, equipment, or personnel proved to be beneficial. Creating links beyond the nursing program strengthened the scaffolding and contributed to the level of uptake. Institutions which chose not to link with community partners or did not have in house partners to link with were at a disadvantage since the simulation initiative was supported primarily by just the nursing departments, and this led to a lower level of uptake.

Scaffolding to manage change intersects with all of the other organizational elements and is essential to accommodate initial and ongoing changes. It includes being creative with limited resources, providing recognition for extra work, and orienting new members.

While links external to the nursing program provided extra support and facilitated movement through the process of adoption and incorporation, there

were two strategies within the nursing programs that provided support and created a structure to promote simulation as a teaching strategy. The first was to provide recognition for the extra work required. Consistently, participants stated that the work which was required to make simulation part of the curriculum was unparalleled to anything they had previously experienced. One nursing faculty member stated "we're actually supposed to do three hours a week for Sim, which if you multiply by a 15 week semester, is 45 hours a semester, I do 45 hours in 3 days" (010). Institutions that compensated or recognized the extra work involved were higher on the uptake continuum than those that did not. Recognition was acknowledged in the form of education and travel that was paid for by the institution. This included sending people to conferences, workshops, or seminars. One nursing administrator discussed recognition stating "[simulation leaders] get a lot of rewards because these are the folks we are sending to conferences all over the world" (015). Recognition also came in the form of role designation, giving the simulation leaders a new and specific title. Some titles included: simulationist, sim specialist, or simulation champion. What this did was to differentiate the simulation leaders and give them a new status within their institution. Recognition provided incentive for those involved in simulation, thus strengthening the support system to facilitate the incorporation of simulation.

While recognition is an astute place to start with the development of a new role, one aspect which could have strengthened the scaffolding and provided additional support would be the addition of a job description and annual appraisal

documents that were reflective of the role and the work therein. Most participants stated their annual evaluation had nothing to do with their work relating to simulation. Few appraisal templates were shared with the researcher as participants voiced there was little to no connection between the work they do and their annual evaluation process. This was highlighted by one nursing administrator who stated: "the appraisal is just me reporting what I've done. There's nothing that comes out of the appraisal process that forces me to teach in a particular way" (006). One simulation leader from a mid-level uptake site interpreted this disconnect as a devaluation of her work and her teaching methods, stating "there is a lack of associated respect or merit placed on any of [simulation] activities" (009). While recognition is one strategy to strengthen support and provide a framework for success, adding specific job descriptions and having people evaluated for the work they do are strategies that could be used to add an additional level of structure and support to a newly developing role in nursing.

The last scaffolding strategy that was consistent among the majority of the high-uptake sites was the orientation of new members. Orientation of current and new nursing faculty members and staff is a strategy to maintain change and assign value to the innovation. One nursing administrator stated "we focused on everybody getting a baseline understanding of simulation… so new faculty and staff goes to the [simulation leader] for training" (012). Other examples of orienting new members included training modules for new faculty and the availability of individual training. Orientation was a consideration in both of the

rapid high and a couple of slower high-uptake sites, but most of the other sites had not given this much consideration as stated by one faculty member: "we don't really have a process for [orientation]" (023). Using strategies such as being creative with resources, providing recognition for extra work, and orienting new members proved to be effective scaffolding strategies that contributed to the adoption and incorporation of simulation.

4. Discussion

The organizational culture of nursing programs and the academic institution in which they are situated contribute significantly toward the adoption and incorporation of simulation into the curriculum. This study revealed that five key organizational elements contribute to the adoption and incorporation of simulation into nursing curricula. The OESSN shows these organizational elements as bordered by the institutional, Faculty, or nursing program guiding philosophies. The connection between the beliefs and values and the leaders in the OESSN was portrayed as a two-way path. This dual direction concept adds to Schein's (1984) theory by suggesting that movement between and among these concepts exists and can facilitate the uptake of an innovation into an academic program. Schein purports that beliefs and values impact actions and decisions, but this study reveals that movement from the beliefs and values is not unidirectional; flowing downward, the guiding philosophies influence the decision making of leaders; flowing upward, the leaders used the values and beliefs as rationale to support their requests for additional resources. Organizational philosophies are an

important aspect that should be used to guide the adoption and incorporation of simulation. Despite funding constraints in academia, a recommendation resulting from this study is that, when requesting funding support, nursing programs strategically use the guiding philosophies as tools to negotiate the needed resources when adopting or incorporating an innovation.

An important consideration from the findings of this research is the shared emotional reaction to time as a driving force. The initial emotion of not wanting to be left behind and the ongoing emotion related to perceptions of success both denote time as the form of measurement. This concept aligns with theories noted in social sciences. Graham [28] suggests that time is a concept of culture that influences people's perceptions. He further suggests that the completion of tasks is directly related to time, and a task that is not completed or takes additional unanticipated time is often referred to as "being behind" (p. 335). Graham further suggests that time spent completing tasks positions people or institutions for future progress. This is consistent with what was found in this study when participants expressed feelings of satisfaction with how far they had progressed with the adoption and incorporation of simulation over a short period of time. This finding is both surprising and predictable. Surprising because few institutions were able to articulate goals related to simulation therefore making it difficult to measure accurately their success or validate their progress or lack thereof. The concept of time as a measurement of success is simultaneously predictable within the context of this study. Researchers have suggested that North America

typically has a monochronic perception of time, where the focus is future oriented and concerned with completing tasks within set time frames [28]. There is also the philosophy that time can be wasted and that time provides meaning and affects judgment [29, 30]. The result of measuring progression and or success by time when there is no clear vision or goals related to the adoption and intergradations of simulation causes unnecessary emotional reactions which can become a barrier. One recommendation is to take lessons from polychronic time oriented cultures that focus on participation and achievement of milestones rather than fixed or unreal time frames [30]. Many aspects of adopting and incorporating an innovation are multifaceted and require many levels of cooperation within the organizations that takes time. Recommendations from this study would be to set clear measurable goals related to the adoption and incorporation of simulation and the purpose that it will serve in the program. The quality and achievement of goals should then be evaluated directly rather than using time as a measurement of success. This research provides insight into the emotional and cultural concepts of time when adopting and incorporating simulation and could generate future research in this area.

Using Schein's [26] theory sensitized the researchers to the concept of space as an organizational element. While space as a concept has the potential to be interpreted in a variety of ways, the findings of this research suggest that the physical locale is an essential driving force within the context of adopting and incorporating simulation into nursing curricula. While space is a commodity at

many post-secondary institutions [31], this study found it was more than just the availability of space; the more important facet was the location of the space. Space is a value laden resource. The physical location of the lab elicited emotional responses such as isolation or questions of value. Nursing program members perceived simulation to be undervalued or not valued if the allocated space was not ideally located nor within close proximity to the nursing department. Recommendations would be to encourage leaders to negotiate desired space close to the department if possible. If not, then leaders should communicate that space in academic settings is a scarce resource, a commodity, and that value exists even when the space is less than ideal.

Schein [10], states that the orientation of new members can perpetuate the values and beliefs of an organization. This was noted in a few of the high-uptake sites in this study but, overall, was limited in the other sites. Schein suggests that knowledge transferred to new members reveals what the institution values. He further states that the culture of the organization is taught to new members so that they can learn how to think, feel, and act in relation to the work environment. Not including simulation as part of the orientation of new members may lead to its devaluation, or new hires might view it as optional. Recommendations would be to include simulation in the orientation of new members. This provides an opportunity to show the value of simulation as a teaching strategy and perpetuates it as part of the culture.

The findings from this study indicate that there are many motivating factors involved at the level of the nursing program including the positive responses of students toward simulation as a teaching strategy. While there is not a substantial body of evidence supporting the effectiveness of simulation to positively influence the acquisition of new or sustained clinical skills [32, 33], organizations are highly motivated and focused on implementing simulation for the outcome of improved student satisfaction and student engagement with the learning environment.

The connections and the fluidity between and among the key organizational elements were an important finding from this study. The five organizational elements link together and are interdependent. Having this understanding of the interconnectedness of the organizational factors provides an opportunity for leaders to facilitate change. For example, the institutional expectations link directly to scaffolding. It is an expectation in most institutions that some form of annual appraisal is done. Participants in this study shared that they felt their work related to simulation was not reflected in this process. This disconnect provides an ideal opportunity for leaders to communicate, share information, and align work contributions so they fit within the parameters of the appraisal process. This is only one example of the interconnectedness of the key organizational elements. Other than the inherent link between leadership and communication [15, 34], the concept of interconnectedness adds to the literature on organizational culture. The dimensions of organizational culture are often

presented in isolation of each other [15, 34, 35]. Having an awareness of this would provide an advantage to nursing programs wanting to incorporate simulation because they could look at these aspects from a holistic viewpoint, knowing that one element of organizational culture impacts the other. Being cognizant of this when creating strategies to enhance this synergy could facilitate the adoption and incorporation of simulation as well as other innovations into nursing curricula.

4.1 Strengths and Limitations. Multiple strategies were used to enhance rigour in this study. Member checking was achieved during second interviews [19]. Triangulation of data sources and data types enhanced quality and credibility. The inclusion of multiple sites added to the transferability of the findings [36]. An audit trail consisting of memos, reflexive journaling, and field notes was maintained throughout the study to maintain confirmability [37, 38].

This study did not include an exploration of nursing program, Faculty, or institutional finances, flow of funding within organizations or among collaborative programs, nor union agreements. Inclusion of these aspects may have elicited additional findings related to the organizational elements that shape the adoption and incorporation of simulation into nursing curricula.

5. Conclusions

The organizational culture of nursing programs in Ontario that shape the adoption and incorporation of simulation into curricula has been represented by the OESSN that depicts the five key organizational elements: leaders, information exchange,

physical locale, shared motivators, and scaffolding as a strategy to manage change. This article was conceptualized from interviews with nursing administrators, nursing faculty members, and simulation leaders as well as a review of key documents from 13 different nursing programs. This research has contributed to the literature on simulation and enhanced the literature on organizational culture. The OESSN provides a framework that nursing programs could use to initiate or further facilitate the adoption and incorporation of simulation into curricula. It provides insight into key organizational elements that should be considered when incorporating simulation.

Conflict of interest

The authors declare that they have no conflict of interests regarding the publication of this article.

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Chapter 5

INTRODUCTION TO CHAPTER 5

Chapter five is a manuscript titled NEGOTIATING, NAVIGATING, AND NETWORKING; THREE STRATEGIES USED BY NURSING LEADERS TO SHAPE THE ADOPTION AND INCORPORATION OF SIMULATION INTO NURSING CURRICULA: A GROUNDED THEORY STUDY. It has been published in *International Scholarly Research Network - Nursing (ISRN -Nursing)* and is referenced as:

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Chapter 5

"Negotiating, Navigating, and Networking" - Three Strategies used by Nursing Leaders to Shape the Adoption and Incorporation of Simulation into Nursing Curricula: A Grounded Theory Study

Abstract

Background. Implementing simulation requires a substantial commitment of human and financial resources. Despite this, little is known about the strategies used by academic nursing leaders to facilitate the implementation of a simulation program in nursing curricula. *Methods*. A constructivist grounded theory study was conducted within 13 nursing programs in Ontario, Canada. Perspectives of key stakeholders (n=27) including nursing administrators (n=6), simulation leaders (n=9), and nursing faculty (n=12) were analyzed using the constant comparison method. *Results*. Nursing leaders, specifically nursing administrators and simulation leaders who successfully led the adoption and incorporation of simulation into nursing curricula, worked together and utilized negotiating, navigating, and networking strategies that impacted the adoption and incorporation of simulation into nursing curricula. *Conclusion*. Strategies that were found to be useful when planning and executing the adoption and incorporation of an innovation, specifically simulation, into nursing curricula provide practical approaches that may be helpful to nurse leaders when embarking upon an organizational change.

1. Introduction

The use of simulation as a teaching strategy in nursing education has developed significantly within the past decade [1, 2, 3]. Despite the increased use of simulation and the attention received [3], the integration of simulation into nursing curricula has been inconsistent. In 2004/05, the Ontario government provided each nursing program in the province with approximately $500,000 in funding to purchase simulation equipment [4]. Prior to this time, the use of mid- to high-fidelity simulation equipment as a teaching strategy was uncommon in most programs of nursing. Mid-to high-fidelity equipment is defined as life-like equipment that can imitate real-life responses to medical conditions [5, 6]. What followed was a time of dynamic change in nursing curricula as nursing programs started the process of incorporating simulation which provided an opportune time to examine how organizational culture shapes the adoption and incorporation of simulation.

Taplay and colleagues [7] discovered key organizational elements that shape a common process of adoption and incorporation of simulation into nursing curricula. Institutions that were able to navigate this process and integrate simulation into all levels of curricula in which nursing content was taught were classified as high-uptake. The key organizational factor that was identified in high-uptake sites was the shared leadership among nursing leaders. This paper represents an effort to delve more deeply into the shared leadership among nursing administrators and simulation leaders and to explain the three leadership

strategies (negotiating, navigating, and networking) that played a key role in the adoption and incorporation of simulation into nursing curricula in Ontario Canada. While the focus of this study was mid- to high-level fidelity equipment, the common term "simulation" will be used throughout this paper.

Leaders engage in processes that bring value to an organization by influencing change [8] thereby shaping organizational culture [9, 10]. Now more than ever, academic nursing leaders are expected to be innovative and facilitate change because nursing education is undergoing a period of great change with the incorporation of new technologies, including simulation. Young and colleagues [11] conducted a phenomenology study exploring the experiences of becoming a nurse faculty leader among a group of 21 nurse educators. The participants in this study often reported that they felt unprepared to assume leadership roles and lacked the skills or strategies needed to manage change. Horton-Deutsch and colleagues [12] identified three strategies used by nurse educators when faced with leadership challenges: "reflecting," "persevering through difficulties" and "learning to relate to others in new ways" (p. 487). Pearsall and colleagues [13] suggest an additional strategy of "doing your homework" (p. 1) as a way to manage change. The researchers found that learning about a subject and weighing the positives and negatives before making decisions lessened their concerns about change when taking risks. They suggested that risk taking is a key factor in academic leadership since it involves trying something different or innovative. Although these researchers identified general strategies used by nursing leaders

when they were met with challenges, there remains a gap in the literature related to strategies that academic nurse leaders use when trying to adopt and incorporate new technology. Further insight is needed to understand the processes and strategies nurse leaders use to facilitate the integration of simulation into nursing programs.

2. Method

2.1. Design. The principles of grounded theory [14] guided all methodological decisions related to sampling, data collection, and analysis. This approach was used to guide this research because it provided an opportunity to examine how nursing leaders managed the complex process of adopting and incorporating simulation into nursing curricula. A review of institutional mission and vision statements served to provide organizational context and insight into the cultures in which this simulation initiative was occurring [14, 10].

2.2. Sampling. Participants from 13 of 34 provincial nursing programs were included in this study. Participants included nursing administrators, simulation leaders, and nursing faculty members. Maximum variation, a method of purposeful sampling was used to capture the differences in nursing programs by geography, and structure of program [14]. All geographic regions of the province were represented as were both college and university nursing programs and the collaborations between them. In addition, maximum variation sampling was used to enhance the degree of representation among the participants themselves.

Theoretical sampling, a hallmark of grounded theory research, helps to explore, define, and recognize attributes of themes as they emerged. This type of sampling continued until no new properties emerged which indicated that theoretical sufficiency was achieved [15].

2.3. Data Collection. Data were collected using two rounds of audio-recorded face to face or telephone semi-structured interviews. Initial interviews focused on the process of adoption and incorporation of simulation and were approximately 60-75 minutes. Second interviews, focused on emerging categories, in particular the leadership roles which facilitated the process, were approximately 30-60 minutes. NVivo 9 software [16] was used to organize and manage all data.

2.4. Data Analysis. All interviews were transcribed verbatim, then analyzed line-by-line and incident-by-incident by the primary investigator (KT). The ensuing codes were developed and defined through the use of the constant comparative method of analysis comparing data within and across sites [14]. The codes were then condensed into categories. Concurrent data collection and analysis, a feature of grounded theory research, was used to aid in the process of developing the categories, and in defining the properties and characteristics which led to the nascent structure of the developing theory. To stay true to the participants' perspectives, *in vivo* codes were used and will be highlighted in single quotations throughout the paper.

2.5. Ethics. Two research ethics boards approved this study. Consent was obtained from all participants who were informed that their participation was voluntary.

Anonymity and confidentiality were maintained by removing all identifiers and numerically coding the data.

3. Results

3.1. Demographic Data. Participants included simulation leaders (n=9), nursing administrators (n=6), and nursing faculty (n=12). All participants were female and registered nurses. All had a baccalaureate degree with the majority having a master's degree (85.1%); 14.8% had a PhD. They ranged in age from 20-70 years. The majority (75%) were between the ages of 41 and 60 years. The primary place of employment was almost evenly divided between universities (55.5%) and colleges (44.4%). Participants (37.5%) had an average of 3-5 years (range 1-20 plus years) of experience using mid- to high-fidelity simulators.

Among the sites in this study there was variability in the uptake of simulation ranging from high to low. The cause can be understood in part by considering the leadership differences which presented in this study. The most apparent difference between the high-uptake sites and the mid and low-uptake sites was the consistent leadership shared between the nursing administrators and the simulation leaders. This shared leadership was the key element that shaped the adoption and incorporation of simulation into nursing curricula.

3.2. Nursing Leaders. Nursing administrators were identified as a chair, dean, or director of nursing within their respective nursing programs. In their administrative roles, they were instrumental in the development of the new simulation leader role. Nursing administrators in the high-uptake sites realized

that the workload would need to be shared and had the insight to create a new role to facilitate the integration of simulation. They also recognized that the simulation initiative required an individual who was willing to take the lead. This was highlighted by one simulation leader who stated:

> The Dean approached me to spearhead the [simulation] initiative and… plan for the acquisition of equipment and facilities. It was considered a special project that I was asked to lead… my job description was altered to accommodate additional responsibilities (002).

This represented the significant level of responsibility and decision making power bestowed upon the simulation leaders.

This change in work responsibilities also came with a change in title. The people who took on the role of simulation leader were identified by such titles as simulationists, simulation champions, simulation specialists, or simulation coordinators. The simulation leader role differed considerably across organizations with respect to title, responsibility, and expectations. However, despite the differences, most identified having some if not all of the following responsibilities: developing and sharing expertise about all aspects of simulation; developing or designing simulations; supporting nursing faculty members and clinical instructors in the development of the knowledge and skills to enable their understanding of the equipment's capacity and utilization; providing technological support; managing the facilities; and organizing simulation experiences for students. Some simulation leaders also had the responsibilities of managing simulation committees, creating simulation templates, and motivating people to incorporate simulation into the curriculum.

The diversity of role expectations and responsibilities among the simulation leaders was institutionally driven and based on what worked best at the time for the institution and the nursing program; that is, what was the most feasible and what was the most expeditious to implement. This was highlighted by two simulation leaders describing their role. The first stated: "what I do is design and write out the scenarios and facilitate every simulation that happens in the lab and … get more faculty and staff trained to feel comfortable doing [simulation]" (007). The second stated that her role consists of "primarily overseeing the simulation activities, the physical space, and the logistics of it. Not so much creating the actual simulation or the learning plan objectives, but taking the faculty's vision and bringing it to life" (001). The diversity within this role was further emphasized by organizational classification; some simulation leaders were classified as nursing faculty while others were classified as staff. The inconsistencies in title, responsibility, and work expectations among simulation leaders highlight the challenges associated with a newly developing role.

In the high-uptake sites where nursing administrators and simulation leaders shared power, decision making, and responsibilities related to the integration of simulation, three key strategies emerged that nursing leaders engaged in to facilitate the adoption and incorporation of simulation into their nursing curricula. These included, 'negotiating', 'navigating', and 'networking' that both nursing administrators and simulation leaders employed either jointly or independently.

3.3. 'Negotiating'. The negotiations that leaders engaged in when developing goals and action plans included coming to an agreement regarding the resources and personnel needed to incorporate simulation into the curriculum. While the nursing administrators and simulation leaders were both required to negotiate with individuals, the process started with the administrators. Nursing administrators were involved in negotiations with upper level administration within the institution where they emphasized the importance of the simulation initiative and created awareness of what would be needed to be in place to support this initiative. This was an essential first step, since resources, space, and support from the institution were required to develop the simulation labs, particularly because the funding received from the province was earmarked for the purchase of simulation equipment only. The second step was to convey the need for a lead simulation person. Nursing administrators, particularly those from the high-uptake sites, used three strategies during these initial negotiations: education to heighten awareness about the needs of the nursing department, followed by persistence and persuasion. One nursing administrator provided an example of how she had articulated the needs of the nursing program by stating that she had to "educate the Dean about what a nursing lab is, and introduce [simulation] into a culture where there's absolutely no knowledge of it" (005). Another administrator discussed the persistence she used to secure resources by stating "it took a lot of dialogue with senior administration, negotiations around space and the proposals for a simulation coordinator …we were kind of persistent in making the

argument" (025). She stated that she approached these negotiations with the philosophy "that you cannot get what you require unless you communicate your needs" (025).

The final negotiating strategy used was persuasion. Persuasion in this context involved emphasizing the institutional benefits that could result from the nursing program adopting and incorporating simulation into the curricula. Nursing administrators typically highlighted three institutional benefits when negotiating with upper level administration. First, integrating simulation was a way to become, or stay, competitive with other nursing programs. Second, having simulation integrated into the curricula could aid in the recruitment of potential students. Third, the accomplishments related to simulation, (e.g. securing grants, conducting research, or the lab itself) could be used to publicly promote the nursing program and, in turn, promote the institution as a whole. These strategies used by nursing administrators helped to acquire the necessary resources and personnel for simulation.

Once resources were allocated for space and a new position was created, the nursing administrators were then able to share the negotiating responsibilities with the simulation leaders. The focus turned to increasing buy in and the use of simulation among nursing faculty members which required different negotiating tactics by the nursing administrator and simulation leader. Nursing administrators created opportunities for faculty to learn about the potential for simulation and encouraged them to consider where simulation fit into courses or curricula. This

was done by sharing information at meetings or by supporting the faculty members' attendance at conferences. Whereas, simulation leaders provided opportunities for nursing faculty members to gain hands-on experience with the equipment thereby enhancing their comfort level and providing opportunities to offer suggestions on how simulation could be incorporated into their specific courses. The institutions took a tandem approach to negotiations. Both types of leaders interacted with faculty members, but used different negotiating strategies to implement simulation into the nursing curriculum.

3.4. 'Navigating'. Navigating requires finding a way, creating a path, or setting a specific course of action through uncharted territory. It often involves using specific instruments or means. It requires direction or a plan and can be challenging [17, 18]. Participants in this study identified two strategies used to direct the pathway for simulation to be integrated into the curriculum. The first was the leadership style(s) used by the nursing administrators during the adoption and initial incorporation of simulation into the curriculum. The second was the development of the simulation leader's role.

Participants discussed three unique leadership styles employed by nursing administrators when navigating through the adoption and incorporation of simulation into the curriculum: (a) 'participatory', (b) 'delegative', and (c) 'laissez-faire'. The first two leadership styles were found in the high-uptake sites and were accompanied by a vision or an idea of how an innovation could fit within the current curriculum consistent with charting a path or a course of action

when navigating. Participatory leadership encouraged input from all members of the nursing department about the uses for simulation. Leaders who used this strategy presented simulation as a solution that could address challenges with gaps in the curriculum or augment clinical experiences offered to students. This type of leadership encouraged shared decision-making within the nursing department and provided the opportunity for all to have a voice and contribute to the initial and ongoing vision. Sites that used this shared or team approach initially continued to do so as simulation was further integrated into the curriculum.

Delegative leadership primarily involved unilateral decision-making by nursing administrators at the onset of the initiative. Simulation was presented to simulation leaders and nursing faculty members as an expectation by these leaders. Leaders who used a delegative style did not include much if any input from the simulation leader or faculty members into the overall development of a vision. However, once the expectations of the nursing administrators were made clear, the simulation leaders were given power, permission, and domain over how to incorporate simulation. One example of this was stated by a simulation leader:

> Our Dean would tell us … simulation is a priority. Here are my expectations, we need to do this to enhance our curriculum and the way that we get there is totally up to you but here are my expectations (018).

Nursing administrators who used both participatory and delegative leadership styles were able to encourage both simulation leaders and nursing faculty members to work together which resulted in a higher level of uptake than institutions where the participants reported that a laissez-faire leadership style was

employed. These sites had difficulty because they did not or could not establish or convey a plan for simulation or a direction to follow. One faculty member highlighted this by stating that "the director at the time said basically…if you think there is a place for [simulation] to be integrated, find a place" (027).

The second strategy articulated by participants that served to maintain the direction of integrating simulation into the curriculum was the development of the simulation leader's role. In most high-uptake sites, simulation leaders were given a new title, power, and autonomy with their new role. This helped nursing programs to navigate the uncharted path of integrating simulation since many simulation leaders invested considerable personal time and effort to develop expertise in this area. To do this, many simulation leaders worked toward creating a new work identity and aligning simulation with their career and educational goals. This was noted by a simulation leader who stated:

> As far as the simulation piece, it just seemed to be a fit… it fell in line with what my organization needed but it also fell into line because I could focus my Masters on [simulation] in nursing education (021).

While there was substantial personal sacrifice noted, in some cases this resulted in professional achievements such as advancing from part-time to full-time employment status. Gaining expertise provided simulation leaders a means to manage challenges which arose during the integration of simulation such as resistance or indifference among faculty members or trouble shooting equipment problems. The development of the simulation leader's role served to facilitate and direct the path of simulation into the curriculum.

3.4. 'Networking'. Networking involves creating or seeking out a support system comprised of individuals or groups who have the same or similar interests and objectives [17, 18]. Participants in this study described networking as the creation of relationships by both the nursing administrator and simulation leader who served to move simulation forward in the nursing curriculum. These connections occurred within the institution, among different professions, outside of the institution, and across the nursing profession. Both nursing administrators and simulation leaders created support systems to gain information and share resources related to simulation. Nursing administrators primarily used networking as a means to collaborate and secure necessary or additional resources; whereas, simulation leaders used it for the purpose of learning and gaining expertise.

Within the individual institutions, some nursing leaders connected with other departments representing different disciplines that included: physical or occupational therapy, medicine, pharmacology, and emergency response. This strategy allowed the programs to share resources such as lab space, equipment, and, at times, personnel, which provided the potential for institutional cost-savings. Networking with colleagues from other professions within the same organization who have experience or expertise with simulation enabled simulation leaders to learn about the equipment and gain expertise in managing and organizing a lab. Additionally, this networking provided the opportunity for faculty members and simulation leaders from multiple programs to work together, conduct research, and plan and implement simulations. In some instances, these

connections also led to the development of interprofessional simulations that met the needs of students in different programs.

Networking also occurred with local health care agencies such as hospitals and community health care organizations. In some cases, the nursing program would reach out to the health care agency to inform them of the educational approaches offered to nursing students through simulation. Other institutions presented simulation to local health care agencies as a means to generate potential revenue by having agencies rent out the facilities and equipment for staff training purposes. Other programs initiated these partnerships as a way to enhance interprofessional education. One administrator summed this up stating: "I felt that [simulation] was an interprofessional initiative for the whole region, that simulation would be a way to bring everybody together and raise the profile of this school" (005).

Simulation leaders also connected with other nursing professionals. These connections typically developed through simulation conferences. At the onset of this initiative, most networking was done outside the province, in the United States, since there were few nursing experts in Ontario with whom to consult. These interactions provided an opportunity to learn about nursing-specific content, and for simulation leaders to develop their own expertise. Institutions that were able to support simulation leaders' attendance at conferences and thus gain expertise had an easier time integrating simulation into the curriculum.

Networking with the purpose of securing resources that benefited more

than one program within the same institution and connecting with health professionals in the community both served to move simulation forward to become a faculty-wide or community affiliated initiative rather than just a nursing specific initiative. Networking was a key strategy used by nursing leaders during the preliminary phases of the simulation initiative, but it must continue in order to advance simulation in nursing education. It needs to be actively pursued by both nursing administrators and simulation leaders.

4. Discussion

The tandem leadership between the nursing administrator and the simulation leader is similar to the definition of shared leadership that exists in the literature. Shared leadership is considered a dynamic interaction between people that focuses on achieving specific group or organizational goals [19].While this type of leadership is discussed within the broader field of education [20], there is no discussion of how it has been applied to simulation. This is a significant finding from this study that adds to the literature on simulation. To date, much of the literature about the uptake of simulation into nursing curricula has focused on the attitudes and beliefs of faculty members [21] and the aspects that nursing faculty consider when making decisions about whether to incorporate simulation [22]. This study, on the other hand, suggests faculty attitudes and beliefs about simulation as a teaching strategy may not be the only consideration which can facilitate or impede the adoption and incorporation of simulation. The shared leadership between the nursing administrator and the simulation leader who

utilize negotiating, navigating, and networking strategies to manage change contributed significantly in the adoption and incorporation of simulation into nursing programs. Sites that had leaders working in tandem to share the workload and the responsibilities experienced a high level of uptake of simulation compared to sites that did not have these nursing leaders. Effective shared leadership involved utilization of negotiating, navigating, and networking strategies to manage change.

The role of simulation leader proved to be crucial in the process of adopting and incorporating simulation into nursing programs. The findings from this study provide insights into the complexity and diversity of this role by highlighting the multiple responsibilities and extensive workload expectations. What was discovered during this study is that the development of the role of the simulation leader was driven by the needs, requirements, and feasibility of each individual institution. This was highlighted by the lack of consistency related to workload, level of responsibility, and title. As a result, the role may become indistinguishable from the institution because it is so specifically based on the needs and resources within that organization. This can potentially lead to ambiguity about the role of simulation leaders as it relates to the broader context of the nursing culture. This is an issue for future consideration as the role of the simulation leaders becomes embedded into the organizational structure of nursing programs.

5. Strengths and limitations

The strengths of this study included the triangulation of data sources and theoretical sampling. Triangulation of data sources was achieved by including participants who held different roles in the same institution, thus offering varied perspectives [23]. Theoretical sampling was achieved by returning to participants to clarify concepts and add further detail in order to refine the emerging theoretical categories [14, 24]. This strategy was used "until no new properties emerge[d]" [14, p. 96].

A limitation of this study was that the chair, dean, or the director roles within the nursing programs were grouped together under the umbrella of nursing administrator. The roles were not differentiated with respect to specific responsibilities or the permanence of the position. Inclusion of these aspects may have elicited additional findings related to the shared leadership among the nursing leaders.

6. Conclusion

Nursing leaders, specifically nursing administrators and simulation leaders who represented high-uptake sites, worked in tandem and utilized negotiating, navigating, and networking strategies to impact the uptake of simulation into nursing curricula. Nursing leaders who employed these strategies were able to secure necessary resources, collaborate with key stakeholders, gain information, create a vision, and forge a course of action through uncharted territory. Insights regarding the development of the role of the simulation leader were shared and

concerns about the future of this role as it relates to the broader context of the nursing profession were raised. Additionally, this study offered strategies that may be useful when planning and executing the adoption and incorporation of an innovation, specifically simulation, and offered practical approaches that may be helpful to nurse leaders when embarking upon an organizational change.

Author contributions

All authors meet at least one of the following criteria: substantial contributions to conception and design; or acquisition of data, analysis, and interpretation of data; drafting of the article; or revising it critically for important intellectual content. All have agreed on the final version [25].

Conflict of interest

The authors declare that they have no conflict of interests regarding the publication of this article.

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Chapter 6

Discussion

Chapter six provides the summative conclusions of all findings from the research conducted as part of this dissertation. Implications for practice, education, and policy, as well as suggestions for future research, are outlined.

Chapter 6

Discussion

The purpose of this chapter is to summarize and expand, through discussion, the findings from the research conducted from this thesis. Since chapters three through five were developed as manuscripts for submission, the discussion sections were shortened. The theory that emerged represented by the Organizational Elements that Shape Simulation in Nursing (OESSN) was discussed in part in each chapter, but will be considered as a whole here. This chapter begins with a summary of the findings by reviewing the OESSN, followed by the unique contributions that the findings from this study bring to the literature. A summary of the challenges and insights follow, along with a discussion of the implications for education and practice, policy, and future research.

Organizational Elements that Shape Simulation in Nursing: A Summary of the Study Findings

The overall purpose of this study was to formulate a mid-range substantive theory to explain the influence of organizational culture among nursing programs that shape the adoption and incorporation of mid to high-level-fidelity simulators as a teaching and learning strategy within the curricula. The research question that guided this study was "How do the organizational cultures of Ontario undergraduate programs of nursing shape the adoption and incorporation of simulation as a teaching and learning strategy within the curricula?"

The OESSN theory discussed in chapter four (see Figure 3) represents the unique and multifaceted findings of this study. It is presented as concentric circles

to illustrate that the nursing program is situated within and influenced by the values and beliefs of the institution (the college or university) and the Faculty (of health, or otherwise named) with which it is connected. Essentially, the culture of the nursing program is a sub-culture within the larger organizational culture. Research on organizational culture appreciates and recognizes each culture as unique and individual and, as such, the investigation of a specific organizational culture is typically conducted as an independent case or within a single institution (Schein, 2010). The purpose is to understand behaviours, successes, failures, or changes within a specific company with the intent to gain insight about driving forces or basic assumptions that impact actions and performance (Alvesson, 2010; Schein, 2010). In this study the organizational culture of multiple institutions was examined. All the organizations in this study were unique and individual, yet five common organizational elements or basic assumptions emerged among these varied and diverse academic nursing programs. These are represented in the OESSN as the central interconnected concepts at the core of the diagram. The core organizational elements include: (a) nursing leaders, (b) shared motivators, (c) information exchange, (d) physical locale, and (e) scaffolding to manage change. A synopsis of each of the core elements will follow prior to summarizing the remaining aspects of the OESSN theory.

Nursing leaders. Nursing leaders, specifically the administrators and the simulation leaders, were the key influencing factor in the adoption and incorporation of simulation. These individuals acted as a centre point for

interchange among the four additional organizational elements. The nursing leaders are both influenced by the values and beliefs (the overarching guiding principles) of the educational institution and use these principles as tools to facilitate change within the nursing program. In the OESSN depiction, this interchange is represented by the two-way arrow between the leaders and the concentric circles.

Shared motivators. Collective or shared social responses or "common experiences" shared by many proved to be motivating factors that shaped the adoption and incorporation of simulation. These included: wanting to take advantage of a rare opportunity, feeling uncertain and concern about not wanting to 'be left behind,' being concerned with the issue of sustainability, valuing positive student experiences, and being motivated by institutional expectations such as workload and the value of independence.

Information exchange. The exchange of information about simulation was required at the onset of adoption and incorporation to get it started, but also this exchange needed to remain ongoing to maintain simulation as part of the nursing curriculum. The exchange of information occurred between nursing leaders, nursing faculty members, collaborative partners, and among different levels within the institution. Information was communicated in a variety of ways by the nursing leaders to the various audiences at these different levels.

Physical locale. A significant amount of space is required to store, maintain, and utilize simulation equipment. As a result, many nursing

administrators had to fight for space, make do with the space provided, or renovate space. The space provided (or not provided) was interpreted by many participants as an indicator of how much the organization valued simulation. Many participants claimed that the physical location of the lab impacted how the adoption and incorporation of simulation into nursing curricula occurred**.**

Scaffolding to manage change. This element of organizational culture included support and structure as a framework to facilitate movement through the process of adoption and incorporation. It involved reaching outside the nursing program and linking with in-house or community partners to share physical, financial, and personnel resources.

The aforementioned organizational elements are what impacted the seven-phase process of adoption and incorporation. The large downward arrow represents these phases that are iterative in nature and not always sequential. They include: (a) securing resources, (b) leaders working in tandem, (c) getting it out of the box, (d) learning about simulation and its potential for teaching, (e) finding a fit, (f) trialing the equipment, and (g) integrating into the curriculum. The transition through each of these phases, as well as the ability to integrate simulation into all years of the curriculum in which nursing content is taught, resulted in some sites being defined as high-uptake. In the spectrum of uptake, there were high, medium, and low sites. The level of uptake was associated with the potential organizational, Faculty, and nursing program outcomes discussed in chapter three (See Figure 2).

Contributions to the literature

The OESSN theory has nuances that parallel both Schein's (2010) theory of organizational culture and Rogers' (2003) diffusion of innovation theory. Since Schein's theory was used to frame this grounded theory study and to sensitize the researcher to the key organizational factors, it is not unexpected that there are similarities to this theory as identified in chapter four. Additionally, Rogers' theory was used to aid in the interpretation of the process that was uncovered and is discussed in chapter three of the thesis thus resulting in analogous features to his theory. While both of these theories are considered grand theories applicable to broad populations, the OESSN theory offers a mid-range explanatory theory that is contextually based within nursing academia. It offers a deeper understanding of the organizational elements that shape the adoption and incorporation of simulation into nursing curricula specifically. Additionally, the theory offers links between the common concepts among these two broader theories and reveals unique insights into the leadership that was required to facilitate and sustain change.

The organizational element of "shared motivators" in the OESSN theory adds to the literature on simulation and complements the literature on organizational culture as well as the diffusion of innovation literature. While there are facilitating factors related to innovations, there are also motivating factors within organizations that shape the adoption and incorporation of simulation. Much of the literature on simulation focuses on facilitators and barriers that

impact nursing faculty members' decisions about integrating simulation (Akhtar-Danesh, Baxter, Valaitis, Stanyon, & Sproul, 2009; Arundell, & Cioffi, 2005; King, Moseley, Hindenlang, & Kuritz, 2008; Melnyk & Davidson, 2009; Nehring, & Lashley, 2004). The OESSN theory suggests that the adoption of an innovation requires more than individual-level motivators. Organizational elements, particularly the shared motivators and the leaders, are influencing factors associated with adoption. Rogers' diffusion of innovation theory primarily discusses the major motivating factors of adoption as both the characteristics of the innovation and the perception that what is being introduced is superior to what is currently being used. The OESSN theory extends that concept suggesting that shared motivators are a driving force that needs to be considered rather than just the qualities of the innovation. Schein's organizational culture theory primarily focuses on one specific organization at a time and suggests that each unique culture has specific motivating factors. However, results from this study suggest that shared motivators are common among multiple nursing programs with diverse organizational cultures.

In particular, one shared motivator that acted as a driving force for adoption and incorporation among all institutions was the students' responses to simulation as a teaching strategy. Despite the lack of clear evidence that recognizes simulation as an equal or superior teaching strategy in terms of sustained clinical skills (Cant, & Cooper, 2010; Yuan, Williams, Fang, & Ye, 2012), it continues to be increasingly utilized in nursing education. Students'

positive responses toward simulation as a teaching strategy is a significant motivating factor that influences nursing programs to adopt and incorporate simulation with the hope of improving student satisfaction and enhancing student engagement within the learning environment.

The OESSN theory: An intersection between Schein's and Rogers' theories

In addition to the insights related to the shared motivators, there are three points where the OESSN theory provides an intersection between Schein's and Rogers' theories. These intersection points include exchange of information, physical locale, and leadership.

Information exchange. Both theories discuss communication as an essential theoretical component. Schein (2010) states communication in general is a key organizational factor that perpetuates the culture. Rogers (2003) states the diffusion of an innovation is dependent upon information about that innovation being transferred over time to the group that will adopt it. Information exchange was found to be one of the five major organizational elements of the OESSN theory and provides a link between these theories by extending both Schein's and Rogers' concepts of communication. Since the OESSN is explanatory and mid-range, it can provide deeper insights and context as well as specific strategies for communication that cannot always be encompassed at the abstract level of broad theories. Schein's theory stresses the importance of communication, but, due to the general nature of his theory, it is not able to include the depth and specific nuances that exist within each culture. The OESSN theory revealed the need for

repeated and ongoing communication, stressing the various and multidirectional communication channels between the leaders and the faculty members, and among the institution members or community partners. Different types of communication were noted in this study, namely: informal and formal, verbal and non-verbal, as well as spontaneous and structured. The OESSN reveals that the exchange of information is not just about the features of the innovation but also about the potential for its use, the additional resources required to maintain it, the knowledge and expertise required to understand it, and the implications of its use. These insights into communication serve to extend Rogers' concept of communication which is often presented as focused primarily toward the potential adopters, and focused specifically on characteristics of the innovation. While the information exchange element of the OESSN theory resonates with the concept of communication offered in both grand theories, it provides specifics that can be used as more of a guide or explanation within the context of adopting and incorporating simulation in nursing education. Additionally, the literature on simulation has primarily focused on communication about simulation to nursing faculty members (King et al., 2008; Smitten, & Myrick, 2010). The OESSN theory pushes that interpretation to a different realm since it was essential to communicate not only with nursing faculty but also with leaders and partners. Communication was also required among and between different levels of the organization, and needed to be repeated and ongoing.

Physical locale. The second point of intersection in the OESSN that creates a link between the two broad theories is physical locale or, in broader terms, the concept of space. Rogers (2003) discusses two characteristics of an innovation that relate to space: observability (the opportunity for others to see the innovation in use or see the results of the innovation) and trialability (the opportunity for people to try or experiment with the innovation). Indirectly, both suggest the need for space to observe or try out the equipment. If the simulation lab is distant to the rest of the nursing department, the opportunity for observation and trialing to occur is limited. Schein discusses space as an essential element of organizational culture. He often refers to space as the physical size or layout of the environment and he emphasizes the meaning this holds within the organization. The OESSN reinforces the concept of space as an essential organizational factor, but advances the concept to include the physical location of a space, what the allocation of a specific space means to people, and stresses that space is a value laden concept. The allocation of space impacts the adoption and incorporation of an innovation. Space is at a premium in academic settings and many programs in this study either rented or were given space that was not necessarily near the nursing department thus hindering the potential for people to observe and try simulation. Additionally, the meaning that the space held or the perceptions that people had of the space impacted the level of uptake. The value of the space was a significant factor as these "less than ideal locations" were perceived by participants as indicating a lack of value placed on simulation by the

institution. This perception can lead to people devaluing simulation and possibly deciding that it is not worth investing in nor is it worthwhile while considering it as a teaching strategy. For those who had a choice about incorporating simulation, this perception may have caused them to resist or refuse to adopt simulation as a teaching strategy. The physical locale, as an organizational factor, is essential to contemplate when presented with an innovation. This finding suggests that the influence of space is more than the characteristics of an innovation and the size and layout of the environment. The value people place on the location of the allocated space impacts the process of adoption and incorporation and this value leads to a further understanding of the meaning of space as an organizational element.

Shared leadership. Leadership is the final concept that intersects both Rogers' (2003) and Schein's (2010) theories advancing understanding of how organizational culture shapes the adoption and incorporation of simulation. Rogers suggests that a champion (a dynamic person who supports and promotes the innovation preventing or ending indifference or resistance) is essential for an innovation to be successful. Schein, on the other hand, suggests that a leader is crucial in the creation and perpetuation of organizational culture. The research presented here showed that just having a champion or a leader was insufficient. Shared leadership between the nursing administrator and the simulation leader was the key driving organizational element that was required to facilitate the uptake of simulation in nursing curricula.

The OESSN theory also reveals specific strategies used by leaders that facilitated the process of adoption and incorporation. These strategies included negotiating, navigating, and networking as described in chapter five. An additional strategy, used by the leaders of the high- uptake sites, was the intentional and purposeful integration of the beliefs and values represented in the mission and vision statements, at the institutional, Faculty, and nursing program levels. Leaders used these guiding principles as tools to facilitate the integration of simulation, to meet goals, and secure necessary resources. This is a strategy that other institutions could easily implement.

Shared leadership within the broader leadership literature

Since shared leadership was the key driving force of adoption and implementation, it is essential to examine where the findings from this study are situated within the broader leadership literature. Shared leadership is a term defined most frequently as a dynamic interaction between people within a group that are focused on accomplishing group or organizational goals (Avolio, Walumbwa, & Weber, 2009). This definition aligns with the shared leadership noted in this study between the nursing administrator and the simulation leader working together to move simulation forward in the curriculum. This type of leadership is often seen in healthcare (Jackson, 2000; Konu, & Viitanen, 2008) and education. Much of the literature about shared leadership includes teams or large group leadership (Anderson, Anderson, & Mayo, 2008; Lovelace, Manz, & Alves, 2007).

Kocolowski (2010) discusses multiple aspects of shared leadership; some resonate with the findings from this study while others do not. The similar aspects include recognizing and developing individual skill sets, distributing the work and responsibilities to ease the workload burden and reduce stress, and providing those in leadership with a sense of ownership. All of these features were noted in this study. Simulation leaders had to learn about simulation and develop the skills to use it. Many used this initiative as an opportunity to secure a more permanent position within their institution. The sites that had a full time simulation position were the high-uptake sites as the increased workload was able to be shared between at least two people. Shared leadership also purports aspects that were not congruent with the findings from this study. These included facets of equality (Jackson, 2000), the development of a shared skill set, and accountability (Kocolowski, 2010). These components were not supported by this research. The shared leadership in this study was prompted by the simulation initiative resulting in too much work for one person. As a result, the nursing administrators either delegated or had an individual volunteer for the role of simulation leader. Because this role first needed to be created, the administrator had to delegate power to the simulation leader thus implying inequity of power in the relationship. The development of a shared skill set was also not seen in this study. The simulation leaders gained considerable skill and knowledge while the nursing administrators did not. Most nursing administrators expressed a lack of skill and knowledge related to simulation and many said they would not be able to facilitate a

simulation and that it would be intimidating for them if they had to do so. This was not the case with the simulation leaders; they expressed a high level of comfort in creating and facilitating simulation activities. Lastly, there was a lack of accountability noted in this study both to the government and among simulation leaders. Within this initiative there was little to no expectation of an accountability report to the government explaining what type of, or to what extent, simulation was being implemented into the curriculum. Also, the role of the simulation leader developed quickly and most people in this position reported that they did not have a clear job description nor did their annual appraisal reflect the work they did related to simulation. The lack of equality, shared skills, and accountability are not consistent with the characteristics of shared leadership in the literature. In summation, while the findings from this study resonate with the definition of shared leadership, there are both consistencies and inconsistencies noted with respect to the specific characteristics of this type of leadership.

The OESSN compared to change management literature

The adoption and incorporation of simulation resulted in a significant change in nursing education and the creation of a new role; consequently, it is essential to examine how the OESSN theory compares to the literature on change management. There are a variety of models associated with organizational change or organizational transformation such as the learning-based model, (Senge et al., 1999) the push or mainstream model (Kanter, Stein, & Jick, 1992), or the seven-point model (Nevis, Lancourt, & Vallasso, 1996); however, Sugarman (2001a)

suggests that there are two essential elements consistent among all models that are required for successful organizational change to occur. First, identify and work toward a specific goal that will create a change and, second, cultivate processes to facilitate the necessary work and the collaborations among key players.

Identifying and working toward a goal are consistent with the findings of the high-uptake sites in this study. These sites created a vision and purpose for simulation, they learned about the potential uses for simulation, and then started envisioning its use in nursing curricula. This was facilitated by connecting it to the current curricula and identifying ways simulation could fill learning gaps. Other sites lacked this forward thinking which led to a lack of understanding as to how this change would occur or even if it would. There was neither deliberate nor purposeful preparation for change, thus impacting the ability to incorporate simulation.

The second aspect of change management theory, cultivating processes to facilitate the goal (Sugarman, 2001a), aligned with the findings from this study that indicated the seven-phase process and the collaborations noted among key players. The seven-phase process that emerged as crucial for the integration of simulation into nursing curricula explains the essential phases specific to this context. What the OESSN theory adds is the concept that the process is iterative, non-linear, and non-sequential. Sites in this study, especially high-uptake sites, needed to engage in the process repeatedly and enter into the process at different points in order to successfully integrate simulation into all aspects of the curricula.

Sugarman (2001b) along with Gratton and Erickson (2007) suggest a team approach is one way to enhance purposeful collaborations. As noted in chapter three, using a team approach was one strategy that facilitated movement through the seven-phase process. The leaders in many high-uptake sites created simulation teams or committees to enhance simulation development or conduct research. There were two aspects that contributed to the formation of teams within certain sites. The first stemmed from organizational beliefs or values that promote teamwork over independence. Nursing programs where people work together or where teamwork is the norm were able to facilitate and use this strategy with the simulation initiative. Institutions that promote individual and independent work possibly did not consider teamwork as an option to facilitate this change because it was considered an atypical approach to solving problems or getting work completed. The second aspect that contributed to the formation of simulation-focused teams was the ability to adjust workload agreements. Some institutions offer greater flexibility in workload assignments and could make allowances to allocate time for special projects or adjust the teaching, research, and service workload percentages as needed (typically annually). These sites were able to create and sustain simulation-focused teams and deal more effectively with the workload demands that came with simulation. These findings extend the concept of teams or team work that is noted in the change management literature because they provide a link between the formation of teams to the values and beliefs of the

institution and to the guiding structure for workload allocation within the institutions.

Examining the OESSN theory within the context of the current literature serves to highlight the unique contributions this theory provides. Additional insights stem from reflection on the challenges and the lessons learned while conducting this research. Likewise, it is essential to explore the educational, policy, and future research implications resulting from this study.

Challenges and insights

The challenges encountered during this study were three-fold: the first was to collect data from individuals in order to understand the phenomenon at an organizational level; the second was to grasp core organizational elements across multiple and diverse cultures; and the third, was to use a theory to sensitize the researcher to the key concepts of organizational culture. The solutions to these challenges were obtained by closely adhering to the methodological principles of grounded theory (Charmaz, 2006), and implementing a unique data analysis strategy of process mapping to capture the sequence of events.

Collecting data from individuals to understand how the organizational culture of nursing programs shaped simulation proved to be challenging because this can lead to one-sided or biased interpretations of organizational culture. To circumvent this, the methodological strategy of triangulation of data sources and types was used (Charmaz, 2006). Both interviews and documents were used to construct an interpretation of the organizational culture. Interviews included

participants who held different roles in the nursing program and documents included guiding principles representing all levels of the organization. This provided a broader, more conceptual, and inclusive understanding of the organizational culture.

Identifying core organizational elements across multiple nursing programs all with unique organizational cultures was a challenge. It was the use of grounded theory methodology that helped resolve this dilemma. Grounded theory is an appropriate method to explore complex issues that are focused on a specific goal or that produce change (Charmaz, 2006; Creswell, 2007; Glaser, & Strauss, 1967) and this was the initial reason this approach was chosen. In addition, grounded theory is also a method used to explore process and action. It was the use of grounded theory with this purpose that enabled the research to advance. As all nursing programs encountered the simulation initiative at or about the same time, the process of how they were adopting and incorporating simulation needed to be understood. The analysis strategy of process mapping was used to facilitate this. Process mapping involved looking at antecedent events, the specific timing of events, and the rationale as to why certain events or processes happened. Additionally, process mapping highlighted the connections that exist between events, acknowledging that some events happen before others (Miles, & Huberman, 1994), thus representing data by time and sequence. Process mapping as an analytical technique is not without challenges. It involves deconstructing data and then attempting to put it back together in different ways to make sense of

it. This process takes an extensive amount of time and is a retrospective approach. The triangulation of data sources as mentioned previously was useful to circumvent the challenges associated with process mapping. Once a consistent process was revealed then the constant comparative method of analysis (Glaser, 1965), commonly used in grounded theory research, was used to further understand, compare, and contrast strategies used by programs to navigate through the process.

The use of a theory to guide the research was the last challenge encountered in this study as a grounded theory approach is not typically guided by theory or constructs of a theory. Challenges using this approach were related to Schein's broad and versatile interpretation of organizational culture. Due to the abstract level of Schein's theory, additional resources (Alvesson, 2010; Johns, 1983) and individual case study examples of Schein's work were needed to better understand the key constructs of organizational culture. While Schein's theory served to bring awareness to key organizational concepts, there remained confusion as to how these concepts related to the research question. It was the use of grounded theory methods, specifically theoretical sampling, that facilitated an understanding of how the concepts of organizational culture shaped the adoption and incorporation of simulation into nursing curricula. An example of this relates to the concept of time. Time is a broad general concept that Schein asserts is important when examining organizational culture. This resulted in uncertainty at the onset of the study about how to explore this aspect. While the concept of time

was incorporated into the interview guide, understanding time as an organizational factor remained elusive. As time as a concept started emerging from the data, it was the use of theoretical sampling, an analytic strategy of grounded theory (Charmaz, 2005), that led to an understanding of the meaning of time as well as the characteristics of time within the context of this study. The strict adherence to grounded theory methodology and the use of process mapping proved to be effective and useful strategies in order to counter the challenges that occurred within this study.

Education (Practice) implications and recommendations

In the context of this study, the practice of nursing is the education of undergraduate nursing students. Therefore, the recommendations will follow from that practice perspective. The recommendations are threefold and relate to the guiding principles of the organization, the potential for shared work, and the potential for interprofessional education as a result of the simulation initiative. The findings from this study indicate that the nursing leaders were the key organizational element that facilitated the adoption and incorporation of simulation into nursing curricula. The leaders in high-uptake sites purposefully and intentionally used the mission, vision, and value statements of the institution, Faculty, and nursing program to elicit support for simulation as an innovation. Developing a curricular change and requesting resources needed to sustain a change that aligned with the overarching goals of the institution proved to be a successful strategy that could be used by other nursing programs eager to

integrate simulation or other innovations into their curricula. Additionally, this strategy could be useful as simulation technology continues to develop and be used as a teaching strategy in nursing.

At the onset of this government simulation initiative, there were few opportunities to learn about and share expertise in this region because there was a lack of nursing experts in this area. This resulted in simulation leaders seeking expertise elsewhere, outside the province, in order to develop their own expertise. This may have resulted in institutions, which were part of this study, working in isolation or in silos. Currently, many nursing programs continue to work in isolation and, in many instances, are involved in the same or similar work such as creating templates, scenarios, and simulation guides, essentially repeating work done by others. This is a waste of valuable time and energy. In order to overcome this, a repository would be beneficial to enable faculty to share resources. While learning from other nursing programs in the province was limited at the onset of the initiative that is no longer the case. Programs should seek out expertise and partnership within the province by connecting with other nursing programs and creating collaborative partnerships as a way of sharing knowledge and resources to strengthen their own programs of simulation but also strengthen simulation on a provincial level.

This concept of sharing extends to other disciplines and community partners. Within this study, many sites, particularly high-uptake sites, partnered with other disciplines within the same institution or with community partners as a

way to secure resources and share costs, manage change, and further develop the simulation program; as such, they were able to achieve higher-uptake within the curriculum. As a result, some interprofessional simulation activities ensued. Continuing or fostering partnerships with the purpose of sharing resources should continue, but partnerships should also be initiated with the intent of offering interprofessional simulation events to students because the benefits are numerous. Luctkar-Flude along with colleagues (2010) state, that interprofessional simulations benefit students as they gain comfort in communicating with members of other professions and working within a team. Reese and colleagues (2010) concur, but add that interprofessional simulations help students overcome apprehension while working with other disciplines, and that collaboration among disciplines mirrors real world experiences and can improve communication, which can lead to better patient care.

Policy implications

Based on the findings of this study the policy recommendations are fourfold. First, increase accountability at the provincial level. Second, secure a full-time position for the simulation leader. Third, increase consistency of simulation delivery among collaborative partners. Fourth, increase communication within the nursing programs and among collaborative partners through a strategic plan.

Increasing accountability at the provincial level could have been enhanced if the expectations of the simulation initiative were made clear from the onset.

Because the funding initiative happened quickly, the planning phase was limited which resulted in many institutions being awarded the funds for equipment without having first secured additional resources such as the personnel, training, and space. While the initial call for funding required a plan for space allocation (renovations or reallocation to be funded by the institution), no timeframe was specified in which this had to be completed, nor specific accountability documents required from each individual program to ensure equipment was taken out of the boxes and used and integrated into nursing curricula. Additionally, the initial call did not include a plan for training or hiring of personnel; this too was to be the responsibility of the institution. Furthermore, there was no accountability required with this funding. Recommendations resulting from this issue include a longer planning phase for institutions to ready themselves to obtain or secure the required resources, clear expectations from the ministry regarding the extent simulation was to be integrated into the curriculum, and a clearly articulated time frame in which the ministry would follow up on the expectations to enhance accountability.

The findings from this study revealed that the new role in nursing, that of the simulation leader, varies considerably with regard to work expectations, permanence of the position, and a clear annual appraisal process to reflect work responsibilities. Policy recommendations that stem from this include clearly articulated responsibilities that describe the scope of practice for this role and work expectations, and the creation of an annual evaluation method that

accurately reflects performance and enhances accountability. Additionally, the position needs to be ongoing and financially supported by the institution, not by one-time funding as a result of a work release or a research project to enhance commitment to the program over time. It is recommended that the position of the simulation leaders should be a permanent, non-rotating position due to the high expectations and workload associated with this role. These recommendations will help individuals in this role to develop expertise as the technology continues to evolve and the demand for use increases.

Additionally, the collaborations between nursing programs were reported as tenuous at times due to the lack of consistency in the delivery of simulated activities for student learning, especially among sites that have an integrated collaboration (the same content is delivered over four years at each individual site). One recommendation to counterbalance this concern is to increase communication about simulation and share simulation scenarios among collaborative partners with the purpose to increase consistency in the delivery of the curriculum. A few high- uptake sites had developed simulation teams that included members from the collaborative partner site(s). This would be one way to increase communication and could be easily adopted by other programs. Another approach to enhance communication about simulation is to include simulation in the collaborative nursing program strategic plan and review it annually.

Creating a strategic plan allows people to discuss and reflect on what is important and of value, and to set goals. It helps to clarify a specific purpose and align necessary resources to achieve it. It involves a decision-making process that lies within an organization, or group of people (Mintzberg, 1994). The purpose of a strategic plan is to support and sustain organizational goals (Bryson, 2011). This strategy was noted in the study among the high-uptake sites. Strategic planning aids in focusing people toward common goals and desired outcomes. An annual review provides an opportunity to evaluate progress and strategize about how to reach goals. There are multiple benefits of strategic planning that include: increased communication among members, increased accountability, the securing of resources throughout different levels of the organization (Mintzberg, 1994), and creating a common understanding of what is valued (Miller, & Cardinal, 1994). Incorporating simulation into the strategic plan would aid collaborative nursing programs to consistently integrate simulation into the curricula.

Research implications and next steps

Contemplation of the study findings reveals a number of areas for future research. These include: using the findings from this study to develop and evaluate guidelines for implementing simulation, conducting research specific to nursing leaders, and conducting research to advance Schein's organizational culture theory.

Given the impact that organizational culture has on the success or failure of an innovation, it is important to further explore the core organizational

elements discovered in the OESSN theory developed from this grounded theory research. This could be achieved by using this qualitative evidence as a foundation to create an educational practice guideline to inform the process of implementation and integration of simulation into academic nursing programs. In framing this work as a sequential exploratory mixed methods study, the development of the guidelines could be followed by a robust evaluation of the guidelines to measure the implementation process and level and rate of uptake of simulation in curricula. If the implementation of the guidelines was shown to be effective, then further research could include other disciplines that are looking to adopt or incorporate simulation into their programs, or potentially the integration of other technological innovations in academic settings.

The following areas for further research relate to the roles of the nursing leaders because they were found to be the key organizational element that drove simulation forward. While this study provides insight into how the role of the simulation leader began and continues to develop, the same is not true for the role of the nursing administrators. Since the leadership between both simulation leaders and administrators were key in the adoption and incorporation of simulation, perhaps the leadership from nursing administrators' facilities the integration of other technologies or innovations into nursing curricula. The role of academic nursing leaders is an area of research in which there is a dearth of information. Therefore it is essential to understand who holds these positions and how they became leaders. These insights would need to come prior to

investigating how nurses in academic institutions manage change. This could be approached from a qualitative perspective, specifically a grounded theory approach, in order to explore this complex issue and understand the processes and actions that shaped their experience (Charmaz, 2006; Creswell, 2007). Findings from this study could potentially lead to the creation of a leadership intervention or training based program in which current nurse leaders could participate or from which nurse academics could benefit if they want to pursue an academic leadership role.

Although insights were gained about the inception and beginning development of the simulation leaders' role, this is an area for further research. It is imperative to continue to study this role as it advances in nursing. Simulation leaders holding this position are pioneering a new role in nursing and it is essential to understand their experiences and who they are as this role becomes embedded in the structure of nursing programs. The research could be investigated using a mixed methods approach. A descriptive survey could be used to understand who these simulation leaders are based on their level of education, simulation training, age, gender, and their job description. This could be complemented by interviews with individuals in this role to better understand their experience as simulation leaders. Insights gained from this research could inform future nurses who aspire to be simulation leaders and provide an understanding of the experiences related to forging a new role in nursing.

Findings from this research could be used to develop training and mentoring programs.

The final area for future research relates to Schein's organizational culture theory (2010). Schein claims there are three levels of organizational culture: artifacts, values and beliefs, and basic assumptions. While this study included the last two levels, artifacts were excluded. Artifacts include the observed characteristics of an organization, such as the architecture, physical layout, and manner of dress, which can leave a person with an impression of the culture (Schein, 1985). In this study, artifacts, the most superficial level of culture, were not included due to a lack of consistent opportunity to visit all sites. It would be interesting to examine whether the concept of artifacts could extend to the virtual and technological world. To date, Schein's work on organizational culture only discusses artifacts related to physical presence and does not include technological characteristics and web sites or virtual tours. A study to investigate this could be achieved by conducting a comparative analysis of the physical artifacts to the virtual artifacts to see if they elicit the same or similar impressions. This would include the concept of physical space and peoples' perceptions related to space to see if they extend to virtual space. This research would be worth examining because of the increasingly technological world in which we live. Institutional websites are often the first point of access and do leave an impression. In this study, there were significant differences in structure, layout, usability, and access to personnel, leaving the researcher with mixed perceptions of the institutions.

Research in this area could potentially further Schein's concept of artifacts to include the organizational culture of the virtual world.

Conclusions

The OESSN theory depicts the complexities of the adoption and incorporation of simulation into nursing curricula and the impact of the organizational culture. It highlights a seven-phase process consistent among diverse nursing programs, and identifies the organizational elements that influence the uptake of simulation into nursing curricula. It provides contextually rich information specific to simulation thus advancing that body of literature. Additionally, the OESSN extends theories such as Schein's (2010) organizational culture theory and Rogers (2003) diffusion of innovation theory by illuminating the links between these two theories and by providing in depth explanations of some broad abstract components. Moreover, the concept of shared leadership identified in this study fits within the definition in the literature, paralleling some aspects while contesting others such as equality, shared skill sets, and accountability. Lastly, the OESSN theory closely aligns with the main components of change management theory, but adds further insight to the specific concept of teams because it provides links between the characteristics of the organizational culture and workload allocation within the institutions that can facilitate or hinder the development of teams. The examination of methodological challenges provided deeper insights into grounded theory research. Multiple education, policy, and future research implications resulted from this study and

will serve to guide future work in this area. While the insights gained from this study are primarily contextually based, the inclusion of multiple programs makes it likely that they can be transferred to other nursing programs undergoing the adoption and/or the incorporation of simulation.

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Appendix A

Operational Definitions

Terms	Definitions
Adoption	Choosing to accept mid- to high-fidelity simulation as an appropriate teaching strategy.
Articulated or two plus two collaborative model	The first two years of the nursing program are offered at the college, and the second two years are offered at the university.
Curricula	The experiences that facilitate the completion of specific learning goals within the course of study for nursing students (Bevis, 1989).
Discrete nursing program	A nursing program that does not have a collaborative college partner.
Faculty	The division or level of the organization that houses health-related programs, specifically nursing. This term will be capitalized throughout.
Faculty level documents	Documents that are specific to the Faculty of Health (or equivalent Faculty or School); may include a philosophy, mission, vision, or values statement.
Incorporation	Including, combining, or integrating a new practice in place of or in combination with an existing one (Rogers, 2003).
Innovation	An idea or practice that is considered to be new (Rogers, 2003).
Institutional documents	Overaching documents that guide the entire organization, including mission, vision, or philosophy statements.
Integrated collaborative model	The delivery of the program happens at all sites, and Faculty members from both the college and university are involved throughout each year of the program.

Mid- to high-fidelity Simulator	Life-like mannequins that can be programmed to respond to interventions.
Nursing administration	The dean, chair, or director that oversees the program of nursing.
Nursing Faculty member	Full-time or part-time Faculty member that is directly involved in the undergraduate nursing program and has experience or expertise with simulation.
Nursing Program documents	Typically aligned with the institutional and Faculty documents and act as specific guides for nursing programs.
Organizational culture	The multifaceted ways of knowing within a group (nursing program). It encompasses values and beliefs and is the conveying of customs and rules that are used to solve problems and adapt to change (Schein, 1985).
Simulator	Any equipment that is designed to replicate physiological responses to operator designed/manipulated medical conditions.
Simulation leaders	The people involved in overseeing the simulation lab, operating or maintaining the equipment, and creating or facilitating simulations.
Simulation	A teaching–learning strategy that closely mimics a real-life experience, without the real-life risks (Gaba, 2004). The equipment and corresponding scenarios are often referred to only as simulation.
Nursing program documents	Typically aligned with the institutional and Faculty documents and act as specific guides for nursing programs.

Appendix B

Consent Form (Participant)

The organizational cultures of Ontario Schools of Nursing: A grounded theory study to explain the adoption and incorporation of simulation

Principal Investigator: Karyn Taplay MSN, RNC, PhD Student, Graduate Nursing Program, Faculty of Health Sciences at McMaster University.

Invitation to participate in research:
You are being invited to participate in a student led study, supervised by Dr. S. Jack, School of Nursing, McMaster University. This research study is part of the requirements for my degree.

You have been invited to participate because of your knowledge and expertise regarding the adoption and implementation of simulation in an Ontario School of Nursing. Your participation in this research is voluntary, and if you consent to participate, you can decide to withdraw at any time and any of your data collected will be destroyed. If you choose not to participate, this will not have any negative consequences for you.

Why is this study being done?
This study is being done to investigate how the organizational cultures within Ontario nursing programs influence the adoption and incorporation of simulation into the curricula.

How many participants will be in this study?
Nursing administration, nursing faculty, and simulation support personnel will be interviewed from six colleges and six university nursing programs across the province. It is anticipated that there will be 40-65 participants.

What will happen to participants in this study?
You are being invited to complete two interviews that will be conducted to explore your perceptions and experiences on how the organizational culture in which you work has influenced the adoption of simulation by the School of Nursing. The first interview will last 45-60 minutes. The second follow-up interview will be conducted approximately 4-6 months following the initial interview and will last approximately 30-45 minutes. Mutually convenient times and locations for the interviews will be determined. Interviews may occur in-person or via telephone. A copy of the interview questions will be e-mailed to you prior to our scheduled interview to enhance preparedness.

You will also be asked to complete a short demographic questionnaire. To further enhance my understanding of how the culture of your organization has influenced the adoption and integration of simulation, you will be asked to reflect on the following documents during the interview: 1) the institutional mission/vision statement or philosophy; 2) the nursing program mission /vision or philosophy and 3) the appraisal template by which you are evaluated. All identifying information on these documents will be blacked out. Prior to the interview, you will be asked to provide a blank copy of the annual appraisal template used within your organization.

These interviews will be audio recorded, if you do not wish to be audio recorded please indicate this in the signature section of this consent form.

Are there any risks?
There are no foreseeable risks, discomforts, or inconveniences by participating in this research study.

Are there any benefits?
There is no direct benefit to participating in this research study however, the results from this study may provide insight to nursing programs that are struggling with the adoption and incorporation of simulation within their curricula, or to change educational policies and practices related to the processes of adoption and incorporation of an innovation.

Will I be paid to participate in this study?
You will not be paid to participate in this study but you will receive a letter of acknowledging your participation. Additionally, with your consent your name will be entered into a draw for one of three $50.00 gift certificates to a local bookstore. If you are a nurse you will receive a certificate that your participation in professional research, which can support the College of Nurses Quality Assurance Program requirements.

Will there be any costs to me in this study?
No, there are no costs involved for participating in this study.

What will happen to my personal information?
The demographic data questionnaire will include information on age, gender, current and past employment, and experience with mid to high-fidelity simulation. Within two weeks after conducting the interviews the audio tapes, transcripts, demographic data questionnaire, and select documents will be coded to keep your identity confidential. Any electronic information will be kept within a secure computer network system that has automatic back up and a firewall in place and

will be managed by the researcher. All computers that will be used are password protected. All hard copy information and monthly back up disks will be secured in a locked file cabinet inside the researcher's locked office. The only people that will have access to the data are the researcher, research assistant, dictatypist (for transcribing interviews), and the researchers thesis supervisor and committee members. All data will be kept for a period of 10 years, at that time all data will be destroyed and disposed of in a secure manner. The report of the results and or publications resulting from this research will be in summary form so individual identities will not be revealed.

Can participation end early?
Yes, participation can end early. At any time, you can chose to withdraw from the study by telling the researcher or research assistant in person or by email that you wish to withdraw from the study.

If I have questions about this study, who should I call?
If you have question please contact any of the following

Karyn Taplay, MSN, RNC, PhD Student, Faculty of Health Sciences, McMaster University.
Phone: 905-541-3197, E-mail: taplayk@mcmaster.ca

Dr. Susan Jack, Faculty and thesis supervisor, Faculty of Health Sciences, McMaster University.
Phone: 905-525-9140 x 26383 E-mail: jacksm@mcmaster.ca

McMaster Research Ethics Board Secretariat
Telephone: (905) 525-9140 ext. 23142
c/o Office of Research Services
E-mail: ethicsoffice@mcmaster.ca

Participant:
I have read the preceding information thoroughly. I have had an opportunity to ask questions and all of my questions have been answered to my satisfaction. I agree to participate in this study. I understand that I will receive a signed copy of this form.

Name	Signature	Date

Person obtaining consent:
I have discussed this study in detail with the participant. I believe the participant understands what is involved in this study.

Name, Role in Study	Signature	Date

I consent to be audio tapped during this interview Yes: _____

No:_____

This study has been reviewed by the Hamilton Health Sciences/McMaster Faculty of Health Sciences Research Ethics Board (HHS/FHS REB). The REB is responsible for ensuring that participants are informed of the risks associated with the research, and that participants are free to decide if participation is right for them. If you have any questions about your rights as a research participant, please call The Office of the Chair, HHS/FHS REB

Appendix C

Demographic Data Questionnaire

Please check the box that best describes you.

1. What is your gender?
   Male ☐ Female ☐

2. What is your age?
   20-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐ 61-70 ☐

3. Are you an RN?
   Yes ☐ No ☐

4. What is your current position?
   Administrator ☐ Faculty ☐ Simulation personnel ☐

5. Number of years of experience in this position?
   0-2 ☐ 3-5 ☐ 6-9 ☐ 10-14 ☐ 15-19 ☐
   20 + ☐

6. What is your primary place of employment?
   College ☐ University ☐

7. How often during the academic year do you use mid to high-level fidelity simulation?
   0 ☐ 1-3 ☐ 3-5 ☐ 5-10 ☐ 10-15 ☐
   15-20 ☐ 20+ ☐

8. What is your comfort level with using mid to high fidelity simulation?
   Not at all ☐ some-what ☐ moderate ☐ high ☐
   very high ☐

9. How many years of experience do you have using mid to high-level simulators?
   0 ☐ 1-3 ☐ 3-5 ☐ 5-10 ☐ 10-15 ☐
   15-20 ☐ 20+ ☐

10. What is your highest level of education completed?
    High school ☐ College ☐ University (undergraduate) ☐
    Masters ☐ PhD ☐ Other _____

Appendix D

Semi-Structured Interview Guide (Interview #1) Version 1.0

Thank you for taking the time to meet with me.

I am conducting this study to learn more about the organizational cultures of nursing programs in Ontario. I am interested in exploring how organizational culture shapes and influences the integration of simulation into the curricula.

When talking about simulation, I am primarily asking about simulation as a teaching strategy used to teach course content. I am specifically interested in the use of mid- to high-level fidelity simulators such as Sim Man or Laerdal.

Please remember that you can choose to stop this interview at any time. In addition, you may choose not to answer questions.

1. Can you describe to me your role in this nursing program?

2. Can you describe to me your specific role with respect to simulation in your nursing program?

Prompts

Can you describe for me what your experiences with simulation have been?

3. How would you describe the history and relationship between the simulation initiative to improve training for nurses in Ontario and your organization?

Prompts

How did you learn about it?

How was information related to the adoption of simulation into the curricula communicated (if at all) to nursing faculty?

How did/does your institution disseminate (if at all) knowledge about simulation?

4. Since the time you first heard about simulation, until now, can you tell me about the processes your organization has gone through with adopting and incorporating mid to high-level simulation as a teaching strategy into the curricula.

Prompts

What type of mid- to high-fidelity simulation(s) are used most often at your organization?

What resources are allocated for simulation? (Time, money, training)

How has the adoption and incorporation of simulation changed in your program over the last (4-5) years?

5. How have decisions been made in your organization about the adoption and incorporation of simulation? Has this decision making process changed in the past 4-5 years?

Prompts

How do you learn what is expected related to simulation?

How are decisions made regarding the incorporation of simulation into the curricula?

At what level do these decisions happen**?** Is it a personal, program or institutional decision?

6. How do the mission/vision/philosophy of your institution and program shape your adoption and incorporation of simulation into the curricula?

7. How do the annual appraisal documents (process) shape your adoption and incorporation of simulation into the curricula?

Prompts

What recognition or merit is attached to simulation development or the use of alternative teaching strategies?

8. Are there any other documents that shape your adoption and incorporation of simulation into the curricula?

9. How has your organization contributed to the adoption and incorporation of simulation into the nursing curricula?

Prompts

What value does your organization place on using different or innovative teaching strategies?

Does administration support the incorporation of simulation in the curricula? If so how?

10. How has your organization thwarted the adoption and incorporation of simulation into the nursing curricula?

Prompts

Are their consequences to adopting or rejecting simulation as a teaching strategy?

11. Could you recommend anyone in your nursing program that you feel has been instrumental in the adoption and incorporation of simulation into your curricula?

12. Could you recommend anyone in your nursing program that you feel might have a different perspective on the integration of simulation into the curricula?

I appreciate you sharing your time, your ideas, and your experiences with me. Do you have any other thoughts that you would like to share.

May I contact you for a second interview?
Thank you again
Karyn Taplay

Appendix E

Institution Progression Timeline

2004	2005	2006	2007	2008	2009	2010	2011	2012
Submission of first proposal								
	Monies awarded Equipment acquired							
				Hired a coordinator for simulation lab				
				Hired a contract person to assist with the for lab				
				Getting the equipment out of the box				
				No specific space allocated so used existing lab				
					Training to use sim equipment			
					Learning about sim from experts and workshops			
					Setting up equipment for students to use during the fall semester			
					Trialing equipment			
					Slowly integrating into second year			
					Established a base budget for simulation using clinical education monies			
						Simulation lab relocated to a larger space Renamed the lab		
						Additional simulation equipment purchased		

						Developed a simulation team and additional contract employees hired		
						Template created and utilized to increase consistency among contract employees		
						Writing and rewriting simulation scenarios		
						Still many faculty and clinical instructors do not appreciate or use simulation		
							Official opening of simulation center	
							Created a mission and vision for the sim center	
							Sim is an expectation in years 2, 3, 4 for clinical, not for nursing theory courses	
							Simulation staff both full and part-time running the center and facilitating all simulations	
							Implementing more labs into 4th year	

Appendix F

Email Letter of Invitation

Study Title: The influence of organizational culture on the adoption and incorporation of simulation in programs of nursing in Ontario: A grounded theory study.

Dear _____,

My name is Karyn Taplay and I am a doctoral student in the Graduate Nursing Program, Faculty of Health Sciences at McMaster University. I am conducting a research study as part of the requirements of my degree. You have been identified as being an individual within your institution as having specific knowledge and expertise on the topic of simulation. I would like to invite you to participate in this study. I am studying the organizational cultures of nursing programs in Ontario to explore how these unique cultures have shaped or influenced the adoption and incorporation of simulation into the curricula. If you decide to participate, you will be asked to complete a short demographic data questionnaire and meet with me (either in-person or by telephone) for an initial audio-recorded interview (approximately 45-60-minutes) and a second brief interview (approximately 30 minutes).

If you have any questions about the study, you may contact me at (905-688-5550 ext 3786 or taplayk@mcmaster.ca or my faculty advisor, Susan Jack at 905-525-9140 x 26383 or jacksm@mcmaster.ca if you have study related questions or problems. If you have any questions about your rights as a research participant, you may contact the Office of Research Compliance at McMaster University at 905-521-2100 x 42013.

Thank you for your consideration. If you would like to participate, please respond to this email so that I can explain the study in further detail. If you would prefer not to participate please respond in kind via email and I will not contact you again. If I have not heard from you within a week, I will follow up with a phone call to see whether you are willing to participate.

With kind regards,
Karyn Taplay MSN, RNC, PhD Student
905-688-5550 ext 3786
taplayk@mcmaster.ca