Using Simulation to Enhance Clinical Remediation in Nursing Education

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Abstract

Students in nursing degree programs strive to achieve confidence with clinical-skill competencies through various learning experiences. Simulation (practice situations using computer-assisted manikins) and remediation are two specific learning experiences used at Vancouver Island University to help students acquire skill and confidence with these competencies. This study explored students’ experiences in simulation and remediation learning environments, focusing on the concepts of confidence and critical thinking. Ten students (third- and fourth-year) participated in a focus group, using a semi-structured approach, to gain insights about their experiences. Thematic data analysis (Braun & Clarke, 2006) yielded themes of anxiety, confidence, critical thinking, and clinical skill competencies. Considering students’ perspectives, the select literature, and my own experiences, three main insights emerged: Students experience anxiety in simulation; students value support provided to them during remediation; and it is challenging to combine simulation and remediation in order to deepen both confidence and competencies with clinical skills, amongst nursing students. In addition, further research and implications for remediation practices in nursing education were discussed to develop beneficial support practices for students in a nursing degree program.
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Chapter 1: Introduction

Purpose of the Study

This study was an examination of students’ learning experiences in remediation and simulation in order to explore the possibilities for incorporating simulation into remediation.

In nursing education, there are many internal and external factors that impact student learning. One of the challenges nurse educators face is how to effectively support students who require remediation of their clinical nursing skills. This research explored student learning experiences to determine how simulation experiences could benefit such students.

My interest in remediation and simulation has emerged from my experience as a nurse-educator in the role of Lab Resource Nurse at Vancouver Island University (VIU) over the past fourteen years.

At VIU, the Lab Resource Nurse is a Registered Nurse who supports nursing students in all nursing program levels: Health Care Assistant (HCA), Practical Nursing (PN), and Bachelor of Science in Nursing (BSN). The Lab Resource Nurse helps students to achieve safe practice of nursing skills and to consolidate critical thinking competencies, and assists students in overcoming challenges related to specific nursing skills in a non-evaluative environment. The Lab Resource Nurse’s role is considered clinical practice support. Experience providing clinical skills remediation for students has allowed me to identify the need to implement innovative strategies, such as simulation, to optimize clinical skills support for students.

Simulation training involves a student or group of students providing care for a patient represented by a manikin. VIU currently uses simulation as a teaching method within integrated clinical lab courses, but not for remediation support to VIU students.

External standards act as a driving force for rigorous training of student nurses. Clinical practice settings are high-intensity environments. Patients are critically ill, multidisciplinary teams are
challenging to work in, and practice time is limited. Nursing students struggle with the demands of learning a great deal in a short period of time. Novice nurses are expected to retain and transfer classroom knowledge to the bedside in the clinical practice setting with both confidence and competence.

When a student is identified as struggling in the clinical environment, faculty often turn to remediation. Nursing schools implement a variety of remediation strategies for students. The term remediation is viewed as “a need to implement strategies to improve student performance that, if otherwise left unattended would result in adverse consequences” (Evans & Harder, 2013, p. 147). In the case of nursing students, adverse consequences could mean failing a course or making a mistake in the clinical setting. At VIU there are two options for students to access support for remediation. The process is outlined in Appendix A.

Nursing education programs find it challenging to provide students with adequate clinical practice placements. There are limited placements available, resulting in less time for students to consolidate clinical skills: “Educators are acutely aware that students don’t have access to clinical placements needed to fully develop the nursing competencies required when they join the work force” (Waldner & Olson, 2007, p. 1). The goal of simulation is to assist nursing students to increase their confidence, integrate knowledge, enhance patient safety, and provide a smoother transition into the clinical practice setting. Utilizing simulation experiences as remediation tools has the potential to boost student confidence and increase clinical skill competencies. According to research, learning with simulation can be a remediation tool to boost student confidence with clinical skills.

**Justification for the Study**

This study explores the possible benefits of using simulation in remediation. The use of simulation in nursing education is on the rise, and new trends are emerging. “Increased attention to
patient safety, technological advances, and changes in clinical education have influenced the rapid integration of human patient simulation into nursing” (Tiffin, Graf, & Corbridge, 2009, p. 113). Despite extensive research on simulation in nursing education, there is limited literature to support the relationship between simulation training, confidence, remediation, and clinical skill proficiency outcomes for student nurses.

Nursing education can be viewed as fragmented: “[the] nursing curriculum leaves students to their own devices to piece together what they learn from a number of courses” (Benner et al., 2010, p. 78). Simulation is becoming widespread in educational institutions, to help integrate course content. However, “[M]ore research needs to be explored on the best practices of transitioning student theoretical knowledge to clinical competence. Nursing faculty may well see more students in remediation because of the increasing complexities of healthcare and nursing practice” (Evans & Harder, 2013, p. 150). As a growing number of students require remediation, educational institutions are forced into looking at ways to manage this activity in support of student success. Nurse educators need to prepare students for a high intensity career: “The high stakes experience makes nursing students aware of the need to actively think about and use their knowledge in the particular situation” (Benner et al., 2010, p.42). Students fear making mistakes that could potentially lead to harm, or loss of life. Simulation may decrease student anxiety by allowing the students to practice in a safe and supportive environment, and permits repeating procedures to achieve proficiency.

At VIU, I have observed that remediation sessions are often unstructured and lack frameworks to help students achieve the best possible learning outcomes. When students are struggling with clinical skills lab or practice they are referred for remediation that does not currently include simulation. Students come prepared to focus on specific clinical skills during remediation appointments—they are not expected to work through a simulation scenario. I feel that using simulation for remediation may be
able to reduce stress for both instructors and students, by consolidating learning beyond the practice environment.

Nursing education focuses on experiential learning, which has been defined as “learning from the experience of caring for patients” (Benner et al., 2010, p. 41). Because nursing students learn from the situations and experiences of individual patients, experiential learning is viewed as a strength in nursing education. Due to lack of sufficient clinical placements, nurse educators need ways to bring experiential learning into the classroom.

The goal of nursing education is to work to support positive student outcomes. Teaching strategies that promote critical thinking are essential to nursing practice. Simulation provides numerous opportunities for integration of both clinical and relational practice skills. If students use simulation during an instructor led remediation process, their anxiety may decrease, and more students will succeed. Using simulation as a remediation strategy may produce nurses who are better prepared for limited clinical practice placements. If students participate in remediation with simulation early in their nursing program, better-prepared nurses with stronger clinical skills may be entering the clinical practice setting. Further research is needed to determine what challenges develop when implementing simulation for use in remediation.

Overall, the use of simulation has proven to be a valuable teaching/learning strategy in nursing education. “The evidence reveals that our current clinical model is not producing the experience and outcomes we desire and that simulation has demonstrated the ability to meet many of these outcomes” (Harder, 2015, p. 436). As nursing education moves into the future, more possibilities for the use of simulation need to be examined. Simulation paired with remediation could potentially transform nursing education by improving overall student success rates. In the Bachelor of Nursing Program (BSN) at VIU, students are participating in remediation without the use of simulation. In the current study, I
examined data from the perspectives of third- and fourth-year BSN nursing students about their experiences with both remediation and simulation learning environments, in order to learn more about how simulation could be paired with remediation.

Being particularly interested in how simulated learning experiences affect student self-confidence and clinical skill proficiency, I conducted three focus groups with students. Participants were asked to reflect on their experiences with simulation and remediation in the BSN program. The results were used to inform how to move forward with potential integration of simulation into remediation appointments with students. The results were also shared with the Faculty of Health and Human Services at VIU through the publication of this thesis on VIUspace: https://viuspace.viu.ca/

Research Question

I believe there is increased demand for simulation learning experiences to be used as a teaching strategy throughout nursing curricula. Given the need to increase students’ clinical skills, I developed the following research question: “What are student learning experiences with remediation and simulation?” By exploring this question, I hoped to learn more about the benefits and challenges experienced by nursing students in simulation and remediation. From these learning experiences, conclusions can be drawn about how simulation could be used in remediation to improve learning outcomes. The hope was that the data presented can lead to the development of optimal student support strategies with the potential to result in nurses who are confident and skill competent.

Definition of terms. Simulation in nursing education is becoming a popular teaching/learning strategy within various nursing curricula throughout the world. The National League for Nursing (NLN) defines simulation as:

... a student or group of students providing care for a patient who is represented by a manikin

... the patient care scenario is followed by a reflection, or debriefing period, during which the
case is deconstructed and analysed, and feedback is given to the participants by faculty and other students. Simulation is usually used to complement clinical learning that is done in patient care environments such as hospitals, clinics, long-term care centers, and community settings (Jeffries, 2012, p. 3).

Simulation is used to better prepare students for the limited consolidation time they have in clinical practice, and to support clinical application of nursing skills.

Educational institutions currently use simulation labs as teaching tools throughout nursing curricula. They see simulation as an opportunity to integrate student learning, allowing students to take an active role in their learning. “In healthcare the emphasis is on giving accurate and safe care to patients, and simulators and simulations allow for the practice of this important goal in a less threatening environment” (Sanford, 2010, p. 1008). Simulation is used increasingly in nursing education, and there are opportunities to further expand its uses: “Advances in technology have created opportunities to move beyond remediating for psychomotor skills to realistic scenarios using human patient simulators to support critical thinking and clinical judgment” (Evans & Harder, 2013, p. 148). The following definitions define the types of simulation used in nursing education:

*High-fidelity Simulation* is the preferred type of simulated application in nursing education, as it most closely resembles reality. The NLN describes high-fidelity simulation as the following: “Experiences using full scale computerized patient simulator, virtual reality or standardized patients that are extremely realistic and provide a high level of interactivity and realism for the learner” (NLN-SIRC, 2017, p. 1).

*Moderate Fidelity* is a widely used method of simulation used in nursing education. “Experiences that are more technologically sophisticated such as computer-based self-directed learning systems simulations in which the participant relies on a two-dimensional focused experience to problem
solve, perform a skill and make decisions or the use of manikins more realistic than static low fidelity ones having breath sounds, heart sounds and/or pulses” (NLN-SIRC, 2017, p.1).

Remediation is poorly defined in nursing education: “Remedial interventions are varied by school program” (Evans & Harder, 2013, p. 148). Remedial is defined by the Merriam-Webster dictionary as a correction or improvement to make something better. Remedial work in nursing education involves supporting students who need help to improve a particular skill. The goal is to work towards making corrections in order to raise clinical nursing skill competencies. At VIU, remediation for student nurses is described as a method to help students achieve safe practice of nursing skills, consolidate their critical thinking competencies, and overcome challenges related to specific clinical nursing skills. Remediation works in two ways at VIU: Faculty can either refer students; or students can self-refer, by booking appointments independently.

I define clinical nursing skills in terms of the hands-on psychomotor procedures nurses perform in relation to a task: the technical-skills aspect of nursing application.

The term competence is defined by the College of Registered Nurses of British Columbia (CRNBC) as the following: “Competence: The integration and application of knowledge, skills and judgment required for safe and appropriate performance in an individual's practice” (College of Registered Nurses of British Columbia, 2016, p.8).

The term self-confidence is defined in this way: “Self-confidence is an important attribute in nursing students. Students who possess self-confidence believe that they can preserve and ultimately succeed in their clinical goals” (Lundberg, 2008, p. 86). Self-confidence is rooted in personal well-being and accomplishment.

Critical thinking is often used interchangeably with these various terms in nursing: clinical reasoning, clinical judgment, problem-solving, and decision-making (Levett-Jones et al., 2010, p. 15).
In my experience, the current trend in nursing education is starting to favour the term *clinical reasoning* over *critical thinking* to define the unique body of knowledge that nurses practice within their profession. Clinical reasoning is defined as: “the process by which nurses (and other clinicians) collect cues, process the information, come to an understanding of a patient problem or situation, plan and implement interventions, evaluate outcomes, and reflect on and learn from the process” (Levett-Jones et al., 2013, p. 4).

Critical thinking is also defined by the College of Registered Nurses of British Columbia: “A purposeful, disciplined and systematic process of continual questioning, logical reasoning and reflecting through the use of interpretation, inference, analysis, synthesis and evaluation to achieve a desired outcome.” The definition of critical thinking that I will adopt for this study comes from the BSN curriculum guide at VIU, and is described in this way:

Critical thinkers are proficient in applying skills for good reasoning. Critical thinking skills move the person beyond the “given” and promote the ability to critically question and examine the “taken-for-granted” of nursing and the nursing profession. The development of these skills occurs throughout the nursing program, in both the classroom and nursing practice courses, and is consolidated in the practice experiences of the program. These skills are reflected in the ability of the student to use sound reasoning and judgment for decision making. A student’s critical thinking skills and abilities develop as the student progresses in the program and encounters increasingly more complex nursing experiences, concepts, and research questions arising from practice. These critical thinking skills will become increasingly more refined and sophisticated, such that students are able to reason in practice situations that require greater depth of knowledge and draw from deeper comprehension of the ways of knowing. Evaluation of the
abilities of the student’s critical thinking is based on stated classroom and nursing practice course grading standards.

(CAEN Curriculum Guide, 2015, p. 3–7)

In my experience, the development of nursing students’ critical thinking skills is crucially important to providing optimal quality care.

**Overview of the Study**

The purpose of the study was to explore student learning experiences with remediation and simulation in order to make recommendations about integrating simulation into remediation. The study used a qualitative phenomenological design, and focus groups were conducted with third- and fourth-year BSN students in order to acquire a shared understanding from the participants’ perspective. Participants could elaborate on open-ended questions I asked. Appropriate ethical review and approval was granted by the university’s ethics review board.

The group interviews were conducted outside of class time, and I was not in an instructional role with the students during the study. The focus groups took place at VIU, and lasted 60–120 minutes. Twelve open-ended questions were asked, focusing on simulation, remediation, confidence, and clinical nursing skill competency (See Appendix B). A qualitative methods approach was used. Thematic data analysis (Braun & Clarke, 2006) was applied in an attempt to gain insight into student experiences in simulation and remediation learning environments.
Chapter 2: Review of the Literature

The purpose of the research was to understand simulation and remediation learning experiences from the students’ perspective. A review of the literature was completed to explore topics of simulation, clinical-skill proficiency, critical thinking, learning, and the role of remediation in nursing education.

The purpose of this chapter is to provide an overview of these topics to provide context. Available sources were selected based on relevance to the topic and evidence of peer and scholarly review. The literature reviewed was obtained by searching keywords within VIU library databases. The keywords used included: high-fidelity nursing simulation, self-confidence, remediation, clinical nursing skill, nursing education, simulation in nursing education, critical thinking, and clinical reasoning.

Foundational publications that influence nursing education include works written by Patricia Benner (2001, 2010). Major works and studies that relate to simulation in nursing education include publications by the National League for Nursing (NLN) written by Pamela R. Jeffries (2012, 2016).

Simulation in Nursing Education

A literature review reveals many references to the NLN simulation framework, which is widely used to study elements of simulation in relation to nursing education (Bensfield et al., 2012; Jeffries, 2016; Najjar, Lyman, & Miehl, 2015; Tosterud, Hedelin, & Hall-Lord, 2013; Weaver, 2011). The NLN is considered a leader in evidence-based practice criteria that facilitate best use of simulation in nursing education. The literature review focused on high-fidelity simulation, defined as: incorporating a sophisticated, computerized manikin that can mimic a real-life situation (Jeffries, 2012).

Literature on the topic of simulation in nursing education reveals that most of the current research comes from data collected in Europe and the United States. Most articles relating to Canadian research on the use of simulation in nursing education demonstrate views on theory only and do not include methodology or data collection.
Ross (2015) published a study that addresses BSN student competency in administering intramuscular injections with (and without) simulation training. The main problem being addressed by this study is the concern that nursing students have limited opportunity to practice psychomotor/clinical skills in patient care settings. The research study had two purposes. The first was to determine the effectiveness of using simulation training in preparing nursing students to administer intramuscular injections. The second was to determine if nursing students were able to transfer the skill they had learned from a simulated lab environment into a patient care setting.

The research method used in the study was a two-group, repeated-measures, pretest/post-test, quasi-experimental, quantitative research design with three measurement times: one pretest, and two post-tests. The participants were 37 second-year, degree baccalaureate nursing students: 19 in the experimental group, and 18 in the control group. The control group practised the skill using standardized learning lab conditions; the experimental group used a simulated patient/environment. A research assistant recorded the data on a task-specific skill checklist.

The main results of the study revealed that students who received simulation training in intramuscular injection were more skilled than those who did not. However, these skills did not transfer to patient care. The findings were statistically non-significant by a small margin, this study showed evidence in support of simulation as a tool to enhance psychomotor skills. Further research is needed, with bigger experimental and control groups.

The main strength of this study is in demonstrating that (although simulation teaching yields marginal increases), students who experience simulation perform as well as—if not better than—those experiencing traditional teaching methods.

Weaknesses of the study include the number of variables not addressed (such as gender, or stress) on the students during the experience. The study makes an important contribution to advancing
knowledge, by providing a current example of how research can be performed to evaluate the effectiveness of simulation as a teaching method. A flaw in the study is that nursing students were evaluated on the performance of only one skill. In real world practice settings, students need to perform multiple skills efficiently.

This study validates how effective simulation training can be for enhancing student learning and psychomotor skill competency in nursing education.

Another article that examines using simulation as a teaching strategy is entitled, “Undergraduate Nursing Students’ Experiences when Examining Nursing Skills in Clinical Simulation Laboratories with High-Fidelity Patient Simulators: A Phenomenological Research Study” (Sundler, Pettersson, & Berglund, 2015). The main problem addressed by Sundler is the concern that, although research in simulation has been established for teaching nursing skills, little evidence has been gathered to support using simulation as a pedagogical approach. Sundler et al. (2015) believe that insufficient focus has been placed on linking theory to practice. The purpose was to gain insight into experiences of undergraduate nurses in relation to their skills, knowledge and competencies.

The study also aimed to analyze students’ learning experiences during an examination carried out in the simulation environment. The authors were exploring the experiences of nursing students in relation to clinical simulation and analyzing student learning experiences during an exam.

The researchers adopted a phenomenological research method, using qualitative interviews to gather the data. They were justified in using these methods as they were striving to be sensitive to student outcomes and to acquire data that would allow them to assess meaning.

The participants were 23 second-year undergraduate nursing students. Seventeen women and six men were interviewed in five gender-mixed groups. The interview questions related to how they felt, what the examination meant to them, and what their learning outcomes were.
The results reveal that engaging students in examinations that take place in the simulated learning environment can motivate their learning. Student feedback indicated that the simulated examination experience was meaningful and significant to their learning. The simulation and examination improved students’ confidence and prepared them for patient-care settings.

Although the benefits of simulation were evident in the findings, the authors pointed out that simulation must be a supplement to patient care settings, not a replacement. I believe the research to be valid in the sense that simulation can assist students to learn skills and theory in a more authentic way. The Sundler study makes a strong case that student nurses can apply experience gained through simulation training to their practice.

A weakness of this study is that the interviews were conducted five weeks following the examination. However, it makes an important contribution to advancing knowledge by providing extensive data on students’ feelings about the use of simulation from a phenomenological perspective. Currently, VIU does not use simulation labs for examination, because VIU does not want students to identify simulation as a stressful experience. This research study caused me to wonder how else simulation is used in nursing programs worldwide.

The Sundler study relates to this research by emphasizing the importance of using a mixture of simulation and training in teaching strategies for undergraduate nursing students. The study permits insight into perspectives on simulation supplied directly from the students’ perspectives, a phenomenological study.

Another article in the literature was, “The Role of Simulation in Nursing Education” (McCaughey & Traynor, 2010). The main problem addressed by this study is that, despite the increasing use of simulation in nursing education, there is conflicting research and limited analysis of the benefits of simulation as a teaching/learning approach.
The purposes of the McCaughey and Traynor study was, to evaluate the role of medium- and high-fidelity simulation in the students’ preparation for clinical practice, and to evaluate how simulation helps students transition to the position of staff nurse. The study attempted to gain insights into what role simulation plays in nursing education before midwifery students transition into clinical practice.

The research methods used in the study were largely quantitative. However, the study used mixed methods (both quantitative and qualitative) for data collection, as the participants were also asked to integrate comments on the questionnaire. The researchers justify their methods by stating the purpose was to gain richer insight.

The participants were 153 midwifery student nurses from a higher education institution in Belfast, who had recently experienced simulated learning, and were preparing to transition to staff nurse. Data was collected on the final day of the nursing program using a questionnaire.

The results provide evidence that supports using simulation as a teaching tool to enhance learning gains for student nurses. The questionnaire results indicated that students found simulation increased their ability to transfer skills to the clinical setting. The study concludes by saying that skills learned in simulation can be transferred to the clinical setting: Results found that following simulation training, student competence and safe practice improved. Simulation appears to offer risk-free learning that students have difficulty obtaining in the clinical setting. Even though some students questioned the realism of simulation, it was still considered an authentic tool.

The strengths of the study include the large sample size and the use of both quantitative and qualitative data collection methods to obtain a variety of data; its weaknesses include the fact that it was carried out in a single educational institution (a school of midwifery), making the data limited to this context. However, the study makes an important contribution to advancing knowledge by indicating avenues to obtain additional data.
This article directly relates to my research question by reinforcing the importance of using simulation in nursing education as a teaching/learning tool to help nursing students prepare for real world clinical practice. If studies like this are emphasizing the importance of simulation, I believe there is a good case for using simulation to aid students who require remediation of clinical skills. This article also includes discussion on how simulation improves student practice and enables students to learn from their mistakes. This indicates that simulation has advantages for students struggling to apply clinical skills. In the discussion section of this article, resources that validate the remediation advantage of simulation are identified.

There is strong evidence in the simulation related literature of nursing education which supports simulation as a teaching tool that allows students to perform skills in a safe, non-threatening environment. Students have indicated that simulation allows them to experience a patient-care event before taking responsibility with a real patient in a hospital or the community (Alconero-Camarero et al., 2016; Bensfield et al. 2012; Richardson & Claman, 2014; Sanford, 2010; Tosterud, Hedelin, & Hall-Lord, 2013; Waldner & Olson, 2007; Weaver, 2011).

Simulation permits nurse educators to show students the consequences of their actions and have them identify and make corrections before implementing their actions in a clinical setting. Students can repeat a scenario several times to solidify their knowledge and clinical skills. Simulation also allows students opportunities to reflect and discuss concepts in greater detail with faculty and peers, away from the intensity of clinical practice (Tosterud, Hedelin, & Hall-Lord, 2013).

In the literature, the disadvantages of using simulation in nursing education include: the time consuming nature of implementing and operating simulation scenarios, increases to already heavy faculty workloads, and the overall time involved in running simulation equipment. Students may also have difficulty treating the simulator as a “real” patient and be focused on anticipating what could go
wrong during the simulation instead of dealing with issues that arise directly (Lynn et al., 2010; Sanford, 2010; Sundler et al., 2015; Weaver, 2011).

**Self-confidence in simulation.** The NLN Simulation Framework identifies self-confidence as an outcome of simulation (Jeffries, 2016). The literature identifies confidence as a core component in nursing education related to professional identity (Bambini, Washburn, & Perkins, 2009; Brown et al., 2003). Development of self-confidence for nursing students is linked to practice and proficiency of clinical skills leading to successful outcomes for students (Lundberg, 2008). One way nursing students can develop self-confidence is through repeated simulation experiences (Blum, Borglund, & Parcells, 2010; Cummings & Connelly, 2016; Lubbers & Rossman, 2016).

In addition to research that supports simulation increasing student self-confidence, there is also research showing that students with low levels of self-confidence may have higher levels of stress when working in a simulated environment.

Performance in simulation may differ from performance in a clinical setting (Lynn & Donovan Twigg, 2010). Nurse educators are striving to integrate students’ classroom learning with their clinical practice. Simulation is designed for learners to be active participants in their own learning (Yuan, Williams, & Fang, 2011). Many research articles have investigated simulation experiences focusing on clinical skills, and how student confidence develops by performing these skills in a simulated learning experience. The literature supports the self-confidence framework developed by the NLN (Kaddoura, 2010; Lubbers & Rossman, 2016; Tiffen, Graf, & Corbridge, 2009; Traynor et al., 2010).

**Clinical skill proficiency in simulation.** High-fidelity simulation is a fairly new teaching method in nursing education (Jeffries, 2012). The “introduction of affordable, portable, and versatile human patient simulators in the late 1990s transformed health care education and is the technology of the future for competency testing and continuing education” (Jeffries, 2012, p. 2). Simulation labs, and
the integration of simulated learning experiences into curricula, are quickly becoming expected in nursing education. As awareness and implementation grows, giving students opportunities to master clinical nursing skills in a safe, controlled environment can develop confidence and proficiency without harming patients (Ewertsson et al., 2015; Sundler, Pettersson, & Berglund, 2015; Traynor et al., 2010). In clinical practice, students often have limited ability to perform clinical skills. The learning experience is driven by what is available to them and what their patients require. Simulation scenarios allow instructors to design learning experiences that provide students with opportunities to practice skills that are limited or unavailable to them in clinical practice.

Simulation labs are currently being used to prepare students for experimental learning at the bedside. Nursing students are expected to prepare for clinical practice by researching and developing patient care plans: “When students arrive in the clinical setting with a prepared mind, they are in the best position to learn from undetermined, open-ended clinical situations” (Benner et al., 2010 p. 117).

The better prepared students are to work under pressure, the more successful they will be with their learning outcomes. Simulation allows students to experience pressures in a controlled environment. The use of human patient simulators offers students an opportunity to practice skills repeatedly without risk of harm to a patient and while receiving immediate feedback from faculty. Evidence in the literature supports the use of simulation as an important learning tool that has been shown to be effective in improving self-confidence, (Kaddoura, 2010; Tosterud, Hedelin & Hall-Lord, 2013), and in improving clinical skills performance. (Jeffries, 2012; Traynor, Gallagher, Martin, & Smyth, 2010).

**Remediation in Nursing Education**

Nursing education institutes have various ways of defining and implementing supports for students who require remediation (Culleiton, 2009; Evans & Harder, 2013). The literature reveals limited exploration of remediation activities in nursing education. An outcome of the literature indicates
that remedial programs currently in place are poorly designed, and research in this area has been sparse (Evans & Harder, 2013; Lynn & Donovan Twigg, 2010). Literature reviews on the topic of remediation in nursing education have produced little evidence of any research or practice that uses simulated learning in the remediation process for nursing students who are struggling in the clinical practice setting (Evans & Harder, 2013).

The research that does support using simulation for remediation purposes comes from the anaesthesia and medical professions. Research supporting the benefit to student learning outcomes has emphasized improvements in anaesthesia and medical student clinical skills following remediation that takes place in a simulated learning environment (Haskvitz & Koop, 2004; Lynn & Donovan Twigg, 2010). The literature emphasizes that remediation activity should be student-centred, with a genuine aim to support the student to achieve their own learning goals (Evans & Harder, 2013; Gallant, MacDonald, & Smith Higuchi, 2006). Simulation allows the educator to provide formative feedback to students: “Observation for the purpose of assessing student performance in the clinical setting should be formative, deliberate, and ongoing” (Benner et al., 2010, p. 221).

Simulated scenarios have the potential to provide a smoother transition into the clinical setting by providing students with a safe place to integrate critical thinking skills, and debrief the experience with peers and faculty. Students are given opportunities to work as “private investigators” uncovering potential problems for their patients. Simulation allows nurse educators to develop standardized critical situations in a controlled environment to prompt and enhance critical thinking skills. Simulation provides opportunities for educators to design and manage predicted learning outcomes for students. Such scenarios can be built to reflect an illness progression with a set patient: “Simulation can enhance knowledge, facilitate skill acquisition, decrease anxiety and assist in promoting clinical judgment without any risk to actual patients” (Gallagher, Martin, Smyth, & Traynor, 2010, p. 1425). Simulation,
integrated with the remediation learning experience, may provide students with formative feedback, giving students opportunities to learn from mistakes prior to the real world clinical setting. Thus far, research on the use of simulation outside of the practice-lab setting is limited.

**Critical Thinking in Nursing Education**

Working in a health care environment is complex and demanding. It is vital for nurse educators to help student nurses develop solid decision-making skills in nursing practice. This decision-making process, which involves effective problem-solving skills, is often referred to as critical thinking.

In nursing education, critical thinking is extremely complex and of great importance to the nursing profession. The “dynamic nature of contemporary healthcare requires nurses to assume ever more complex roles which, in turn, necessitates the acquisition of higher-level critical thinking skills” (Lewis, Strachan, & Smith, 2012, p. 86). The importance of developing strategies to support critical thinking in nursing education is highlighted in the literature (Burrell, 2014; Carter, Creedy, & Sidbotham, 2015; Chan, 2013; Goodstone et al., 2013; Papathanasiou et al., 2014; Redding, 2001).

I reviewed an article on critical thinking, entitled: “Effect of Simulation on the Development of Critical Thinking in Associate Degree Nursing Programs” (Goodstone et al., 2013). This article compared the effects of high-fidelity patient simulation and case studies on the development of critical thinking skills in nursing students. In this study, researchers looked at how to integrate what students learn in the classroom with what they learn in clinical practice. The study used a two-group, quasi-experimental research method, in which the participants were 42 first-semester student nurses enrolled in a health-assessment course. One group participated in weekly case studies, and another in weekly, high-fidelity simulation over the course of a semester. Each group took a pre/post standardized test of critical thinking: the Health Studies Reasoning Test. The study found significant increases in critical
thinking scores in the simulation groups over time. This demonstrates that simulation experiences can improve critical thinking test scores. However, a limitation to this study is the small sample size.

This data relates to my study by demonstrating that simulation is an important teaching strategy in nursing education that can lead to the development of critical thinking skills. To me, literature connecting simulation to critical thinking suggests that simulation, paired with remediation, could be a valuable practice leading to increased student success and development of their critical thinking abilities.

**Questions Raised by the Literature**

The literature review reinforces the potential benefit of using simulation to enhance clinical remediation in nursing education. The research studies reviewed in this chapter indicate that student self-confidence, clinical skill proficiency, and critical thinking abilities could improve with the use of simulated learning. The literature reveals limited research in the area of remediation in nursing education, and as a result there is limited discussion regarding the use of simulation techniques to enhance clinical remediation in nursing education. This indicates that further research is needed in the area of remediation in nursing education.
Chapter 3: Procedures and Methods

Description of the Research Design

The goal of the research was to investigate (from the undergraduate student’s perspective) the potential for using simulation as a remediation strategy. This was done to determine if using simulation as a teaching strategy in nursing education would increase the self-confidence and clinical skill competence of nursing students who require remediation.

The researcher explored two concepts related to simulation and remediation student learning experiences: student self-confidence, and clinical skill competency. The goal was to analyze results from the study and draw conclusions about how simulation can be used to support remediation.

Qualitative research was conducted which “… uses narrative, descriptive approaches to data collection to understand the way things are and what the research means from the perspectives of the participants in the study” (Mills, 2014, p. 6). This approach was used to gain insight from the student’s lived experience. A phenomenological research method was used which “… focuses on the meaning of people’s experiences concerning some phenomenon. It is the individual’s perception of the experience that matters, and this defines the reality of the lived experience for that person” (Davies & Logan, 2012, p. 10). The phenomenological method was utilized in this study to explore the perceptions of real-life simulation and remediation experiences of Bachelor of Science in Nursing degree (BSN) students.

Historically, the nursing profession has gained valuable insight and understanding from phenomenological perspectives: “Phenomenological inquiry methods focus on the study and analysis of how phenomena present themselves to individuals as lived and embodied experiences as well as how these experiences are assigned meaning, or what the essence of experience might be” (Collaboration for Academic Education in Nursing, 2015 p. 2–8).
Focus group interviews were selected as the method for data collection. “Focus groups are a particularly useful technique when the interaction among individuals will lead to a shared understanding of the questions being posed by the teacher researcher” (Mills, 2014, p. 92). This data collection strategy was used to compare student experiences in simulation to student experiences in remediation, in relation to their perceptions regarding skill competency and self-confidence.

The study took place at VIU in Nanaimo, British Columbia, Canada. There were three focus groups: Focus group A consisted of one BSN third-year undergraduate nursing student and two BSN fourth-year nursing students; focus group B consisted of one BSN third-year undergraduate nursing student and two BSN fourth-year students; focus group C consisted of four BSN fourth-year undergraduate nursing students.

A group agreement regarding equal opportunities and respect was discussed before the interviews began, and participants were given appropriate time frames to respond to the research questions. The BSN is a four-year program at VIU, and each focus group included third- and fourth-year BSN students. The participants were selected with the understanding that they had experience in both simulation and remediation learning environments. Participants were asked to be part of the study based on their ability to reflect on past learning experiences. They were adult learners, and signed appropriate consent forms.

The research design was chosen to answer the following research question: “What are student learning experiences with remediation and simulation?”

**Description of the Sample**

Study participants were third- and fourth-year BSN students at VIU who had remediation and simulation learning experiences as part of their nursing coursework. Once students volunteered and
consented to participate, they were placed into a focus group interview session based on their availability. Three separate focus group interviews were conducted.

The interviews were conducted in the Simulation Suite of the Health and Human Services building at VIU. The study included 10 participants 19–40 years old (nine female and one male). The participants were also selected based on their current enrollment status in the nursing program. I had had previous interactions with the students selected for the study in my role as the Lab Resource Nurse at VIU. I had also taught five of the research participants in my role as a clinical practice instructor in the BSN program. Participation in the research study was voluntary, and participants were made aware that they could withdraw from the study at any time. (See Appendix C for consent.)

**Description of the Instruments Used**

Data was collected through focus group interviews so that I could expand my research understanding by observing both verbal and non-verbal communication methods displayed by the participants. A strength of focus groups is also the ability to clarify, summarize, and explore participants’ responses. Three focus group interviews took place, designed to encourage students to be honest and open as they engaged in dialogue regarding previous learning experiences in both simulation and remediation environments. The focus group interviews were broken down to include two main topics: Part A contained open-ended questions to gather insight into student confidence and clinical skill competencies as they related to simulation learning experiences; Part B contained questions to gather insight into student confidence and clinical skill competencies, as they related to remediation learning experiences. There were six questions asked in each category. (See Appendix B.)

All participants gave informed consent before the focus group began. Focus group questions were adapted from a questionnaire developed by the NLN entitled Student Satisfaction and Self-Confidence in Learning. (See Appendix D.) The NLN instrument was designed to measure nursing
students’ confidence levels in relation to their awareness of their performance of clinical skills and their knowledge of a simulated patient experience. Additional questions were developed by myself, the researcher, to gain a better understanding of nursing students’ perceptions about their experiences with simulation and remediation strategies in nursing education.

Focus groups were conducted in a semi-structured format. Time was allocated in case I needed to ask further questions or if participants desired to elaborate on their responses. This was done to encourage ease of exchange between the researcher and the participants. The focus groups were conducted over a one- to two-hour time frame, and were video and audio recorded in order to capture verbatim responses from the participants. Additionally, I took detailed notes throughout the focus groups.

Explanation of the Procedures Followed

The Research Ethics Board at VIU gave its approval in June 2016 (before the study began), and the VIU Faculty of Health and Human Services also granted approval through the Dean. In September, 2016, nursing students from years three and four in VIU’s BSN Program were contacted to participate. I visited two scheduled lab classes in third year, and one lecture theatre class in fourth year to recruit volunteers. A recruitment letter was handed out and left with the students (Appendix E). Once students had notified me via email indicating their desire to participate in the study, they were then contacted via email and the purpose of the focus group was outlined for each participant. As the researcher, I determined the date, time, and location of the study. The participants were placed in one of three focus group sessions, based on their availability. Interview questions were emailed to the participants in preparation for the interviews (Appendix B).

On the day of the focus group interviews, participants were asked to sign an informed consent form for the research study (Appendix C), which was signed and agreed before the sessions started. The
focus group participants were each asked the same 12 questions (Appendix B) during the interview sessions. The simulation suite where the interviews took place was a familiar environment, as the participants had had previous learning experiences in this setting. Chairs were arranged for circle seating, and the focus group discussions were audio recorded using a handheld tape recorder, and video recorded using the simulation suite audio/video recording technology available through a program for simulated learning entitled Learning Space. The focus group interviews, each one to two hours long, were conducted on different days. As the facilitator of the focus groups I am skilled in group discussion techniques.

To conclude the interviews, I summarized the discussion with the participants to confirm accuracy. The purpose of the study was reviewed, and participants were asked if anything had been missed.

**Discussion of Transferability**

In order to claim generalizability, further quantitative research methods would need to be implemented. A researcher would need to set up a control group and an experimental group—which was not the goal of this study. Rather, the goal was to gain students’ insight into their remediation and simulation experiences in nursing education. There was a threat to transferability if the perspectives of students who participated in the study differed from those who did not. I could also have been viewed as having power over the relationship due to my role as an educator in the Nursing program at VIU. I have minimized this as much as possible by maintaining a non-evaluative role with the participants. The results of the study are also limited to the university program where the study was conducted, and cannot be generalized to the experiences of students in other university nursing programs.

I attempted to improve the internal validity of the study by conducting the research in an environment familiar to me and the participants. (I have worked in the teaching/learning environment
for a number of years and the participants have been attending classes in the location for two to three years.) I performed persistent observations during the interview process, to identify themes and characteristics in the participants’ data. As I was not in an evaluative role, trust and understanding was established; there were no conflicts between researcher and participants.

Peer review and debriefing took place to enhance the credibility of the study—a colleague who is a Professor of nursing research reviewed and reflected on the data collection themes and outcomes and discussed interpretations with me.

**Analysis Techniques**

Thematic analysis was used to analyze the data (Braun & Clarke, 2006). The focus group recordings were analyzed by adding up common responses: these responses were determined by how frequently concepts were mentioned among all the participants. Themes in participants’ responses were collected and compared between the three focus groups. Thematic analysis allowed for the data to be structured and evaluated for common themes.

The text was divided into sections based on key emerging themes. I listened to the audio recordings repeatedly, to ensure accuracy of the participant responses, and the audio recordings were then transcribed into a Microsoft Word document based on which focus group the students participated in. The material was condensed and coded using a numbering system, and each transcript was numbered. Participant responses were numbered in chronological order based on when the responses occurred, to allow the data in the Word document to be easily accessed. Similarities and differences in the participants’ learning experiences in simulation and remediation data were identified and categorized. I also analyzed the data using an inductive process, that is, “moving from specific raw data to abstract categories and concepts” (Merriam, 2014, p. 17). Key quotes were drawn from the data to emphasize themes.
Thematic maps were developed to compare and contrast the themes that emerged from the focus groups. Simulation was in the centre of one concept map, and remediation in the other. Key themes were identified for each topic.

These thematic maps helped me to visualize relationships between the themes. Once themes were defined, detailed analysis took place by carefully cross-matching commonalities between each transcript. Once commonalities were identified, concepts were narrowed down, and four keys themes emerged. These were: anxiety, confidence, critical thinking, and clinical skill competency. The themes were assigned a colour and highlighted according to their colour throughout the printed transcripts. The themes were arranged in a thematic map that linked key phrases from the data. (See Appendix F.) The final stage of analysis involved choosing examples from the transcripts to illustrate the themes.

Thematic maps allowed me to analyze each type of learning experience to look for evidence linking the two concepts of student self-confidence and clinical skill competence.
Chapter 4: Findings and Results

Description of the Findings

The focus group interviews provided rich data. I planned to explore how experience with simulation in nursing education could lead to successful learning outcomes for students requiring remediation of their clinical nursing skills. The following themes or responses emerged from the focus group interviews: anxiety, confidence, critical thinking, and clinical skill competencies. Themes were determined based on common repeated patterns evident within the data collected from all three focus group interviews. These themes demonstrate the core aspects of the participants’ understanding of their experiences in simulated and remediation learning environments. Participants placed value in the support they were provided during the remediation process. The data also revealed how the teaching method of simulation could be used as part of the remediation appointment process.

Anxiety. Learner anxiety was a theme identified by all participants in relation to simulation. Students’ anxiety increased when they felt too much distraction in the learning environment. They perceived that they were being judged on how they managed barriers and “tricks” in the simulation environment. Participants consistently reported feeling overwhelmed and fearful during simulation. Comments about restrictions on time, and about lack of preparation and resources, seem to suggest that students perceived too much was happening, too soon. Fear of failure was identified as contributing to increased anxiety in the learning environment.

Participants suggested there was lack of transparency in simulation when they performed a scenario in a closed room, separated from faculty by a one-way mirror. This contributed to participants’ anxiety throughout the simulation, by causing them to make assumptions about how their performance was being judged. This anxiety is reflected in the following statements from the transcripts:
2.4 Sim makes you feel anxious and a little bit frustrated that you do not know enough, but at the end of it, when you get the answers on what you should have done, you feel more confident if the scenario should present itself again. I feel that we need to be a little more prepared for our simulation experiences.

2.10 Anxiety you feel in this room (simulation suite) it can overshadow. You may have learned quite a bit; but all you can remember is that feeling. Reflecting back, I remember the external stimuli: the heart monitors, the IV poles, and all the machines similar to what you would see in the hospital. I felt that helps, because I knew my checks definitely benefited from that walking into a room.

3.5 It can be very overwhelming walking in (sim); you kind of gather the stress of your peers; if it’s a negative feeling you build on that with them. And then you go in there it can be stressful but at the same time it can be very exciting if you have prepared yourself.

Participants revealed that simulation and remediation used different approaches to support their learning, and that remediation gave them more choice in their learning. Remediation was self-driven and less anxiety-inducing than simulation, more trust was established between participants and the Lab Resource Nurse. Participants shared that remediation provided a comfortable, non-judgmental environment that allowed learners to show their vulnerability. One-on-one interaction with the Lab Resource Nurse (where the learner was free to ask questions and get answers “in the moment”) was indicated in the following excerpts from the data:
1.35 I think that remediation focuses on individual attempts of doing skills and fine-tunes these skills.

1.36 In remediation you got a whole wealth of knowledge. Like a whole text book in living motion. Totally, I got so much from remediation in half an hour! One person doing the skill and one person note-taking.

2.22 One-on-one. I missed class one time. I developed a learning plan. I felt it was so helpful to do the one-on-one. Realistically, you cannot have one-on-one time with an instructor; but after I did the skill one-on-one in remediation, I felt more confident with the skill.

Participants said they felt less pressure during remedial interactions than during simulation learning experiences. Currently, at VIU, simulated learning focuses on problem-solving with peers, whereas remediation focuses on independent problem-solving. Simulation provides greater visual cues, such as breathing and voice cues from the simulator. I identified from the results that simulation caused them more anxiety. This could be due to the impression students had that their skills and abilities were being judged in the simulation learning environment.

2.38 In simulation you know they (instructor and peers) are watching you; but you cannot see them watching you—so your mind creates ideas on how they are judging you. I couldn’t help but think about what others were thinking. But in remediation if I did something wrong, I could see your response [Lab Resource Nurse] and see the wheels turning and how you were going to help me.
The above statement from the transcripts illustrates that students experience anxiety during simulation. This was a strong theme clearly identified by the participants throughout the data.

**Confidence.** Participants identified that receiving individual attention during remediation was an important factor for developing their confidence in nursing practice. Feeling organized contributed to developing confidence, as did encouragement from an experienced Registered Nurse.

Having someone to talk to who provided instant expertise and feedback gave students the opportunity to discuss the “do’s and don’ts” of skill performance. Developing a full understanding of the rationale behind skill performance gave students a feeling of pride when a skill was completed successfully. Having time to practice and gain confidence in their own knowledge development contributed to their understanding of nursing practice. Learning in a non-judgmental environment also resulted in participants experiencing less pressure.

Participants identified that all these factors were present during the remediation process. During simulation and remediation experiences, a key theme that contributed to participants’ development of confidence in nursing practice was the time they were given to reflect on their own learning and how it links to the nursing practice setting. Reflection occurred, either through debriefing (following a simulation experience), or throughout remediation appointments.

Participants said simulation was a team focused approach to learning. Confidence was built by working with peers, observing the practice of others, and reflecting on the experience following completion of a simulation. The development of confidence during simulated learning experiences for student nurses is demonstrated by the following statements in the transcribed data:
1.13 It’s about confidence. Skills are a small part of nursing practice; but when you are confident and good at skill, it gives you something to feel good about. Sim helps you with this, because it crushes confidence then helps you build back up.

3.18 Increased my confidence [simulation] and builds on your team work with peers.

3.20 [simulation] you definitely become more confident, even if you were just observing the other group. I believe that is helpful. and observing it in the clinical setting and in the reflection part about it after that—speaking, thinking, about the dos and don’ts and what the end of that scenario might look like—I think that was really helpful and gave me more confidence in what might happen if that were to happen in the real setting.

3.17 If I had done a skill in simulation and then it happens again in practice, I think I am more confident about doing the skill in practice. If it comes up on the floor, I am definitely more confident if I have done it in sim first.

During remediation learning experiences, participants identified that they gained confidence from the reassurance provided by an experienced Registered Nurse, and being able to form an understanding of the rationale/critical-thinking aspects of applying clinical skills. Participants gained confidence when they became knowledgeable about a clinical skill procedure. This happened when the learner felt that they understood the complete process of a particular skill application. Being prepared and having choice during remediation appointments contributed to increased levels of confidence.
1.25 [Remediation] I felt so much better about facilitation; it built your confidence and I think that is what you take to the clinical setting, because if you know your rationale, if you have an RN who has been nursing 20 years and they come up and ask you why are you doing something, normally you would fall apart, but if a skill has been done in remediation, I would say this is why . . . This is what the most updated information gives you that empowering piece. I’ve got it! The rationale is so important.

2.21 Remediation was a complete turnaround—I went from a complete panic attack about facilitation to being able to go into facilitation confidently. A specific experience I had was with the trach care because this is what I had in my facilitation and there was some steps I had not prepared, and I know I needed to prepare them going into remediation and getting the feedback and resources. I was able to break down each step into a process and then I felt really whole and I felt ready.

2.26 You doubt yourself; you could have the skill step-by-step, but you still doubt your knowledge: Is there something I am missing? Is there something I don’t even know that I am missing? Performing that skill in remediation having someone tell you that you did it right. That you have all the steps—your confidence is just increased and you know how to prepare for facilitation

2.28 Comfort piece very important in remediation, because you choose who you are going to take with you or by yourself as small group of people you feel confident around
2.31 Value one on one on-one time increased confidence. Felt good. I went in having read the material; I came in with the expectation I would show the skill. But she was there to point me in the right direction and I knew I would be practicing the correct way.

2.41 What increases my confidence is one-on-one with an RN. You get this out of remediation—you would walk out feeling like, I can do this in facilitation, I feel confident I have the resources to back up what I am doing and why.

3.37 [Remediation] definitely helped with my confidence and a full understanding of how to do the skill my rationale behind the skill, and the steps I needed to take.

A main insight linking to the theme of confidence (throughout the data), is that students value support provided to them during remediation experiences.

**Critical thinking.** During the remediation process, participants described how the development of critical thinking skills occurred by being asked to brainstorm on the spot. Participants emphasized that an experienced RN provided them with guidance during remediation: Students were prompted so as to understand the process and not merely to perform the steps of the skill.

In my role as Lab Resource Nurse, I supported independent problem-solving by learners, looking at and critically analysing every step of a clinical-skill procedure. Students gained clarity through discussing with me different ways of doing things, and I emphasized the “rationale”. Participants developed an increased awareness of their own nursing practice, and critical thinking allowed learners to think about new knowledge and promoted their reflective practice:
Remediation was so much more about, “What’s your rationale behind it?” Making sure that every single step I had five reasons of why I was doing it this way. I had an explanation, so that when I left remediation my rationale behind was solid. More important, because it is fine to do a skill really great, but if you don’t know why you are doing it great, what all the techniques are and rationale why this way verse this way. With rationale, feel that it’s okay.

During the simulation learning experience, participants indicated that the development of critical-thinking skills was a learning outcome of simulation exercises. Participants identified that simulation gave them opportunities to problem-solve with a group of peers, which prompted thinking “outside the box.” Simulation experiences also served to increase awareness about their independent nursing practice. During simulation debriefing, a “nugget” of learning allowed the participants to think about new knowledge, and promoted reflective practice. I feel that this data supports the importance of simulation experiences in developing critical thinking skills for nursing students. The following statements emphasize the importance of how the participants developed critical thinking skills in both simulation and remediation learning experiences:

Most useful was remediation—it wasn’t just perfect scenario, you [Lab Resource Nurse] gave the critical thinking aspect of things: “What would you do differently next time? What if I [Lab Resource Nurse] wasn’t there what would you do?” It was comprehensive, gave other aspects that may or may not be there. Wasn’t linear.

[Remediation] being asked the question every step of the way makes you give rationale for it.
2.49 Simulation and Remediation both used to prepare you and help you with future nursing—the issues that come up for problem-solving, for critical thinking.

2.57 Definitely more than just the skill in remediation—the communication going on with you [Lab Resource Nurse] the key questions that we have to ask what our informed practice is. You [Lab Resource Nurse] are very good at that; you always ask “Okay, you are doing it that way; do you understand?” What are the components around it? You (the student) are totally problem-solving you are not just learning how you are doing a skill, you are learning why it is done that way.

3.9 Simulation was beneficial and allowed us to use our critical thinking outside of the box.

3.30 [Remediation] having the pause moment and thinking you were not necessarily doing it wrong but there are different ways of doing it.

3.44 In remediation with you [Lab Resource Nurse] I was able to have the opportunity to look at something from a variety of different angles and ask a variety of questions. Get all the answers so I had a full picture of how and why I was doing something.

A main insight linked to the theme of critical thinking (throughout the data) was that students value the support and guidance that is provided to them from the Lab Resource Nurse during
remediation appointments. Techniques used by the Lab Resource Nurse to engage learners contributed to the development of their critical thinking skills.

**Clinical-skill competencies.** Participants indicated that several components contributed to developing their clinical-skill competencies. Having the freedom to ask questions helped students gain a full understanding of clinical-skill procedures, and developing an understanding of the rationale for a skill being performed a certain way helped them to be resourceful.

Participants appreciated having time to repetitively practice skills. Immediate feedback from an experienced Registered Nurse during the practice of a clinical skill solidified their understanding of the core principles of a procedure. They also indicated that having time to problem-solve was important to developing their clinical skill competencies. Participants emphasized that having confidence in their clinical skills impacted the rest of their nursing practice.

1.24 The thing that was so good was that, after remediation, I could do the skill with my hands behind my back and could literally talk my whole way through it. I had all the knowledge and be able to say, “this is what I am going to do and this is why I am doing it,” the skill wasn’t really even a skill anymore. I knew what would happen if I did things differently. I had so much knowledge, and I felt so empowered with it.

2.32 For me I learn through redundancy—the more I do the skill, the more comfortable I am going to be doing it. [Remediation] helped me solidify the core principles around skills.

3.32 I worked to get the skill down, and gained confidence [remediation] it’s okay to get the help and it gave me the confidence to do better next time. Remediation really helped with this. Took the pressure off the skill.
3.35 [Remediation] Definitely feel more confident because you go over it, step-by-step, go over rationale, feel more knowledgeable even if it was one little thing that I picked up from the meeting I was like, “now I know how to apply these sterile gloves and I know how to do it well,” more confident, more knowledgeable and taking your time to do it—own decision to go in you feel good walking out.

A main insight linking to the theme of clinical skill competencies (throughout the data) was that students gain competence by repetitively practicing skills with an opportunity to have immediate feedback from an experienced RN.

**Observations and Discussion**

Participants identified that they valued their remediation experiences. The remediation environment was warm and relaxed: Students said they felt safe while learning. Their relationship with me was helpful, positive, and encouraging. Students recognized that they had established a relationship of trust with me. Remediation was a non-judgmental atmosphere that allowed them to take ownership of their learning. Students expressed feeling self-motivated and empowered when they had choice in their learning that nothing was hidden—they were able to think about the full context for why they were performing a skill in a particular way. They left remediation feeling prepared with rich, resourceful information. Remediation was an opportunity to fine-tune skills. A clear process emerged through remediation that mimicked “real-life” learning. Students had their own time to prepare and indicated that remediation challenged them to learn in a way that motivated them to be more resourceful nurses.

Participants identified that they valued simulation learning for the ways the experience enhanced their teamwork and relational practice skills. Simulation allowed them to practice leadership skills by providing opportunities to delegate tasks to peers.
Communication skills were important for developing trust with peers. Simulation encouraged participants to work on group dynamics that prepare learners for clinical practice. Support and feedback from peers is expected in the simulated learning environment—simulation prompted the learner to think about life as a nurse through the process of debriefing and reflection.

Data collected during the focus group interviews relates to the research question, “What are student experiences with remediation and simulation?” The data emphasized the need to reduce students’ anxiety and increase their confidence throughout their learning experiences and that this can be achieved by having an educator who creates a positive, trusting, and safe learning environment during simulation and remediation learning experiences. This could result in students feeling more comfortable making mistakes, and help solidify critical thinking and clinical skills competency in nursing practice.

Participants felt that having an experienced Registered Nurse with them during simulation to facilitate their learning could mimic the teaching/learning process that unfolds for them in the clinical practice setting. The following information presented in the data supports this theory:

2.50 If there was an RN in the room with you for simulation—if one of the instructors was an RN and you had someone to bounce ideas off of as you were going through the process of simulation that would mimic exactly what you would be going through in clinical—you have someone to talk to and they are your guide I think you would learn a lot from them. If the sim was going into cardiac arrest, and you do not know why you have an RN in the room that can show you what to do, and you will learn everything—every single thing they do. I think that would be a whole new perspective like context learning. You become what you truly are in the sim environment; you are a third-year student—you are not acting as a graduate RN. You are
within your current scope of practice. In real life you could ask yourself what kind of questions you would ask. I think that would change the whole experience.

2.52 If you really don’t know what to do, you can have an RN show you what to do, and then you would be working as a team, and then if that situation arises when you are alone, you would just remember everything they did.

2.53 I think it would be a huge turnaround, if remediation enhanced simulation by mimicking what happens in the practice setting with instructors and students. Also, if practised remediation with clinical instructor and once feel confident with instructor then go into sim and performing that skill without Lab Resource Nurse.

1.45 I feel that if you incorporated simulation with remediation it would feel similar to being in the practicum experience setting one-on-one with instructor. For example, if you were removing staples the instructor is standing right there, so you have that feedback but doing it in simulated environment; so if you were doing simulation with remediation that’s how I feel it would look a practicum setting.

2.59 I feel like it would be most beneficial to have an instructor with you in sim like remediation you would be more guided. You would not have as much anxiety you would have someone there to teach you and guide you along the way. And correct any mistakes at that time. Acting as a guide. In clinical setting have one instructor per eight students don’t always have that
guidance right with you would be nice to have this in simulation I feel like it would be a better learning outcome.

3.52 Using simulation with your clinical group knowing these people having confidence with them growing as a nurse that would be helpful. I could see it being used the chance to do remediation and then say to the student okay we are now going to the sim lab to do the same skill following remediation. Have a scenario engage the patient. In remediation is controlled environment then have that next step following in sim have the patient with an 8/10 pain and engagement giving you chance to do what you just did in remediation. I can see that being useful an hour once a week could be a group of five for remediation apply your learning following all at once right after. Can leave it up to learner can either book a half hour appointment then half hour later process it then go into sim that would increase the learning for me and do the critical thinking that is required. Does not have to be integrated in the process can be an addition to the process. Would be nice to have a team of resource nurses you could sign up to work with. Remediation can also be built in to simulation by noticing skill gaps that are happening in sim encourage students in this process to use remediation so that they know the resources are available they would be more self-motivated in the future to seek the resources.

New insight emerging from the data is the emphasis on the importance of the teaching/ learning process that takes place during remediation. Participants indicated that if the format used in remediation were integrated into the simulation process, this would benefit their learning. This theory is supported by these statements in the transcribed data:
1.47 If you had a regular sim then you debrief them, you took the learning and the feedback from that, and the second attempt at it would be kind of like the remediation.

1.49 Maybe make a specific mistake in sim—contact Lab Resource Nurse to set up an appointment to watch me do it properly get a second attempt at it.

2.54 Maybe combining something where remediation and simulation more come together. Would be nice to create more of remediation environment in lab. Put yourself in the mind set of being the learner in clinical practice.

2.55 I am also wondering if instead of calling integrating simulation you could integrate remediation in simulation. You come in with a group of people being watched or are watched. You have the instructor, you have the skill that you want performed and instead of changing remediation, you could enhance simulation with remediation. Remediation is quite successful the way it is right now, but I feel like a lot of those key components of remediation could enhance our simulation. If a piece of remediation is in lab time we are forced to get a good experience. Incorporating into lab that would be a really great idea as well but also important to incorporate it into our simulation experience.

2.56 You learn better when you are supported.

3.40 More like remediation where I am deciding what I want to work on, rather than being thrown a skill. I think having that step-by-step, being able to speak with you in remediation is a
way better way of learning. Maybe incorporating remediation or sim having computer on wheels, so that you can use resources. Having more realistic resources for us. Have instructors work more like remediation process in lab. Lab would be valuable if was your clinical instructor taking you thorough sim and a remediation process. Something to be said about having that person who is experienced we can collaborate until we are blue in the face, but if we are only at a certain level, there is only so much perspective others can bring. Remediation is a safe place.

The themes emphasize that students value encouragement and reassurance from faculty in order to gain confidence with clinical nursing skill competencies—and increased confidence may reduce the learner’s anxiety. Competence with clinical skills could also lead to increased levels of confidence in the university setting. The participants placed value in understanding the rationale for the clinical skills they performed. The value of this understanding lies in the development of critical thinking skills.

Learners reported experiencing a higher comfort level when they felt supported by faculty and were given learning choices. Formative feedback from faculty during learning experiences was also identified as important, in order for the learner to develop confidence in critical thinking and clinical skills.

The study provides insight into the learning experiences of third- and fourth-year BSN students in both remediation and simulation environments that suggests simulation and remediation experiences have the potential to be integrated. But attention must be paid to factors that cause anxiety—or promote confidence—and to those that help student nurses develop critical thinking and clinical-skill competencies.
Chapter 5: Discussion and Implications

Students in nursing degree programs often face challenges developing their competence and confidence with clinical skills (Benner et al., 2010). Remediation and simulation provide two ways to help (Evans & Harder, 2013). Literature on the topics of simulation and remediation in nursing education were reviewed to discover how simulation is used in nursing education. The literature review shows that simulation is a teaching strategy that is gaining recognition in nursing education (Ross, 2015). There is limited research on the topic of remediation, and remediation practices in nursing education are not clearly defined (Culleiton, 2009; Evans & Harder, 2013).

My experience as a Lab Resource Nurse in nursing practice education prompted me to think of ways to promote students’ competence and confidence with clinical skills. The purpose of this study was to explore what benefits and challenges students experience in remediation and simulation learning environments. I developed the following research question, “What are students’ learning experiences with remediation and simulation?”

The study used a qualitative method approach by collecting data from BSN students who participated in focus group interviews. The results of this qualitative study highlighted nursing students’ experiences within remediation and simulation learning environments. Themes identified in the participant responses were anxiety, confidence, critical thinking, and clinical-skill competencies.

Three main insights emerge from these themes:

• Students experience anxiety in simulations;
• Students value support provided to them during remediation;
• It is challenging to combine simulation and remediation in order to deepen both confidence and competencies with clinical skills, amongst nursing students.
Implications for Nursing Education

Anxiety and confidence. The data indicated that anxiety plays a role in a student’s ability to develop confidence in applying clinical skills. Cummings and Connelly (2016) point out that nursing students’ confidence levels can increase with repeated simulation activities. Jeffries (2016) indicates that according to the NLN Simulation Framework, raising student self-confidence is an intended purpose of simulation learning. My data supports the results obtained from other researchers.

In order to diminish anxiety and raise confidence levels for the learner, I recommend that the teaching strategy of simulation be integrated within the remediation appointment process at VIU. Remedial is defined by the Merriam-Webster dictionary as a correction or improvement to make something better. Remedial work in nursing education involves supporting students who need help to improve a particular skill. The goal is to work towards making corrections in order to raise clinical nursing skill competencies.

A series of remediation appointments could be scheduled in a purposeful way in order to support student learning needs. A student’s first appointment could focus on feedback and clinical skill reinforcement, and the second could focus on the same skill, in a simulation suite. This may raise learners’ confidence in their clinical skills. Using simulators to develop learner confidence with clinical skills can decrease learners’ anxiety (Waldner & Olson, 2007). This research indicates that learner confidence increases when students feel continuous encouragement from faculty during the learning process. Fostering environments that minimize anxiety and prompt confidence can contribute to students successfully acquiring clinical skills. Nursing programs should continue to reflect on how students’ self-confidence develops with various learning methods/approaches.

The current study’s data revealed that students perceive simulation scenarios as learning experiences mimicking what is expected of them as newly graduated Registered Nurses—and that this
contributes to their anxiety, as they experience it as beyond “where they are at in their current learning.” Participants recommend learning experiences that more closely parallel situations in clinical practice, saying this would be beneficial to their learning.

Consistent with this study, and with current understanding of students’ confidence and anxiety, the BSN program could try running simulation scenarios with clinical practice instructors present in the simulation suite. This would mimic what happens in the clinical practice environment between instructors and students.

Literature indicates that students learn best in the clinical setting (Benner et al., 2010). Simulations could be designed to mirror case studies on topics that clinical groups encounter in practice. This strategy could better consolidate clinical skill competencies by further integrating course concepts. Working through simulated/remediation scenarios with their instructor-led clinical practice groups could promote a comfortable learning environment based on established trust with their instructor and peers. The data emphasizes that if students use simulation during an instructor-led remediation process, anxiety may decrease, and more students will succeed.

This study could potentially benefit nursing education by providing information about the value nursing students place on having the option to access support services independently, early in their degree program. Having nurse educators collaborate with students on ways to reduce anxiety and increase confidence in both clinical skill competencies and critical thinking skills could improve student learning outcomes. Consistent with the literature is the importance students place on developing clinical skill competency, and how this increases their confidence in nursing practice (Kaddoura, 2010; Lundberg, 2008; Tiffen et al., 2009). “Confidence is acquired in the clinical setting by mastering newly learned skills and experiencing success” (Lundberg, 2008, p. 86).
Critical thinking and clinical skill competencies. It is imperative for nurse educators to continue their work evaluating which teaching/learning strategies lead to development of critical thinking and clinical skill competencies in nursing education. This is emphasized in the research work of Benner et al. (2010) who draw attention to the challenges nurse educators face in teaching students how to make decisions in nursing practice. Critical thinking/clinical reasoning is an important component in nursing education (Benner et al., 2010; Kaddoura, 2010; Levett-Jones, 2013).

This data shows that students stated critical thinking skills develop when they have opportunities to discuss the rationale for their decisions. A complete understanding of why students chose to perform a skill in a particular way was imperative to the development of their critical thinking skills. These findings are consistent with Levett-Jones et al. (2013), who identify that the routine practice of nursing procedures improves clinical reasoning skills.

The participants in this study indicated that their critical thinking skills improved through remediation appointments in which I asked clarifying questions throughout the performance of the clinical skills. Learners’ critical thinking abilities were promoted by participating in ongoing dialogue, discussing all aspects of clinical skills. Remediation was more than the performance of a psychomotor skill. Time in remediation provided opportunities for the learner to identify and clearly understand procedures and their rationale according to best practices. When I facilitated the learning, students were given a chance to demonstrate and reflect on their own problem-solving skills and abilities.

Simulation learning sessions concluded with a debriefing to help students develop their awareness and critical thinking skills (Jeffries, 2012). Given this study’s results, both simulation and remediation environments enhanced nursing students’ self-reported critical-thinking skills. This is consistent with Evans and Harder (2013), who identify that critical thinking/clinical judgment is an outcome of simulation through providing learners with an authentic problem-solving learning
environment. This data indicated that learners’ clinical skill competencies improved when they felt they had a true understanding of how and why they were performing a skill. Participants stated this happened in both simulation and remediation learning experiences. By gaining understanding during remediation, students felt empowered while they learned.

Participants indicated that empowerment led to successful outcomes in the clinical environment. This was evident when they were able to perform a clinical skill confidently. Once students solidified the core principles of their clinical skills, their feelings of empowerment intensified. This finding is consistent with various researchers: Lundberg (2008) and Brown et al. (2003) suggest students experience greater self-confidence when they have performed newly learned skills successfully.

**Researcher’s professional practice.** The study results influence my professional practice as a nurse educator in several ways. They provide insight into the value students place on faculty support during simulation and remediation learning, and provide a launching point to articulate and advocate for clearer and better defined remediation practices in nursing education. This is consistent with literature on the topic of remediation indicating that remediation practices in nursing education are not well defined (Evans & Harder, 2013; Haskvitz & Koop, 2004). The definition “remediation” (as well as the process) is not clearly described in nursing education literature.

Based on my own knowledge, and on an informal provincial environment scan, the Lab Resource Nurse role at VIU is unique in British Columbia. This data revealed that participants valued the practice education support that I provided. The clinical support and feedback obtained from an experienced Registered Nurse was non-evaluative and created a safe environment for students to practice skills and learn from mistakes. Participants indicate that they would like to be partners with instructors during the simulation learning experience and have support from faculty during their decision-making process. This is consistent with the literature, which suggests that students find
interpersonal relationships with their instructors helpful and appreciate instructors who problem-solve with their students (Parsh, 2010; Tang, Chou, & Chiang, 2005).

An outcome of this research was a revision made to the Lab Resource Nurse Referral form. Previously, this form contained a section for Lab Resource Nurse feedback and comments. This section has now been replaced by one that the learner completes, entitled: “Self-reflection on student performance and achievement of goals.” The revised section was based on study findings, to ensure that the Lab Resource Nurse role remains non-evaluative. The change was implemented because this data emphasizes the need for ongoing encouragement from faculty, in an environment where students are free to make mistakes without judgment.

One assumption I made—which derived from literature on simulation—was that students would favour simulation teaching methods over those used during the remediation process. Prior to collecting the data, it was evident that there was limited research on remediation in nursing education. This led me to conclude that remediation practices at VIU needed to be changed (Evans & Harder, 2013). The results of the study revealed that students value simulation and remediation in different ways and appreciate what each has to offer in developing their critical thinking and clinical skill competencies. Based on the literature I assumed that remediation needed to change, but the data contradicted that when participants emphasized that they value the remediation process as currently implemented at VIU. Participants indicated that, rather than integrate simulation into remediation, it would be beneficial to evaluate both environments to determine how the learning experiences could complement one another.

Limitations

Although this study provided rich insight into students’ experiences in simulation and remediation learning environments, there were limitations to the study.
The first limitation is that it is difficult to generalize the data. Participant responses regarding remediation may be confined to VIU and not transferable to other university settings, unless there are Lab Resource Nurse positions at other universities. Not a lot has been published on the topic of remediation, therefore this research is a preliminary understanding of student learning experiences in the context of remediation.

The second limitation is that the researcher had planned to collect detailed data, and to transcribe it from the video recordings. However, the data had to be transcribed from audio recordings instead (as the videos were difficult to interpret), and the data was analyzed by hand, without the use of qualitative data collection software—although such software could have provided more insight into key terms and themes in the data. Also, during the focus group interviews, participants may have been influenced by responses from others in their group.

Lastly, the questions I developed for the focus group interviews (Appendix B), could have been consolidated. I found that, during the interviews, participants would answer the next question without needing to be directly asked. Participants indicated that they had already supplied sufficient responses by answering previous questions.

**Further Research and Recommendations**

Further research on the topic of remediation in nursing education is needed. Investigation into how other educational institutes manage remediation for nursing students should be implemented to discover new and better ways to support nursing students struggling to achieve clinical skill competencies.

As this data indicated the extent to which students value remediation, this calls for further study into remediation in general. A more detailed analysis of student experiences in remediation is warranted. The next step to expand the research conducted in this study could also be an evaluative look
at the lived experience of the Lab Resource Nurse position and the various learning challenges nursing students present when seeking out support services from this role. Examining which clinical skills are the most challenging for students, and what strategies are used to support students in meeting clinical skill competencies, is another future topic for inquiry. It would also be helpful to analyze what changes have been made, or are being made, to the simulation learning experience as it evolves.

**Conclusion**

Three main conclusions can be drawn from this study:

- Students experience anxiety in simulations;
- Students value support provided to them during remediation;
- It is challenging to combine simulation and remediation in order to deepen both confidence and competencies with clinical skills, amongst nursing students.

As to the first conclusion (students experience anxiety in simulations), this data recognizes that, no matter how well a faculty member prepares students before simulation, the fact that students are on their own with peers (and not a faculty member) while performing the scenario, creates a sense of anxiety. Novice learners require more specific prompts in order to build their self-confidence with clinical skills, whatever teaching method is used (Benner et al., 2010; Sanford, 2010). Participants indicated that simulation is not so much about getting proficient with a particular skill, as with teamwork, and the communication skills that are integrated within the experience of simulation. Participants pointed out that they did not feel connected with faculty during the simulation experience until debriefing after the simulation scenario ended.

The second main conclusion that can be drawn from this study is that students feel supported during remediation experiences. This was clear when participants indicated that their success and
confidence in their skills was enhanced by the time they spent in remediation appointments. It was also evident in the data when participants expressed that this was due to the trusting relationship that they quickly developed with me. Remediation helped students develop their critical thinking and clinical skill competencies by solidifying their understanding of the skills’ core principles.

The third main conclusion that can be drawn from this study is that simulation can be used to enhance clinical remediation in nursing education by integrating the supports provided in remediation within a simulation scenario. Participants emphasized that they are looking for the comfort of an experienced Registered Nurse to facilitate the learning experience. Before collecting the data for this study, I assumed that students would want remediation appointments to mirror how the experience of simulation learning is implemented. The data indicated that students would prefer to see some of the strategies implemented during remediation appointments integrated within their simulation experiences. This may have been related to the comfort and support they felt during remediation compared to the anxiety they experienced in simulation. It is important to note that students may have expressed experiencing anxiety in simulation due to the perception that simulation is an intensive learning environment despite the fact that simulation is not used as a student evaluation tool at VIU.

Based on the results of this study it is clear that there is much to be discovered by continuing to investigate the teaching strategy of simulation, and the process of remediation, in nursing education. It is crucial to continue to seek out information regarding how learners perceive their experiences with simulation and remediation, and how this affects learning outcomes when developing critical thinking and clinical skill competencies.
References


Faculty of Health & Human Services. (2015). *Student handbook: Bachelor of Science in Nursing (BSN) Program*. Nanaimo, BC, Vancouver Island University


Jeffries, P. (2012). Clinical verse simulation: Outcomes, the evidence, and current research. [Powerpoint slides]. Available from:


[http://dx.doi.org/10.1016/j.ecns.2015.07.001](http://dx.doi.org/10.1016/j.ecns.2015.07.001)
Appendix A: Lab Resource Nurse Referral Process

Lab Resource Nurse
(Revised March 5, 2016)

The Lab Resource Nurse is a Registered Nurse who supports the Bachelor of Science of Nursing (BSN), PN (Practical Nursing), and Health Care Assistant (HCA) Programs in the Faculty of Health and Human Services. The Lab Resource Nurse provides support and/or remediation to students to assist them to achieve safe practice of nursing skills, consolidate critical thinking competencies, and to help overcome challenges related to specific nursing skills in a non-evaluative environment. Sessions are typically booked in 30 minute to 1 hour appointments. Please note that it is not the role or responsibility of the Lab Resource Nurse to provide instruction to students for missed classes or to evaluate students.

There are 3 ways for students to access the Lab Resource Nurse:

1. Student self-referral: The student identifies that he/she needs further guidance/support.

2. Instructor-referral: An instructor (e.g. student’s Lab/Learning Centre and/or Practice instructor) identifies that the student is needing further guidance beyond class time and/or is needing remediation.

3. Open Lab (Cowichan campus only): The Lab Resource Nurse, Cowichan campus, holds ‘Open Lab’ where students can drop in without an appointment. Times are posted outside the Cowichan campus lab.

Process for Student Self-Referral:

1. The student emails the Lab Resource Nurse and requests an appointment either to meet 1:1 with the Lab Resource Nurse or in a small group (maximum 2 students/group). The student(s) specifies the skills they are wanting practice/support with and dates/times they are available for an appointment.

2. The Lab Resource Nurse contacts the student with an appointment date/time.

3. A student may have a maximum of 3 self-referred sessions/semester.

Process for Instructor Referral for Student Remediation:

Faculty/Instructor Responsibilities:

1. The student first meets with his/her instructor to identify any gaps and identify strategies to best address those gaps (e.g. review of theory, review of the skill, extra practice with a peer, etc.).

2. If remediation is required, the faculty/instructor will, with the student, outline the specific skill(s) and specific area(s) requiring remediation and complete the electronic ‘Lab Referral Form’ (this may be over and above any required Meeting Notes, Learning Plan, Contract for Improvement, etc.) specifying:
   - Date of referral
   - Student’s name
   - Student’s program
   - Course and faculty/instructor name
   - Reason for instructor referral (e.g. specific concerns identified in lab/learning center and/or practice courses)
• Goals for the referral (Identify what you want addressed, covered, attained - be as specific as possible).

3. The Lab Referral Form is completed electronically and distributed as follows:

• Lab Resource Nurse

• Student: the student is responsible for contacting the Lab Resource Nurse within 24 hours (1 business day) of receiving the form to set up an appointment. If the student does not follow through with the referral, this will be communicated by the Lab Resource Nurse to the instructor who made the referral. The instructor assesses if this is a Professional Responsibility issue and if so, could result in a formal meeting with the student and his/her instructor (documented on Meeting Notes), a Corrective Learning Plan and/or Contract for Improvement and potentially place the student at risk of not being successful in the course.

• Instructor/Faculty member who initiated the referral retains a copy of the Lab Referral Form for filing in the student’s file at the end of the semester

4. After meeting with the student, the Lab Resource Nurse will complete the section on the Lab Referral Form ‘Report on student performance and achievement of goals’. The Lab Resource Nurse will then distribute electronically the completed form to:

• Student
• Instructor/Faculty member who initiated the referral

At all times, it is the faculty/instructor’s responsibility to evaluate the student including readiness to perform any skill(s) safely in the clinical practice setting.

Student Responsibilities:

If/when a student is referred by an instructor to the Lab Resource Nurse for remediation, the student is responsible to:

• Have first met with their Lab/Learning Centre/Practice instructor and taken steps to address their gaps in knowledge/skill (including completing/reviewing all preparatory work prior to the appointment including pre-readings, quizzes, Evolve site). If the student has missed a class, the student is responsible for connecting with their instructor/classmates regarding any missed material and to have worked with a classmate to have the skill(s) demonstrated and to have done at least one return demonstration.

• Contact the Lab Resource Nurse within 24 hours of receiving the form to schedule an appointment and communicate which skills they will be practising. If the student does not follow through with the referral, this will be communicated by the Lab Resource Nurse to the instructor who made the referral. The instructor assesses if this is a Professional Responsibility issue and if so, could result in a formal meeting with the student and their instructor (documented on Meeting Notes), a Corrective Learning Plan and/or Contract for Improvement and potentially place the student at risk of not being successful in the course.

• Come prepared to their scheduled appointments with the theoretical knowledge of the skills they wish to practice and to bring with them copies of any class activities (including Learning Activities, case studies, etc.)

• Bring any relevant student-issued kits (e.g. dressing kit, catheter kit, IV kit) and identify, in advance, any other equipment/supplies they require.
**Contact Information:**

<table>
<thead>
<tr>
<th>NANAIMO CAMPUS</th>
<th>COWICHAN CAMPUS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name:</strong> Lisa Sworts</td>
<td><strong>Name:</strong></td>
</tr>
<tr>
<td><strong>Email:</strong> <a href="mailto:lisa.sworts@viu.ca">lisa.sworts@viu.ca</a></td>
<td><strong>Office:</strong> Building 700/Health Lab</td>
</tr>
<tr>
<td><strong>Office:</strong> Building 180/Office 322</td>
<td><strong>Email:</strong></td>
</tr>
<tr>
<td><strong>Phone:</strong> 250-740-6224</td>
<td><strong>Hours of work:</strong> 7 hours/week (Saturday)</td>
</tr>
<tr>
<td><strong>Hours of work:</strong> 26 hours/week</td>
<td><strong>Web:</strong> <a href="http://www.labresourcenurse.weebly.com">www.labresourcenurse.weebly.com</a></td>
</tr>
<tr>
<td><strong>Web:</strong> <a href="http://www.labresourcenurse.weebly.com">www.labresourcenurse.weebly.com</a></td>
<td>(for list of resources)</td>
</tr>
</tbody>
</table>
Lab Resource Nurse Referral Form

Date of Referral: ____________________________

Student Name: ____________________________  Program: ____________________________ (BSN, PN, HCA)

Course Name & #: ____________________________ Faculty/Instructor: ____________________________

Student: Within 24 hours of receiving this form, please contact the Lab Resource Nurse to make an appointment (see back of form for specific instructions):

<table>
<thead>
<tr>
<th>NANAIMO CAMPUS</th>
<th>COWICHAN CAMPUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: Lisa Sworts</td>
<td>Name:</td>
</tr>
<tr>
<td>Email: <a href="mailto:lisa.sworts@viu.ca">lisa.sworts@viu.ca</a></td>
<td>Office: Building 700/Health Lab</td>
</tr>
<tr>
<td>Office: Building 180/Office 322</td>
<td>Email:</td>
</tr>
<tr>
<td>Phone: 250-740-6224</td>
<td>Hours of work:</td>
</tr>
<tr>
<td>Hours of work: 26 hours/week</td>
<td></td>
</tr>
<tr>
<td>Web: <a href="http://www.labresourcenurse.weebly.com">www.labresourcenurse.weebly.com</a></td>
<td>(for list of resources)</td>
</tr>
</tbody>
</table>

Part I: Completed by faculty/instructor:

Reason for Instructor Referral based on lab/learning centre and/or practice performance (be as specific as possible):

Goals for Referral: what do you want addressed, covered, attained?

Part II: Completed by Student:

Self-Reflection on student performance and achievement of goals:

Instructions to the student:
The Lab Resource Nurse is a Registered Nurse who upon referral from a faculty/instructor member, work with students on a 1:1 basis to help students achieve safe practice of nursing skills and help with consolidating critical thinking competencies, and overcoming challenges related to specific nursing skills. She is here to support your learning goals. She will provide feedback to you and your instructor, but will not be evaluating you; evaluation is the responsibility of your instructor. Appointments are typically 30-60 minutes in length.

It has been identified that you need more practice in the above areas. Upon receipt of this referral form, you are responsible to:

• **Ensure you have first met with your Lab/Learning Centre/Practice instructor** and taken steps to address any gaps in knowledge/skill.

• **Contact the Lab Resource Nurse** within 24 hours of receiving this form to schedule an appointment time. If you do not follow through with the referral, this will be communicated by the Lab Resource Nurse to the instructor who made the referral. The instructor assesses if this is a **Professional Responsibility** issue and if so, could result in a formal meeting with you and your instructor (documented on Meeting Notes), a Corrective Learning Plan and/or Contract for Improvement and potentially place the student at risk of not being successful in the course.

• **Come prepared** to your scheduled appointments with the theoretical knowledge of the skills you wish to practice including completing/reviewing all preparatory work (pre-readings, quizzes, Evolve site). If you have missed a class, you are also responsible for connecting with your instructors/classmates regarding any missed material and to have worked with a classmate to have the skill(s) demonstrated and to have done at least one return demonstration. The Lab Resource Nurse is not responsible for teaching you a missed class/skill.

• **Arrive at the appointment on time** with copies of any class activities (including Learning Activities, case studies, etc.) that they can use to support your learning and provide context to the skill(s).

• **Bring any relevant student-issued kits** (e.g. dressing kit, catheter kit, IV kit) with you. Identify, in advance, any other equipment/supplies you require.
Appendix B: Focus Group Interview Questions: Research Study

Introduction by the researcher:

Thank you for taking the time to participate in a focus group on your experiences in simulation and clinical remediation. This focus group is being conducted to learn more about your perspectives on the topics of simulation and remediation, and how this relates to your confidence and clinical skill competencies. The study aims to gain a better understanding of the clinical supports needed to promote effective learning of clinical nursing skills. During this focus group interview, I will facilitate conversation and ask questions regarding your past experiences in both simulation and remediation settings at Vancouver Island University. Please keep in mind that there are no right or wrong responses. The purpose is to stimulate engaging conversation and hear from everyone in the room. I hope you will feel comfortable sharing your honest opinions and ideas. Please note the session will be audio recorded and I will be taking detailed notes throughout the interview to ensure accuracy of the data collected. The comments will remain confidential and no names will be included in the final report. Do you have any questions before we begin?

Perform a quick round of introductions.

Can you tell me what it is like to be a student in the Bachelor of Science in Nursing Program at Vancouver Island University?
Part A: Simulation

1. Describe a simulation learning experience you had.

2. Describe your feelings about simulated learning.

3. How has the use of simulation impacted application of your nursing knowledge in the clinical practice setting?

4. How has the use of simulation impacted your application of clinical skills in the clinical practice setting?

5. How do you seek help if there is content you do not understand in simulation?

6. In what ways does simulations help you develop skills and acquire knowledge?

Part B: Remediation

1. Describe a remediation learning experience you had.

2. How do you feel once you have completed a remediation appointment?

3. Can you describe the impact remediation has had on your clinical skill competence?

4. How are remediation appointments different from your simulation experiences?

5. How are remediation appointments similar to simulation experiences?

6. Could you see simulation being used as part of remediation appointments? If so how would you envision this process?
Appendix C: Informed Consent Form

“Understanding Student Simulation and Remediation Experiences”

Researcher: Lisa Sworts Lisa.sworts@viu.ca 250 740-6224

Supervisor: Rachel Moll Rachel.moll@viu.ca 250 753-3245 Loc.2161

You are invited to participate in a research study conducted by Lisa Sworts graduate student at Vancouver Island University (VIU) in the Masters of Education in Educational Leadership. The researcher hopes to learn more about student experiences in simulation and remediation and how it affects student self-confidence and clinical skill proficiency. This study is being conducted in partial fulfillment of the requirements for a Master in Educational, Educational Leadership degree at VIU. I plan to share the research in the form of a presentation at the MEDL conference in spring 2017 and in the thesis paper as part of the requirements for MEDL degree. It may also be published online in the library’s VIUSpace as a thesis, and it may be shared with professional colleagues. You have been selected for this study because you are currently enrolled in the Bachelor of Science degree in Nursing program (3rd or 4th year) at VIU, and you have participated in both simulation and remediation experiences as part of your nursing coursework.

If you decide to participate, you will be asked to take part in one focus group interview with 4-5 other VIU nursing students. The focus group interview will be facilitated by the researcher of this study. The topics of discussion will be simulation, remediation, self-confidence and clinical skill proficiency. With your permission, the focus group interviews will be video recorded. Participants will not be asked to use their names in the focus groups, and will not be identified by name in any information related to the study. The recorded interviews of the focus group will be transcribed and analyzed for content and themes.

The interviews will take place at VIU. The interview will take approximately 60-120 minutes. Volunteers will entered into a draw to receive a $25 Starbucks gift card for their willingness to participate.

Any information that is obtained with the focus group that can be linked to you or your identity, will be kept confidential by the researcher. Confidentially among the focus group members cannot be guaranteed, as the researcher has no control over the information that may be discussed by participants after the focus group has concluded. Participants will be asked to respect each other’s privacy by not discussing the conversations that took place during the focus group interviews.
Your participation is voluntary. You do not have to take part in this study, and it will not affect your course grades at VIU. You may also withdraw from the study at any time without affecting your grades or standing with VIU. To withdraw, please contact the researcher, Lisa Sworts.

If you have questions about your participation in the study, contact Lisa Sworts, Lab Resource Nurse Faculty of Health and Human Services, Vancouver Island University Nanaimo British Columbia, Phone number 250 740-6224 Email: lisa.sworts@viu.ca

If you have any concerns about your participation in the study, contact VIU Research Ethics Board (REB) Aggie Weighill VIU REB chair Aggie.Weighill@viu.ca or Chris Turner Ethics Officer Chris.Turner@viu.ca

Your signature indicates that you have read and understood the above information and agree to take part in the study. This means that you are agreeing to be video recorded during the focus group interview, and to potentially having your anonymous direct quotes included in the reporting of the results. The researcher will provide you with a copy of this form for your own records.

Print name: ________________________________________
Signature: _________________________________________
Date: _____________________________________________
Appendix D: Student Satisfaction and Self-Confidence in Learning Questionnaire

**Student Satisfaction and Self-Confidence in Learning**

**Instructions:** This questionnaire is a series of statements about your personal attitudes about the instruction you receive during your simulation activity. Each item represents a statement about your attitude toward your satisfaction with learning and self-confidence in obtaining the instruction you need. There are no right or wrong answers. You will probably agree with some of the statements and disagree with others. Please indicate your own personal feelings about each statement below by marking the numbers that best describe your attitude or beliefs. Please be truthful and describe your attitude as it really is, not what you would like for it to be. This is anonymous with the results being compiled as a group, not individually.

Mark
1 = STRONGLY DISAGREE with the statement
2 = DISAGREE with the statement
3 = UNDECIDED - you neither agree or disagree with the statement
4 = AGREE with the statement
5 = STRONGLY AGREE with the statement

<table>
<thead>
<tr>
<th>Satisfaction with Current Learning</th>
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<tbody>
<tr>
<td>1. The teaching methods used in this simulation were helpful and effective.</td>
</tr>
<tr>
<td>2. The simulation provided me with a variety of learning materials and activities to promote my</td>
</tr>
<tr>
<td>learning the medical surgical curriculum.</td>
</tr>
<tr>
<td>3. I enjoyed how my instructor taught the simulation.</td>
</tr>
<tr>
<td>4. The teaching materials used in this simulation were motivating and helped me to learn.</td>
</tr>
<tr>
<td>5. The way my instructor(s) taught the simulation was suitable to the way I learn.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-confidence in Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. I am confident that I am mastering the content of the simulation activity that my instructors</td>
</tr>
<tr>
<td>presented to me.</td>
</tr>
<tr>
<td>7. I am confident that this simulation covered critical content necessary for the mastery of</td>
</tr>
<tr>
<td>medical surgical curriculum.</td>
</tr>
<tr>
<td>8. I am confident that I am developing the skills and obtaining the required knowledge from this</td>
</tr>
<tr>
<td>simulation to perform necessary tasks in a clinical setting.</td>
</tr>
<tr>
<td>9. My instructors used helpful resources to teach the simulation.</td>
</tr>
<tr>
<td>10. It is my responsibility as the student to learn what I need to know from this simulation</td>
</tr>
<tr>
<td>activity.</td>
</tr>
<tr>
<td>11. I know how to get help when I do not understand the concepts covered in the simulation.</td>
</tr>
<tr>
<td>12. I know how to use simulation activities to learn critical aspects of these skills.</td>
</tr>
<tr>
<td>13. It is the instructor's responsibility to tell me what I need to learn of the simulation</td>
</tr>
<tr>
<td>activity content during class time.</td>
</tr>
</tbody>
</table>
Appendix E: Recruitment Letter

Invitation to Participate

Understanding Student Simulation and Remediation Experiences

I am inviting you to participate in a research study I am conducting as a graduate student at Vancouver Island University in the Masters of Education in Educational Leadership. My research is seeking to learn more about students’ experiences with simulation and remediation. This study is being done as part of my Master of Education here at Vancouver Island University. If you have participated in both simulation and remediation experiences as part of your nursing coursework you are invited to consider participating in this study.

If you decide to participate, additional information will be provided. You will take part in one focus group interview with a small number of other nursing students. The topics of discussion may include simulation, remediation, self-confidence, learning strategies and clinical skill proficiency. With your permission, the focus group interviews will be video and audio recorded. Participants will not be identified by name in any information related to the study. The recorded interviews of the focus group will be transcribed and analyzed for content and themes.

The focus group interviews will take place at VIU at a mutually identified time and last approximately 60-120 minutes. Your participation is voluntary. You may withdraw from the study at any time without affecting your grades or standing with Vancouver Island University. An informed consent will be provided prior to finalizing your participation in the study. The research may benefit future nursing students and teaching faculty at VIU.

If you wish to participate in the study, or would like more information, please contact Lisa Sworts, Lab Resource Nurse Faculty of Health and Human Services, Vancouver Island University Nanaimo British Columbia, Phone number 250 740-6224 Email: lisa.sworts@viu.ca
## Appendix F: Thematic Analysis Sample

<table>
<thead>
<tr>
<th>Anxiety</th>
<th>Confidence</th>
<th>Critical Thinking</th>
<th>Clinical Skill Competencies</th>
</tr>
</thead>
</table>
| Fear of failure-simulation  
Tricks -simulation  
Overwhelming pressure-simulation  
Not prepared-simulation  
Too much Too soon-simulation  
Distraction-simulation  
Time restraints-simulation  
Being watched - simulation  
Judged-simulation  
Assumptions-simulation  
Feeling tested-simulation | Highlighted areas where confidence was lacking-simulation  
Support & encouragement-remediation  
Relational practice-simulation  
Group dynamics-simulation  
Time given-remediation  
Success with skill-remediation & simulation  
Feeling organized-remediation  
Individual attention-remediation  
Strength-based-remediation  
Inspirational-remediation  
Feeling safe-remediation  
Transformative/not just skill based-remediation  
Empowering-remediation  
Positive learning experience – remediation  
Experienced Registered Nurse to provide feedback in the moment-remediation  
Experienced Registered Nurse to provide feedback during debrief-simulation  
Warm environment-remediation  
Caring process-remediation  
Felt whole & ready for facilitations prepared-remediation  
Prepared us-simulation  
Nothing hidden-remediation  
Self-motivating self-driven-remediation  
Choice in learning-remediation  
Support from peers-simulation & remediation | Thinking outside the box-simulation & remediation  
Brainstorming on the spot – remediation  
Feedback from peers-simulation  
Speaking about the “do’s & Don’ts”-simulation & remediation  
Instant feedback-remediation  
Facilitates thinking-remediation  
Not linear/stresses why rationale important-remediation  
Time to reflect-simulation  
Supports problem-solving independently-remediation  
Problem solving with peers-simulation  
Promoted reflective practice-simulation & remediation  
Increased awareness-remediation & simulation  
Bases of simulation-simulation  
Like real life learning-remediation  
Challenged me-simulation  
Took ownership of learning-remediation  
Debrief –simulation  
Made me think about “Life as a nurse”-simulation  
Learning nugget to take away-simulation  
Guided to understand the process not just the steps-remediation  
Thinking about new knowledge/looking at the big picture-remediation  
Gain clarity through discussion-remediation during simulation following experience | Standards of skill performance solidified-remediation  
Feeling comfortable-remediation  
Proud of skill completion-remediation  
Pressure removed from skill-remediation  
Confidence with skill impacts rest of practice-remediation  
Comprehensive-remediation  
Deep learning one on one-remediation  
Repetitive practice of skill-remediation  
Skill focus-remediation  
Loaded with info-remediation  
Trust building with peers-simulation  
All work worth it-remediation  
Resourceful- remediation  
Consolidation of skills-remediation  
Relational practice-simulation  
Group dynamics/group work-simulation  
Team work focus-simulation  
Leadership skills-simulation  
Communication skills-simulation  
Delegation of skills-simulation |