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Exploring Nursing Faculty Perceived Individual and Organizational Readiness to Use Online Simulation as a Teaching Strategy

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Exploring Nursing Faculty Perceived Individual and Organizational Readiness to Use Online

Simulation as a Teaching Strategy

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ABSTRACT

Exploring Nursing Faculty Perceived Individual and Organizational Readiness to Use Online

Simulation as a Teaching Strategy

Problem: Academic institutions have employed online simulations in nursing education to meet the needs of the growing nursing student population and demands for distance learning. While some nursing educators have been trained to use simulation learning experiences, few have specific training in applying online simulation as a teaching strategy. With a dearth of evidence in the literature specific to the use of online simulation in nursing education, exploring nursing faculty's perceived individual and organizational readiness to do so is warranted to optimize the use of this innovation.

Purpose*:* This study explored the nursing faculty's perceived individual and organizational readiness to use online simulation as a teaching strategy.

Methods: The study utilized a mixed-method convergent design to address the two central research questions. This design involved collecting both quantitative and qualitative data concurrently; the results of both methods were then combined to obtain a complete understanding of the research problem (Creswell & Creswell, 2018). The participants received an online survey that contained two parts. Part A included a brief introduction to the study and several demographic questions. Part A also contained the PI's self-developed open-ended questions, which focused on the nursing faculty's perceptions of their readiness to employ online simulation in terms of their knowledge about, attitude towards, and confidence regarding their ability in this teaching method. Four open-ended questions dealt with the faculty member's perception of his or her organization's readiness to adopt online simulation in nursing education. Overall, the participants were asked to answer 13 open-ended questions on a qualitative basis to

explore their points of view. Part B quantitatively identified nursing faculty perceptions of their organization's readiness to integrate online simulation as measured by the SCORS survey.

Results: The study surveyed highly experienced and full-time nursing faculty members from Baccalaureate nursing programs to explore their readiness to use online simulation in nursing education. The study found that the faculty members positively perceived their readiness and that of their organizations via the SCORS score to integrate this innovation into nursing education.

Conclusion: By exploring faculty's perceived readiness and perceptions of themselves and their organizations, academic institutions can gain valuable insights that can assist them in integrating online simulation into nursing education. Given the high demand for nurses in the coming years, it is crucial to provide efficient and practical training for students to meet this demand. The study's findings suggest that institutions should focus on preparing faculty and ensuring organizational readiness to support the implementation of online simulation in nursing education. Doing so will enable them to deliver high-quality education that meets the needs of the healthcare industry.

Keywords: Nursing faculty readiness, online simulation, online readiness, online education readiness, Organization readiness

Chapter I. Introduction

1.1 Background

According to the National Council of State Boards of Nursing (NCSBN, 2020) records, the number of licensed Registered Nurses (RNs) in the United States is currently 4,981,700. Among these RNs, 136,228 are licensed in the state of New Jersey. This data indicates that New Jersey has a significant number of registered nurses. The U.S. Bureau of Labor Statistics (US BLS, 2021) predicts that RN employment will increase by 7% from 2019 to 2029 nationally. Numerous factors impact the supply and demand for nurses, including population growth, an aging population, overall economic conditions, and the aging of the nursing workforce (HRSA, 2021). The Health Resources and Services Administration (HRSA) projects that by 2025, over one million nurses will be of retirement age, necessitating academic programs to train larger cohorts of nursing students. To address the rising demand for nurses, academic institutions are utilizing innovative, forward-thinking teaching and learning strategies such as online simulation (Caputi & Kavanagh, 2018; Dickinson et al., 2019 Kavanagh & Sweda, 2017) to prepare nursing students to be essential partners in person-centered care (Caputi & Kavanagh, 2018; Dickinson et al., 2019; Hardie & Lioce, 2020; Hayden et al., 2014).

Simulation has been a valuable tool since 1970 in military and aviation education to prepare and analyze crew members' mission performance and events in a safe, risk-free environment before transitioning them to an actual live environment (Fanning & Gaba, 2007). Educators in nursing have adopted simulations to offer learners benchmarking and best practice insights to prepare them for real-world nursing practice while in the academy (Aghera et al., 2018; Alhaj et al., 2018; Butler et al., 2017; Cheng et al., 2015; Gant et al., 2018). The Society of Simulation in Healthcare (SSIH) and the International Nursing Association of Clinical and

Simulation Learning Organizations (INACSL) recommend that nursing faculty be trained in simulation before using simulation with nursing students. Simulation utilizes a hands-on, active learning instructional strategy, which often differs from traditional didactic classroom instructional activities and on-site clinical instruction. Simulated learning allows students to engage in low stakes but meaningful, active, and reflective learning experiences that mimic real-world situations. Given the active nature of the simulation learning environment, nursing faculty may require additional training to take on the role of a simulation faculty, regardless of whether the simulation is being carried out in person or online.

1.2 Statement of the Problem

The demand for nursing education is rising, and academic institutions seek ways to meet this need. Online simulation presents an opportunity for realistic yet distance learning. However, there is limited evidence-based research on this topic within nursing education. Therefore, it is imperative to explore nursing faculties' preparedness and their academic organization's readiness to effectively support their utilization of online simulation. Doing so will unlock the full potential of this innovative approach.

1.3 Conceptual Framework

Perceived readiness, as defined by Martin's readiness theory, is determined by understanding an individual's level of knowledge, perceived importance, and confidence specific to employing a task or engaging in a situation (Martin et al., 2019). Importance in this theory relates to one's attitude and relevance, while confidence pertains to one's ability and performance. As such, importance and confidence act as mediators, and knowledge, in this case, results in the nursing faculty's readiness to use online simulation in nursing programs. While Martin's Readiness theory supports that an individual's readiness is at the personal level, their

perception of their organization's readiness to support them can also impact their readiness. I expanded Martin's readiness theory with this perspective to understand perceived external organizational influences. Figure 1 illustrates the conceptual framework that guided this study. Martin's readiness theory integrated the construction of perceived organizational readiness identified via the Simulation Culture Organizational Readiness tool (SCORS).

The Simulation Culture Organizational Readiness (SCORS) (Leighton & Foisy-Doll, 2018) assesses an organization's readiness for simulation-based education. This survey utilizes items from the TeamSTEPPS Readiness Assessment for System-wide Integration of Evidence-based Practice Survey and input from simulation educators and researchers and is divided into five distinct sections The Simulation Culture Organizational Survey has been widely recognized for its effectiveness in determining an organization's readiness for simulation-based education (Leighton & Foisy-Doll, 2018). Foisy-Doll and Leighton utilized this survey in 2017 to evaluate organizations' preparedness for simulation-based education. I utilized the Simulation Culture Organizational Survey to gauge nursing faculty members' perceptions of their organization's readiness for online simulation.

This survey comprises 38 items, each rated on a scale of 1 to 5. It is divided into four main sections: defined need and support for change, readiness for culture change, time, personnel, resource readiness, and sustainability practices to embed culture. Additionally, there is a summary impression section consisting of two items. The first 36 items are used to calculate the overall score, which can range from 36 to 180 and help determine the level of organizational readiness. With its high validity and reliability, the Simulation Culture Organizational Survey is widely used in simulation education, particularly nursing. Overall, the Simulation Culture Organizational Readiness Survey is an invaluable tool for assessing an organization's readiness

to implement online simulation and is a crucial component for rounding out the study conceptual framework.

Figure 1

Primary Investigator Developed Conceptual Framework with Readiness.
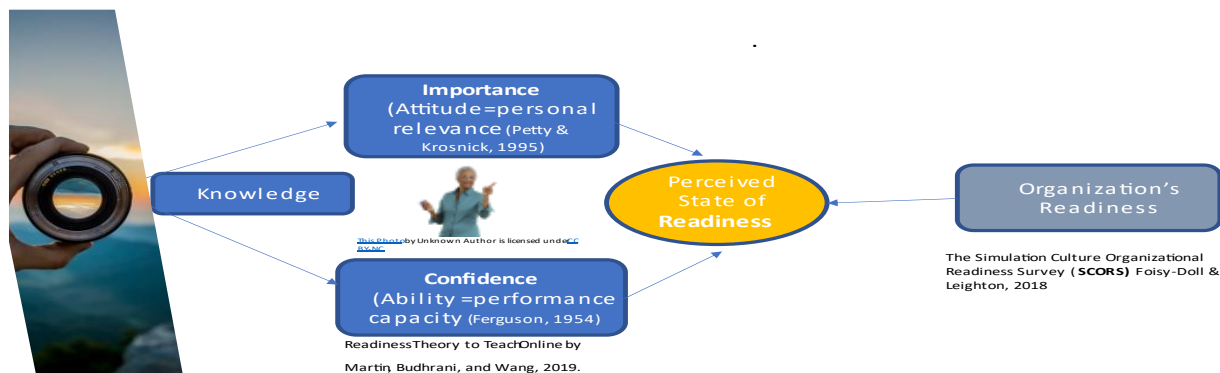
Note. Demonstrates how perceived readiness is an individual's level of readiness for a task based on knowledge, confidence, and perceived importance, which can be influenced by their organization. I incorporated the SCORS survey with Martin's readiness theory to explore the nursing faculty's perceived organizational readiness. Adapted from "Examining Faculty Perception of Their Readiness to Teach Online," by F. Martin, K. Budhrani, and C. Wang, 2019, *Online Learning Journal, 23*(3), p.100. Copyright 2019 by Florence Martin, Kiran Budhrani, and Chuang Wang. CC-BY-4.0-DEED

1.4 Purpose

This study explored the nursing faculty's perceived individual and organizational readiness to use online simulation as a teaching strategy.

1.5 Research Questions

The overarching research question framing this study were:

1. What is nursing faculty readiness to utilize online simulation as a teaching strategy in the educational setting?

2. What are nursing faculty perceptions of their organization's readiness to use online simulation as a teaching strategy in the educational setting?

1.6 Sub Research questions (RQ) and related open-ended questions (SQ) (Part A – Qual)

RQ1 What is nursing faculty knowledge of online simulation in the educational setting?

SQ1 Please describe what you know about using online simulation as a teaching strategy in the educational setting.

SQ2 Where did you learn about online simulation for the educational setting?

SQ3 Describe how you have used online simulation as a teaching strategy in the educational setting.

SQ4 Describe how you could use online simulation as a teaching strategy in the educational setting.

RQ2 What are the attitudes of nursing faculty regarding online simulation in the educational setting?

SQ5 Please describe your attitude regarding using online simulation in an educational setting.

SQ6 Please describe a situation (s) that has impacted your attitude regarding using online simulation in an educational setting.

SQ7 What do you believe impacts (or has impacted) your attitude regarding using online simulation in the educational setting?

RQ3 What is the confidence of nursing faculty regarding online simulation in the educational setting?

SQ8 Please describe your confidence in using online simulation in an educational setting.

SQ9 Please describe a situation (s) that has impacted your confidence in using online simulation in an educational setting.

SQ10 What do you believe impacts (or has impacted) your confidence in using online simulation in the educational setting?

RQ4 What are nursing faculty perceptions of their organization's readiness to integrate online simulation in the educational setting?

SQ11 Describe how your organization has integrated (used) online simulation as a teaching strategy in the educational setting.

SQ12 Please describe your organization's attitude regarding integrating online simulation in an educational setting.

SQ13 Please describe your organization's ability to integrate online simulation in an educational setting.

1.7 Research Questions (Quantitative - Part B)

Research questions and hypotheses

RQ5: What are nursing faculty perceptions of their organization's readiness to integrate online simulation as measured by the SCORS survey different from the average?

Ho. There is no difference among nursing faculty perceptions of their organization's readiness to integrate online simulation as measured by the SCORS survey.

Ha. Nursing faculty perceptions of their organization's readiness to integrate online simulation varies as measured by the SCORS survey. (One Sample t-Test (two-tailed)

RQ6: Is there a relationship between nursing faculty members' years of experience and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

Ho. Is there no relationship between nursing faculty members' years of experience and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

Ha. Is there a positive relationship between nursing faculty members' years of experience (>) and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education? (Pearson Correlation (right-tailed)

RQ7: What is the relationship between nursing faculty members' highest level of education completed and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

Ho. There is no relationship between nursing faculty members' highest level of education completed and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score.

Ha. There is a relationship between nursing faculty members' highest level of education completed and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score. (One-way ANOVA (3 groups)

RQ8: What is the relationship between nursing faculty members' employment status and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

> Ho. There is no relationship between nursing faculty members' employment status and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score.

> Ha. There is a relationship between nursing faculty members' employment status and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score. (One-way ANOVA (3 groups)

RQ9: What is the relationship between nursing faculty members' clinical specialty and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

> Ho. There is no relationship between nursing faculty members' clinical specialty and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score.

> Ha. There is a relationship between nursing faculty members' clinical specialty and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score. (One-way ANOVA - 4 groups)

RQ10: What is the relationship between nursing faculty members' type of undergraduate nursing program and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

Ho. There is no relationship between nursing faculty members' type of undergraduate nursing program and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score.

Ha. There is a relationship between nursing faculty members' type of undergraduate nursing program and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education. (One-way ANOVA - 3 groups)

Chapter II. Review of the literature

Nursing practice faces numerous challenges, including the need to keep up with new information, concepts, and skills required to deliver highly complex patient care. According to Kavanagh & Sweda (2017), the professional practice field's complexity has aggravated an incompetency crisis. The success or failure of new graduate nurses and their ability to develop as effective, safe, person-centered healthcare professionals depends on the joint efforts of students, faculty, academic leaders, and service providers. Nurses comprise the largest group of healthcare professionals (US BLS, 2021). Nurses are often on duty 24/7, making them the first to identify changes in patient conditions and necessary care plans. Therefore, nurses and students must be work-ready upon graduation to meet patients' needs and work successfully in their roles.

It is interesting to note that simulation and debriefing are the preferred teaching and learning approaches for most nursing students, with findings supporting that they help develop their critical thinking skills (Salik & Paige, 2021). However, despite this, many nursing students find that their critical thinking skills are not easily transferable to the workplace (Kavanagh & Sweda, 2017). Additionally, research supports that many nursing faculties are hesitant or not ready to adopt simulation teaching practices, including the post-simulation debriefing component of simulation in their teaching and learning environments (Janse Van Vuuren et al., 2018). According to research, learning depends on integrating experience and reflection (Salik & Paige, 2021). Essential to the simulation learning environment is the post-simulation debriefing learning experience. If faculty are not effectively employing debriefing as part of their simulation learning experiences, they may not engage students in the critical reflection needed for effective learning and clinical practices. Thus, researchers asked why nursing faculty may not use simulation to its fullest.

Upon review of the current research, it is evident that there is a lack of information regarding the practices and readiness of faculty members to engage in simulation and debriefing in nursing education. Unfortunately, faculty development in this area is often ignored or underfunded (Jeffries et al., 2015). Exploring this area further is essential, as debriefing is critical in enhancing learning in an online simulation setting. However, debriefing requires a considerable amount of time, effort, active participation of the faculty, and guidance from an effective nursing faculty facilitator.

Healthcare faculties must adopt online simulation pedagogy in their curriculum to prepare future professionals who can function effectively in the healthcare system. Surprisingly, the few studies found on online teaching and learning in healthcare education only focused on specific support for online teaching instead of examining the readiness of faculty to adopt online simulation and debriefing. Simulation and debriefing are unique learning experiences as they expose nursing students to healthcare challenges, improve their learning engagement, and improve clinical judgment. In response to the Institute of Medicine's (IOM) challenge, Colleges of Nursing have incorporated Quality and Safety Education for Nurses (QSEN) competencies throughout their curriculum to equip future nurses with the knowledge, skills, and attitude (KSA) to provide high-quality and safe practice. During clinical rotation simulation and debriefing experiences, students learn to use the SBAR tool, which stands for Situation, Background, Assessment, and Recommendation, to facilitate prompt and appropriate communication with other healthcare providers. Although debriefing post-simulation has shown increased nursing knowledge and critical thinking in most studies, Gantt et al. (2018) argue for further research to examine the effectiveness of different debriefing techniques.

The forecast indicates that faculty needs to modify their approach to educating and preparing nursing students to meet the requirements of today's healthcare settings. Faculty readiness to adopt the online simulation innovation is crucial, as student preparedness cannot be achieved without it. Quality and Safety Education for Nurses (QSEN) specifies competencies, including patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics, that must be developed in pre-licensure programs (QSEN, 2014). By collaborating with groups like the Society for Simulation in Healthcare (SSIH) and the International Nursing Association for Clinical Simulation and Learning (INACSL) and forming partnerships and coalitions, the nursing field can better prepare for the future of healthcare. However, this innovation can only be successful if we prepare faculty for it.

The National Council of State Boards of Nursing (NCSBN) conducted a national multi-site study investigating the effectiveness of simulation in pre-licensure nursing education as a replacement for clinical hours (Hayden et al., 2014). The study was conducted in three phases. In the first phase, nursing students nationwide were surveyed between January and March 2010. In the second phase, a randomized, controlled, multi-site, longitudinal study was conducted to assess the use of simulation in place of clinical hours at three different levels. The faculty members were trained in simulation and debriefing modalities, and students were randomly assigned to groups where 10%, 25%, and 50% of the time was usually spent in simulation. The third phase involved a cohort of these students who were followed into the clinical environment for six months after graduation. This longitudinal follow-up of graduates during their first year of practice focused on retaining new nurses and clinical judgment after graduation.

The study concluded that the NCLEX pass rates were not affected using simulation throughout the curriculum, and all three groups were equally prepared for entry into practice as

new graduate RNs. The study findings support the assertion that policy decisions regarding the use and amount of simulation in nursing should depend upon the utilization of best practices in simulation, and faculty members must be trained in simulation and debriefing.

Simulation and debriefing have been widely accepted as an integral teaching strategy. High Fidelity Simulation (HFS) has enhanced learners' knowledge, skills, and attitudes by establishing a psychologically safe environment where learners feel they will be viewed positively, even if they make a mistake. Colleges of Nursing use patient simulators to create real-life situations in a risk-free environment. Patient simulators, computer-driven high-fidelity mannequins, can be programmed to simulate a range of symptoms, including irregular heart and breath sounds, chest movement, tears, sweat, and the ability to void, bleed, and deliver babies. Students can administer simulated medications with appropriate physiological effects, and the patient simulator will respond as a natural person with a similar condition or disease would. In these simulation environments, nursing students can apply academic knowledge to actual clinical experience through simulation and debriefing.

Debriefing is a crucial component of the learning process. During debriefing, a trained professional helps learners engage in metacognition by examining their thought processes, surface assumptions, biases, knowledge gaps, and emotions that may have influenced their decisions. This process creates a psychologically safe environment where learners feel comfortable discussing their mistakes and receiving feedback without fear of humiliation or shame. Instructors create a safe environment for faculty to provide constructive criticism to students. It is important to note that a safe environment does not mean a stress-free one that ignores errors. Instead, it means creating a space where learners understand that mistakes will be discussed as a means of helping them learn and develop. Through this process, learners better

understand how and why an error occurred and create strategies to avoid similar mistakes in the future.

To promote excellence and reflective learning, another debriefing model includes four phases: reaction, description, analysis, and summary (Cheng et al., 2019). However, nursing facilitators need to be trained in applying these models in simulation and debriefing as it is complex to implement them. As there is no formalized or structured curriculum for developing debriefing techniques, nursing faculty should adopt this innovation based on the principles of learning theory to guide their approach. Although there is no data to suggest the best or optimal way to debrief, there is a large variety of techniques and debriefing models available from which nursing faculty and experts can choose.

There are several practical guides available to model a successful debriefing process. Simulation experts recommend using different models, such as Debriefing with Good Judgement: Advocacy and Inquiry model by Rudolph et al. (2006), which includes the student's reaction, analysis of the simulation experience, and a summary to stimulate self-reflection and enhance learning. Dreifuerst (2016) created debriefing for a meaningful learning model that uses a six-step process: engage, evaluate, explore, explain, elaborate, and extend. Sawyer et al. (2016) gathered, analyzed, and summarized this model, focusing on what students did during the simulation, how they did it, and how they can improve. Another debriefing model promotes excellence and reflective learning, which includes four phases: reaction, description, analysis, and summary (Eppich & Cheng, 2015).

Since there is no formalized or structured curriculum for developing debriefing techniques, nursing facilitators must be trained to apply these models in simulation and debriefing because of the complexity of putting them into practice. Nursing faculty should adopt

this innovation based on the principles of learning theory to guide their approach. Although no data suggests the best or optimal way to debrief, nursing faculty and experts can choose from various techniques and debriefing models available.

For example, debriefing, as defined by Palaganas et al. (2016), is a conversation between two or more individuals that involves analyzing their actions, thought processes, psychomotor skills, and emotional states during an actual or simulated event. In this definition, reflection aims to improve or sustain performance in future scenarios. Nursing faculty can organize simulation debriefing experiences to teach students to make clinical judgments for safe, high-quality patient care.

Al Sabei & Lasater (2016) conducted a concept analysis. They defined debriefing as a structured and guided reflection process in which students actively appraise their cognitive, affective, and psychomotor performance within clinical judgment skill development post-patient simulator scenarios. Students practice essential skills, enhance their clinical judgment and reasoning abilities, and interact with patients, families, and healthcare team members during debriefing.

Effective simulation and debriefing are more crucial than ever in nursing education. In the rapidly evolving healthcare environment, nursing educators must be ready to adopt debriefing to enhance students' clinical judgment and safety care, especially with patients with more complex disorders. Tanner (2006) defined clinical judgment as "an interpretation or conclusion about a patient's needs, concerns, or health problems, and the decision to take action (or not), use or modify standard approaches, or improvise new ones as deemed appropriate by the patient's response" (p.204). Post-simulation debriefing can help students learn clinical judgment and make clinical decisions for safe, high-quality patient care. However, the literature

suggests that new graduates' clinical judgment is often underdeveloped, which may lead to unsafe clinical judgments (Al Sabei et al., 2016, p. 42).

Not surprisingly, many educators are not ready to employ simulation learning experiences due to little or no formal actual simulation or debriefing training, making it difficult to facilitate these activities effectively. The interaction between facilitators and learners is the foundation of the simulation and debriefing experience. Therefore, faculty readiness to adopt the innovation of debriefing is crucial to help learners gain insights from exploring and analyzing aspects of performance.

Despite extensive research, no literature was found on the readiness of nursing educators to utilize online simulation. The available resources were limited to non-nursing content, indicating a gap in the availability of online nursing simulations. Therefore, it is essential to identify and develop these resources to meet the needs of nursing education and training. Providing faculty development for online teaching is essential to support readiness in non-nursing faculty. Other studies have also examined the benefits of using online simulations in different health education programs and have identified that success is linked to various factors, such as previous online experience, attitudes, training, and institutional support.

Research conducted in Iran has shown that medical instructors can benefit from training and support. Meanwhile, (Martin, Wang, et al., 2019) strongly recommend adequate institutional support to establish effective online teaching. Scherer et al. (2021) found that organizational support is critical in building capacity for online teaching and learning. It is crucial to understand the readiness of teachers to transition to online learning to support them effectively. Martin, Budhrani, et al. (2019) found that professional development, including in-house training, online

activities, and webinars, is essential for acquiring strong competencies to succeed in online

learning.

CHAPTER III: METHODOLOGY

3.1 Research Approach

The study employed a mixed-methods approach.

3.2 Research Design

The study utilized a mixed-method convergent design to address the two central research questions. This design involved collecting both quantitative and qualitative data concurrently; the results of both methods were then combined to obtain a complete understanding of the research problem (Creswell & Creswell, 2018). No specific literature was available on the readiness of nursing educators to utilize online simulation. Therefore, the quantitative approach helped the researchers understand nursing faculty academic organizations' perceived readiness to employ online simulation. The qualitative approach helped the researcher explore the nursing faculty's perceptions of their readiness to employ online simulation as a teaching strategy. Thereby enabling a complete exploration of nursing faculties' perceptions of their readiness and academic organizations' readiness to employ online simulation to maximize this innovation's utility.

The participants received an online survey that contained two parts (Part A and Part B). Part A included a brief introduction to the study and several demographic questions. The remainder of Part A contained the PI's self-developed open-ended questions, which focused on the nursing faculty's perceptions of their readiness to employ online simulation regarding their knowledge of attitude towards and confidence regarding their ability to employ this teaching method. Four additional open-ended questions dealt with the faculty member's perception of his or her organization's readiness to adopt online simulation in nursing education. Overall, the

participants were asked to answer 13 open-ended questions on a qualitative basis to explore their points of view.

These 13 open-ended questions were specifically designed to address aspects of the qualitative research questions promulgated in this study. The first four of these questions were designated as sub-questions of Research Question 1 (which dealt with knowledge); the next three were sub-questions of Research Question 2 (which dealt with attitude); the following two were sub-questions of Research Question 3 (which dealt with confidence in one's ability); and the final four open-ended questions were sub-questions of Research Question 4 (which dealt with one's perception of organizational readiness).

Part B of the survey was the quantitative portion. The Simulation Cultural Organizational Readiness Survey (SCORS), which consists of 38 items, each rated on a five-point Likert scale ranging from 1 ("None at All") to 5 ("Very Much") with higher scores indicating a higher level of readiness for simulation was used to secure quantitative data.

3.3 Methods

3.3a Participants

The target population for this study was undergraduate nursing faculty. The PI recruited participants for this study, which was conducted online in a completely anonymous and voluntary fashion, by posting an approved IRB study letter of solicitation (LOS), which contained a link to the survey on the discussion boards of both the International Nursing Association for Clinical Simulation and Learning (INACSL) organization and the Society for Simulation in Healthcare (SSIH) organization. In addition to this purposive method of obtaining qualified undergraduate nursing faculty to participate in the study (Kumar, 2014), the PI also

employed non-purposive (snowball) sampling by asking current participants to identify other nursing faculty who might meet the inclusion criteria for participation and to forward the LOS containing the survey link to these individuals (Kumar, 2014). This same pool of participants completed this study's quantitative and qualitative components. To be considered as a participant in this study, a subject had to meet the following criteria:

- Be an undergraduate nursing faculty member teaching at an accredited institution in the United States of America with two or more years of experience teaching nursing clinical subjects.

- Have access to either web-based mail or email.

- Not currently working as or have ever worked as a simulation center coordinator.

- Not have a Certified Healthcare Simulation Educator (CHSE) certification.

To determine the minimal required sample sizes needed to produce sufficient statistical power for each quantitative research question (i.e., RQ5 - RQ10), the G*Power tool was run on an a priori basis for each question. Each run utilized a .80 statistical power level, a .05 statistical significance level (the standards for these respective items in the medical and social sciences), and a medium effect size value promulgated by Jacob Cohen (1998). The G*Power produced the following minimum required sample sizes (Table 1).

Table 1

Minimum Required Sample Sizes for Quantitative Research Questions

Research Question	Applicable Statistical Test	Minimum Required Sample size
5	One Sample t-Test	34
6	Pearson Correlation	84
7	One Way ANOVA (3 groups)	156
8	One-way ANOVA (3 groups)	156
9	One-way ANOVA (4 groups)	156
10	Independent Samples t-Test	128

Considering these results, the PI selected the largest of the above numbers (156) and increased it by 15% as a contingency for incomplete surveys. Hence, the PI's targeted sample size for the quantitative part of this study was n = 180 (i.e., 156 x 1.15, rounded up to the next highest integer).

For the qualitative portion, a random sample of every fifth participant was chosen until saturation in the data was met (Kumar, 2014), which was the presence of no new patterns or codes emerging in the data.

3.3b Variables

The dependent variable for this study was the overall total score on the Simulation Culture Organizational Readiness Survey (SCORS). The independent variables in this study were faculty's perceptions of their organizational readiness, faculty participants' years of experience, the highest level of education completed, current employment status, clinical specialty, and the type of undergraduate nursing program the faculty member is teaching.

3.4 Procedures

The IRB committee of Seton Hall University approved this study. The PI obtained permission from Dr. Leighton to use and adopt the SCORS survey and permission from both the SSIH and the INACSL to post the survey link in the IRB-approved LOS, which was posted as described previously.

3.5 Instrumentation/ Materials

The quantitative instrument used for this study was the Simulation Cultural Organizational Readiness Survey (SCORS). This scale was a version modification of a survey first published by Fineout-Overholt & Melnyk (2006). Fineout-Overholdt & Melnyk (2006) validated the instrument using an expert panel of simulation educators and researchers for face and content validity and internal consistency reliability were found to be greater than .85. Foisy-Doll & Leighton (2017) adopted the survey in 2017 to measure organizational readiness for simulation-based education (SBE). Face and content validity were again established and reliable, with an internal consistency of .96.

The SCORS tool effectively measures the organization's cultural readiness for change and the potential for successful adoption of online simulation. SCORS has a total of 38 items, each measured on a five-point Likert scale, and comprises four major sections: (A) Defined Need and Support for Change, (B) Readiness for Culture Change, (C) Time, Personnel, and Resource Readiness, and (D) Sustainable Education Development to Embed Culture. There is also a fifth section entitled SCORS Summary Impression, which consists of the final two of the 38 Likert items encompassing the survey. Per the instructions given for this scale, the overall total score on the SCORS instrument is the sum of the Likert scores for the 36 items comprising Section A-

D of this instrument. Hence, the range of the overall total score on the SCORS instrument is from 36 to 180 (Foisy-Doll & Leighton, 2017).

The PI utilized the SCORS overall total score as the dependent variable in the study, even though this quantity excluded the two SCORS Summary Impression section questions. The rationale was based on the observation that these two items – which ask the participant to provide Likert scale ratings of the organization's overall readiness to integrate online simulation education as measured by the sum of the scores for the remaining 36 items appearing in the scale as these items address a comprehensive set of specific issues regarding the organization's readiness to integrate online simulation as a teaching strategy.

To help determine the organization's extent of readiness for the adoption of online simulation, the SCORS instrument classifies the overall total score into one of the following five categories (Table 2) (Foisy-Doll & Leighton, 2017):

Table 2

Classification of the Overall Total Score on the SCORS Instrument

Overall Total Score Range	Classification
0-36	Not ready
37-72	A little ready
73-108	Somewhat ready
109-144	Moderately ready
145-180	Very much ready

Note. This table demonstrates the classification of the simulation culture organizational readiness survey (SCORS), which measures readiness for online simulation adoption. It has 38 items divided into five sections. The overall total score helps determine readiness and is classified into five categories. Adapted from "SCORS Guidebook: A Companion for Completing the

Simulation Culture Organizational Readiness Survey," by K. Leighton, C. Foisy-Doll, p 17.

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The PI created the demographic profile and included 13 open-ended questions to understand nursing faculty readiness to utilize online simulation in an educational setting. Questions were framed to understand the nursing faculty's experiences, knowledge, attitude, and perceived ability perceptions regarding online simulation in educational settings. A Delphi review of the demographic profile and the open-ended survey questions was conducted with an expert panel of three prepared professionals with backgrounds in research methods. They reviewed the profile for clarity, organization, and content correctness to reach an 80% consensus, achieved after three rounds of review using the Delphi process.

3.6 Data Analysis

3.6a Qualitative Approach

The PI employed a qualitative approach to address this study's first four research questions (RQ1-RQ4). Each research question was broken down into a set of sub-questions. Participants were asked to provide a written open-ended response to each sub-question. The PI manually transferred participants' responses into an Excel worksheet using an inductive approach. The PI sought to code participants' responses using different colors of highlight until patterns in coding were found, creating a consistent codebook – and only representing the participants' responses statements in descriptive and in vivo emerging coding (Creswell & Creswell, 2018). Codes were merged into appropriate categories and then into themes to develop analytic reflections and thematic analysis addressing each sub-question and RQ1, RQ2, RQ3, and RQ4. An intercoder agreement was performed between the PI and the research team. The

main goal was to achieve a high agreement (via consensus agreement) between independent

coders (Creswell & Creswell, 2018).

3.6b Quantitative Approach

The PI utilized SPSS statistical software (version 26) to analyze the data collected for the

quantitative approach.

Descriptive statistics were compiled for each demographic variable, and the overall total

scores on the SCORS instrument to better understand the study sample participants. For each

nominal demographics variable (i.e., the highest level of education completed, current

employment status, clinical specialty, and type of undergraduate nursing program currently

teaching), a frequency distribution of the various categories for that variable was compiled along

with a corresponding pie chart. For the years of experience demographic variable and the

dependent overall total score variable, histograms (which visually depict the shapes of each

corresponding frequency distribution) were produced. To better understand the central tendency

and the dispersion for these two numeric variables, the following metrics were calculated for

each variable: mean, median, standard deviation, minimum, and maximum.

The PI employed appropriate inferential statistical methods to answer each quantitative

research question (i.e., RQ5 – RQ10). For RQ5, which asked whether the mean overall total

score on the SCORS for the targeted population differed significantly from what is considered an

average score on this instrument, the PI utilized a one-sample t-test run on a two-tailed basis.

The PI selected 108 as the average overall total score to compare the sample mean against since

this score corresponds to selecting a Likert rating of 3 (Somewhat) on each of the 36 items

comprising the SCORS overall total score. For RQ6, the PI utilized a right-tailed Pearson

correlation coefficient test since the PI was trying to determine whether a positive relationship exists between two numeric variables (i.e., years of experience and the overall total score on the SCORS instrument). To test each of the Research Questions 7, 8, 9, and 10, the PI ran a one-way ANOVA analysis since, in each case, the PI was dealing with a nominal grouping variable that had two or more categories and a numeric dependent variable (the overall total score on the SCORS instrument). If any of these ANOVAs produced a statistically significant result, the PI would run an appropriate post-hoc test to pinpoint which categories of the nominal grouping variable had differences.

For all the statistical tests, the PI selected a significant level of .05, the standard for the health sciences. For Research Questions 7 through 10, the PI also tested the homogeneity of the variances for each of the groups via Levene's test.

Chapter IV. Results

4.1 Study Participants

In this study, 179 United States nursing faculty completed the qualitative and quantitative sections of the Qualtrics survey between May 15, 2022, and September 7, 2022. A priori analysis of sample size required a minimum of 156 participants to complete the quantitative portion of the survey. With 179 participants answering the survey's quantitative section, we exceeded the required number, ensuring that the study had the desired power (Creswell & Creswell, 2018). Out of the total participants, 82 did not provide answers to the Simulation Culture Organizational Readiness Survey (SCORS) questionnaire, and 13 missed answering some of the items. We excluded participants who missed between 4 and 16 SCORS item responses but retained eight surveys with those who only had missed 1 or 2 SCORS item responses, thus ensuring survey integrity accuracy. For the eight included surveys with missing SCORS items, we calculated an average score of the completed items from the same section of the participant's SCORS questionnaire (Graham, 2009; Newman, 2014). Overall, we used 92 surveys to answer quantitative research questions.

85 out of 156 participants completed the study's qualitative section. Every fifth participant who completed the qualitative section of the survey was randomly chosen for review until saturation was reached. Ultimately, a sample of 10 surveys was required to reach saturation in the qualitative data.

4.2 Qualitative Demographic

The qualitative findings presented in this study were based on participants who met study-specific inclusion criteria of undergraduate nursing faculty members who taught clinical subjects for at least two years in a US-accredited institution.

Figure 2 summarizes the demographic characteristics and the inclusion criteria of the 10

participants randomly selected for the qualitative study. The nursing faculty members whose

qualitative data were randomly analyzed were highly experienced, with an average of 15 years of

clinical teaching, ranging from 5 to 35 years.

Figure 2

Demographics – Years of Clinical Teaching Experience
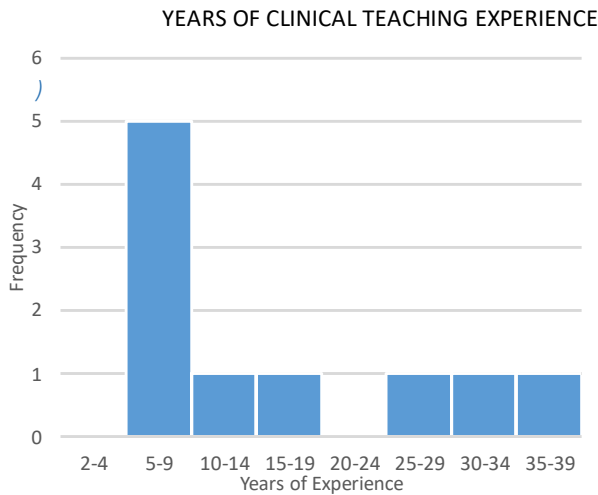
Figure 3 shows that 70% of participants held a Ph.D. degree, 20% had a DNP degree, and 10%

had a master's degree, indicating their high level of education.

Figure 3

Demographics – Highest Level of Education Completed
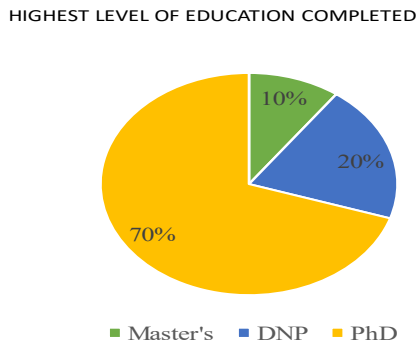
Figure 4. Illustrates that all participants were full-time employees. Additionally, all participants were taught in a baccalaureate nursing program, as indicated in Figure 5.

Figure 4

Demographics – Current Employment Status

CURRENT EMPLOYMENT STATUS

100%

■ Full time
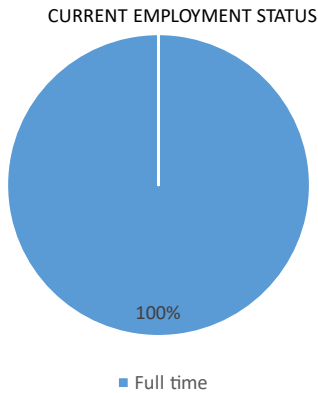
Figure 5

Program Currently Teaching

PROGRAM CURRENTLY TEACHING

100%

■ Baccalaureate program
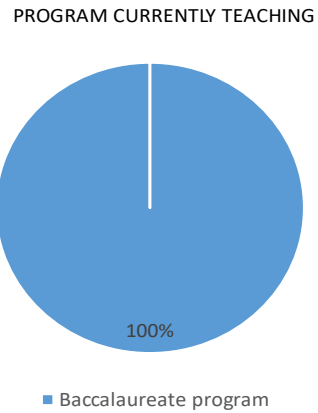
Figure 6 shows that 70% of the participants specialized in the medical-surgical field, while the remaining participants pursued other areas of specialization.

Figure 6

Demographics – Clinical Specialty

CLINICAL SPECIALTY

10%

20%

70%

■ Medical /Surgical ■ OB/GYN ■ Other
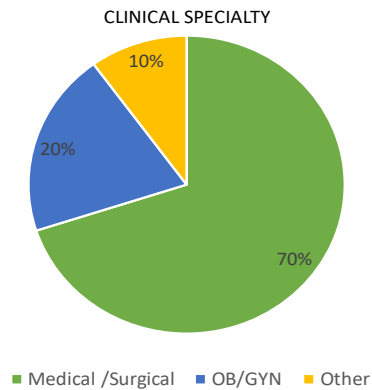
In summary, the qualitative study participants were highly educated in nursing practice and had an average of 15 years of clinical teaching experience. All of them were full-time employees, with 70% specializing in medical-surgical and the remaining individuals working in other specializations. It is also worth noting that each participant taught in a baccalaureate nursing program.

4.3 Qualitative Results

The results of the Qualitative portion of the study research questions addressing knowledge, attitudes, and abilities related to online simulation are listed below.

When addressing **Central Research Question 1,** What is nursing faculty readiness to utilize online simulation as a teaching strategy in the educational setting? Several research questions were explored (RQ1, RQ2, RQ3, and RQ4)

4.3a Research Question 1: Specifically explored: What is nursing faculty **knowledge** of online simulation in the educational setting?

The following descriptive and in-vivo codes emerged from the participants' responses to survey question one (SQ1), which was linked to RQ1. Table 3 provides the specific categories of limited knowledge, situational knowledge, extensive knowledge in the research arena, general knowledge, and fostering critical thinking that emerged from analyzing the codes emerging from the SQ1 "Describe what you know about using online simulation as a teaching strategy in the educational setting."

Table 3

Coding/Categories for SQ1/RQ1

SQ1 Please describe what you **know** about using online simulation as a teaching strategy in the educational setting	
Coding: Descriptive or In vivo	Categories
"Only What we utilized during the pandemic" **P5**	Limited Knowledge situational knowledge
"Limited experience" P**10**	Limited Knowledge situational knowledge
"Know very little about online simulations" **P15**	Limited Knowledge situational knowledge
"Successful in converting life simulations into the online format" **P20**	Limited Knowledge situational knowledge
"Extensive knowledge I research this area" **P25**	Extensive knowledge in the research arena
"Effective educational strategy" P**30**	General Knowledge Effective educational strategy
"Some knowledge "Distance learning/online format has been shown to impact clinical decision making" **P35** positively	General Knowledge Fosters critical thinking
"I used it frequently during the pandemic" "Three different platforms" P**40.** Different scenarios	Extensive Knowledge Diverse formats Diverse Usages
"Great for fostering critical thinking and judgment" **P45**	General Knowledge Foster critical thinking
"Very familiar a used during the pandemic" **P50**	Extensive Knowledge

The following descriptive and in-vivo codes emerged from the participants' responses to survey question two (Q2), which was linked to RQ1. Table 6 shows the specific categories, which were informal word of mouth from simulation vendors, personal research experience, educational simulation resources, literature search, and personal effort) Furthermore, formal (educational simulation resources, educational conferences, personal experience, faculty training, or continuing education) emerged from analyzing the codes emerging from the questions "Where did you learn about online simulation for the educational setting?"

Table 4

Coding/Categories for Survey Question #2/RQ1

SQ2 Where did you **learn** about online simulation for the educational setting?	
Coding: Descriptive or In Vivo	Categories
"Vendor" **P5**	Informal educational source: Word-of-mouth from(sim?) vendors
"Corporate companies" **P10**	Formal sources: educational simulation resources
"V-Sims through Lippincott course point+" **P15**	Formal sources: educational simulation resources
"at INACSL and SSIH and from experience" **P20**	Formal sources: educational conferences/personal experience
"Early adapter and research. Online resources peers" **P25**	Informal source: Personal experience through research
"From a student using Shadow Health" **P30**	Informal source: Student formal source: educational simulation resources
"self-exploration of the literature" **P35**	Informal: Personal effort: Literature search
"Training session" "on the job" **P40**	Formal: faculty training or continuing education
"Online." **P45**	Informal: Personal effort
"School of Nursing" **P50**	Formal: faculty training

The following descriptive and in-vivo codes emerged from the participants' responses to survey question three (SQ3), linked to RQ1. Table 5 provides the specific categories of clinical Makeup, classroom activities, active learning strategies, clinical hour replacement, and debriefing that emerged from analyzing the codes emerging from the questions "Describe the different ways in which you have used online simulation as a teaching strategy in the educational setting."

Table 5

Coding/Categories for Survey Question #3/RQ1

SQ3 Describe how you **have used** online simulation as a teaching strategy in the educational setting.	
Coding: Descriptive or In Vivo	Categories
Does not answer the question - **P5**	N/A
"For clinical days that have been canceled due to COVID-19 sick days or weather emergencies" **P10**	Clinical make-up
"Simulation in the classroom" **P15**	Classroom activities
"Teaching content typically from the live simulation to online" **P20**	Classroom activities
"Case studies, VR training AR training" **P25**	Active learning strategies
"Self-directed students learning activities. Classroom activities. As an adjunct to clinical time." **P30**	Preparatory work. Classroom activity. Clinical hour replacement.
"Distance learning/online simulation activities" **P35**	Preparatory work /Active learning strategies. Classroom activities. /Debriefing
"Remote during the pandemic. makeup assignment if a student is out sick" **P40**	Make up assignments. Active learning strategies
"Replace clinical hours when COVID caused clinical setting cancellation. It is a wrap-up day in a didactic foundations course, an interdisciplinary exercise in acute care and academia, as a standard part of the clinical courses. As an augmentation to didactic courses. As a teaching aid in the Health Assessment course" **P45**	Clinical make up Classroom activities. Active learning strategies Preparatory work.
"to supplement active learning for material in the classroom'' "during COVID to do interprofessional training" **P50**	Active learning strategies activity: Complement classroom activity. learning experience

The following descriptive and in-vivo codes emerged from the participants' responses to survey question four (SQ4), which was linked to RQ1. Table 6 provides the specific categories of make-up activities, clinical hours, preparatory work, online teaching strategies, and supplemental learning that emerged from analyzing the codes emerging from the questions "Describe how you could use online simulation as a teaching strategy in the educational setting."

Table 6

Coding/Categories for Survey Question #4/RQ1

SQ4 Describe how you **could use** online simulation as a teaching strategy in the educational setting.	
Coding: Descriptive or In Vivo	Categories
"for make-up activities" **P5**	Make-up activities
"As part of clinical hours" **P10**	Clinical hours
"For individual student completion as an outside-of-class learning activity" **P15**	Preparatory work
"Teaching strategy for instructors especially if that expert is remote" **P20**	Online teaching strategy
"Allow learners to have digital experiences enhancing learning." **P25**	Online teaching strategy
Have students complete the activity independently or collectively and discuss the scenario upon completion" **P30**	Preparatory work/ supplemental
"To promote/facilitate the development of critical thinking skills for students in a 'safe' simulation environment." **P35**	Active learning strategy
"Use it in the classroom" **P40**	Active learning strategy
"Used during simulation lab to facilitate active learning." **P45**	Active learning strategy
"For clinical makeups or during a time of quarantine" **P50**	Clinical hours

Table 7 presents the collective categories and thematic analysis emerging from the analysis of survey questions 1, 2, 3, and 4, which were designed to address RQ1. After analyzing the collective codes and categories that emerged from the written responses to SQ1-4, the following thematic analysis is proposed to address RQ1. Based on the participants in this study, there is a range of knowledge regarding online simulation in the educational setting among nursing faculty. Nursing faculty have acquired online simulation knowledge through formal and informal learning experiences. Formal experiences include training and development sessions provided by educational companies and continuing education programs. Informal experiences include learning from vendors and colleagues, literature searches, past experiences, and online

searches. Nursing faculty utilize online simulation in various ways, such as preparing students

for learning, promoting active learning, debriefing, making up for missed clinical time, and

complementing classroom activities. They recognize the potential of online simulation as an

active learning strategy for preparatory/supplemental work and clinical hours.

Table 7

Survey Questions, Categories, Thematic Analysis - Research Question #1

RQ1: What is nursing **faculty knowledge** of online simulation in the educational setting?			
SQ1 Please describe what you **know** about using online simulation as a teaching strategy in the educational setting.	**SQ2** Where did you **learn** about online simulation for the educational setting?	**SQ3** Describe how you **have used** online simulation as a teaching strategy in the educational setting.	**SQ4** Describe how you **could use** online simulation as a teaching strategy in the educational setting.
Categories • Limited knowledge situational knowledge • Extensive Knowledge in the research arena • General Knowledge • Fosters critical thinking.	**Categories** • Word-of-mouth from (sim?) vendors, educational simulation resources, educational conferences, • Personal experience through research, literature search • Faculty training or continuing education	**Categories:** • Clinical make-up, • Classroom activities, • active learning strategies, • Clinical hour replacement, • Debriefing,	**Categories:** • Make-up activity, • as clinical hours, • preparatory work, • online teaching strategy, • supplemental
Thematic Analysis Overall, nurse faculty knowledge	**Thematic Analysis** Nursing faculty have learned about online	**Thematic Analysis:** Nursing Faculty use online simulation in	**Thematic Analysis:** Nursing faculty identified the potential of

of online simulation in the educational setting ranged from limited /situational as they learned by doing to more comprehensive, recognizing its diverse usage and formats and potential for promoting critical thinking. Taken together, differences do exist regarding depth of knowledge.	simulation from formal and informal learning experiences. Formal educational resources include educational companies, faculty training or development, and continuing education. Also, informal from vendors, other colleagues, personal searches /efforts, literature search, experience, and online search.	numerous ways, including preparing students for learning experiences, promoting active learning, debriefing after class, making up for clinical time missed, and complementing classroom activities.	using online simulation as an **active learning strategy,** preparatory/supplemental and clinical hours

4.3b Research Question 2 specifically explored: What are the attitudes of nursing faculty regarding online simulation in the educational setting?

The following descriptive and in-vivo codes emerged from the participants' responses to survey question five (SQ5), which was linked to RQ2. Table 8 provides the specific categories of accessibility, supplemental learning, support needed, and positive learning strategy that emerged from analyzing the codes emerging from the question, "What do you think about using online simulation in an educational setting?"

Table 8

Coding/Categories for SQ5/RQ2

SQ5 What do you **think** about using online simulation in an educational setting?	
Coding: Descriptive or In Vivo	Categories
"For make-up activities" **P5**	Accessible
"Online can be supplemental" **P10**	Supplementally
"Useful strategy, however, more training and support are needed" **P15**	Support needed.
"i support the use of online simulation "**P20**	Positive learning strategy

"Excellent way to learn some concepts." **P25**	Positive learning strategy
"clear and concise rubric" **P30**	Positive learning strategy
"Have been using this for the last eight years." **P35**	Positive learning strategy
"It promotes critical thinking, knowledge, and communication skills. "It is a gem" **P40**	Positive learning strategy
"Great idea. All for it" **P45**	Positive learning strategy
"Very effective if used correctly" **P50**	Positive learning strategy

The following descriptive and in-vivo codes emerged from the participants' responses to survey question six (SQ6), linked to RQ2. Table 9 provides the specific categories of advances in remote learning, frustration in implementation, positive student outcomes, barriers to online access, and the degree of active learning involved that emerged from analyzing the codes emerging from the question, "Please describe a situation (s) that has affected your attitude/viewpoint regarding the use of online simulation in an educational setting?"

Table 9

Coding/Categories for SQ6/RQ2

SQ6 Please describe a situation (s) that has affected your **attitude/ viewpoint regarding** using online simulation in an educational setting.	
Coding: Descriptive or In Vivo	Categories
"Remote learning and steep learning curve" **P5**	Advances in remote learning
Did not answer the question – **P10**	N/A
"ill-suited," "difficult to use," 'I abandoned the efforts." **P15**	Challenges: Frustration in implementation
Observation of student positive outcomes **P20**	Positive student outcomes and Degree of active learning involved
Documents student outcomes **P25**	Positive student outcomes
"Barriers to accessing the online resources." **P30**	Challenges: the barrier to online access and Challenges Frustration in implementation
"Initial integration of asynchronous, virtual simulation initially posed challenges for faculty on how to pre-brief and provide meaningful debriefing" **P35**	Challenges: Frustration in implementation Initial integration challenges
"Online simulation allows access to areas or situations that would not have been available to nursing students." **P40**	Ensures learning opportunities in diverse areas of practice.

"Students positive voice feedback" **P45**	Positive student outcomes
"Pandemic utilization" **P50**	Diverse Utilization

The following descriptive and in-vivo codes emerged from the participants' responses to survey question seven (SQ7), linked to RQ2. Table 10 provides the specific categories of openness, technology skills, real-world applications, positive learning outcomes, ease of use of equipment, and knowledge that emerged from analyzing the codes emerging from the question, "What do you believe influences your attitude/viewpoint regarding using online simulation in the educational setting?"

Table 10

Coding/Categories for SQ7/RQ2

SQ7 What influences your **attitude/viewpoint** regarding using online simulation in the educational setting?	
Coding: Descriptive or In Vivo	Categories
"Openness" "The level of technology and virtual reality capability" **P5**	Openness Technology skill level
"Exposes students to high risk, low volume patient care situations" **P10**	Real-world application for students
"Early adapter" is a "useful way without many glitches and a solid backup, I will do it." **P15**	Openness Ease of use
"Openness and flexible" **P20**	Openness
"Positive learning outcomes" **P25**	Positive learning outcomes
"Restricted use in the current work environment." **P30**	Real-world application for students
"Ease of use" **P35**	Ease of use knowledge
"The ease of the software." **P40**	Ease of use
"The more opportunity to practice skills, the better" P**45**	Real-world application for students
"Exposure" **P50**	Real-world application for students

Table 11 presents the collective categories and thematic analysis emerging from the analysis of survey questions 5, 6, and 7 designed to address RQ2. After analyzing the codes and categories that emerged from the written responses to SQ5-7, the following thematic analysis is proposed to address RQ2. Based on the participants in this study, most nursing faculty members have a positive attitude toward using online simulation in their teaching. They see it as an effective and engaging way for students to learn and a safe environment for them to do so. However, some challenges remain to be addressed, such as providing sufficient support for faculty on pre-brief and debriefing. Despite these challenges, nursing faculty are generally open to using online simulation due to its ease of use, real-world applications, and the positive learning outcomes observed in students.

Table 11

Survey Questions, Categories, Thematic Analysis - Research Question #2

RQ2 What are the **attitudes** of nursing **faculty** regarding online simulation in the educational setting?		
SQ5 What do you **think** about using online simulation in an educational setting?	**SQ6** Please describe a situation (s) that has affected your **attitude/ viewpoint regarding** the use of online simulation in an educational setting?	**SQ7** What do you believe i**nfluences** your attitude/viewpoint regarding using online simulation in the educational setting?
Categories: • Accessible • supplementally • support needed. • positive learning strategy	**Categories:** • Advances in remote learning • frustration in implementation • positive students' outcomes • barriers to online access • degree of active learning involved	**Categories:** • Openness, technology skill level • real world application for students • positive learning outcomes • ease of use • knowledge
Thematic Analysis: Overall, the majority of nurses' faculty were positive	**Thematic Analysis:** Nursing faculty's attitude regarding using online	**Thematic Analysis:** Nursing faculty appear open to online simulation in

towards using online simulation and found it to be an active learning strategy, a safe place to learn, and accessible but support for its usage is still needed	simulation in the educational setting appears to be influenced by both challenges observed or encountered with the experience and the positive outcomes observed in student learning. challenges for faculty on pre-brief and providing meaningful debriefing. Overall, all experiences influence attitude	education based on the positive learning outcomes observed, its ease of use, and its real-world applications.

4.3c Research Question 3: Specifically addressed: Did the nursing faculty have **confidence** in using online simulations in the educational setting?

The following descriptive and in-vivo codes emerged from the participants' responses to survey question eight (SQ8), linked to RQ3. Table 12 provides the specific categories of minimal confidence, support needed, confident, not confident, very confident, highly confident, confident, and willingness to learn that emerged from analyzing the codes emerging from the question, "Describe your confidence in your ability to employ online simulation in an educational setting."

Table 12

Coding/Categories for SQ8/RQ3

SQ8 Describe your **confidence** in your **ability** to employ online simulation in an educational setting.	
Coding: Descriptive or In Vivo	Categories
"need to train" **P5**	Minimally confident: Needs support.
"Confident" **P10**	Confident
"Not confident" **P15**	Not confident
"Very confident" **P20**	Very confident
"High confidence" **P25**	Highly confident
"Fairly confident" **P30**	Fairly confident
"Highly confident" **P35**	Highly confident
"Fairly confident" **P40**	Fairly confident
"Willing to learn" **P45**	Willing to learn
"Very confident" **P50**	Very confident

The following descriptive and in-vivo codes emerged from the participants' responses to survey question nine (SQ9), linked to RQ3. Table 13 provides the specific categories of implementation during the pandemic, failure to implement, experience, positive learning outcomes, inexperience, and no formal training that emerged from analyzing the codes emerging from the question, **"**Please describe a situation (s) that has influenced your certainty in your ability to use online simulation in an educational setting."

Table 13

Coding/Categories for SQ9/RQ3

SQ9 Please describe a situation (s) that has influenced your certainty in your **ability** to use online simulation in an educational setting?	
Coding: Descriptive or In Vivo	Categories
"Effectively deployed during a pandemic" **P5**	Confidence: implementation during the pandemic
"Experience" **P10**	Confidence: experienced
"My failed attempts to utilize V-Sims in the classroom" **P15.**	lack of confidence: Failure to implement.
"Passing grades on competency skills checklist after simulation and practice." **P20**	Confidence: experienced and positive learning outcomes.
"Developed and implemented sims" **P25**	Confidence: Experience
"Definitely more certain of my ability" **P30**	Confidence: implementation during the pandemic
"Initial challenges for faculty who had only conducted in-person simulation activities" **P35**	Less confidence: Inexperience
"A program I use with videos is the best." "It comes with debriefing questions that I can use with this program or any of the others." **P40**	Confidence: Experience
"The use during the pandemic" **P45**	Confidence: Implementation during the pandemic
"I feel confident in my ability to use simulation in general. I feel less confident about online simulation because I've had no formal training or practice." **P50**	Confidence: Less confident, no formal training

Table 14 presents the collective categories and thematic analysis emerging from the analysis of survey questions 8 and 9, which were designed to address RQ3. After analyzing the codes and categories that emerged from the written responses to SQ8-9, the following thematic analysis is proposed to address RQ3. Based on the participants in this study, most of the nursing faculty reported that they were confident in their ability to use online simulation in an educational setting. Furthermore, they mentioned that their experience and practice in this area had a positive impact on their ability to employ online simulation methods in an educational setting.

Table 14

Survey Questions, Categories, Thematic Analysis - Research Question #3

RQ3 Did the nursing faculty have confidence in using online simulations in the educational setting?	
SQ8 Describe your **confidence** in your **ability** to employ online simulation in an educational setting?	**SQ9** Please describe a situation (s) that has influenced your certainty in your ability to use online simulation in an educational setting.
Categories: • Minimal confident • needs support • confident • not confident • very confident • highly confident • willingness to learn	**Categories:** • Positive outcome • experience • negative outcomes • active learning tools • necessity
Thematic Analysis: Most nursing faculty noted they were confident in their ability to employ online simulation in an educational setting.	**Thematic Analysis:** Overall, nursing faculty described experience /practice with using online simulation in an educational setting as influencing their ability.

4.3d Research Question 4 specifically addressed**:** What are nursing **faculty perceptions** of their organization's readiness to integrate online simulation in the educational setting?

The following descriptive and in-vivo codes emerged from the participants' responses to survey question ten (SQ10), linked to RQ4. Table 15 provides the specific categories of learning outcomes, mandatory transition during the pandemic, experienced nursing faculty, lack of experience, and support from others that emerged from analyzing the codes emerging from the question, "What do you believe influenced (or has impacted) your confidence in using online simulation in the educational setting?"

Table 15

Coding/Categories for SQ10/RQ4

SQ10 What do you believe **influenced (or has impacted)** your confidence in using online simulation in the educational setting?	
Coding: Descriptive or In Vivo	Categories
"Outcome measures" **P5**	Learning outcomes
"COVID lockdown" **P10**	Mandatory
"Student outcomes and good background in in-person simulation" **P15**	Learning outcomes Experienced
"Achievement of outcomes" **P20**	Learning outcomes
"15 years of experience in this area" **P25**	Experienced
"COVID" **P30**	Mandatory
"Deep dive into the literature and COVID" **P35**	Experienced and mandatory
"Done in-person simulation in the lab for many years" **P40**	Experienced
"Lack of experience" **P45**	Lack of experience
"Presentation" **P50**	Support from others

The following descriptive and in-vivo codes emerged from the participants' responses to survey question eleven (SQ11), linked to RQ4. Table 16 provides the specific categories of makeup assignments, extra assignments, independent student practice, active learning assignments, and makeup assignments that replace clinical work that emerged from analyzing the codes emerging from the question, "Describe the different ways in which your organization has incorporated (used) online simulation as a teaching strategy in the educational setting?"

Table 16

Coding/Categories for SQ11/RQ4

SQ11 Describe the different ways in which your organization has incorporated (used) online simulation as a teaching strategy in the educational setting?	
Coding: Descriptive or In Vivo	categories
"For gathering on campus and make up activities" **P5**	Assignments
"As clinical make-up during pandemic– **P10**	In lieu of clinical
"Only as individual student assignments outside of the classroom" **P15**	Assignments
"During the pandemic for students to practice on at home" "In lieu of in-person clinical, online simulation was used. We utilized V-Sim instruction." **P20**	Assignments In lieu of clinical
"Psychomotor skill training, clinical judgement case study, learning assessment" **P25**	Assignments
"Clinical learning and simulation to develop clinical understanding of the nurse's role." **P30**	Assignments
"Asynchronous delivery methodology supported by the faculty group sessions on pre-briefing and debriefing." **P35**	Assignments
"The remote mode." "For makeup assignments." **P40**	Assignments
"ATI modules; clinical/lab day makeup assignments" **P45**	Assignments
"Clinical rotation" **P50**	In lieu of clinical

The following descriptive and in-vivo codes emerged from the participants' responses to survey question twelve (SQ12), linked to RQ4. Table 17 provides the specific categories of supportive, potentially supportive, highly supportive, not supportive due to financial limitations, and very supportive but exercising cost caution that emerged from analyzing the codes emerging from the question, "What do you perceive as your organization's attitude regarding integrating online simulation in an educational setting?"

Table 17

Coding/Categories for SQ12/RQ4

SQ12 What do you perceived as your organization's attitude regarding the integration of online simulation in an educational setting?	
Coding: Descriptive or In Vivo	Categories
"The University supports activities" **P5**	Supportive
"Attitude is good" **P10**	Supportive
"My organization is open to using online simulation in an educational setting" P**15**	Supportive
"Innovation and providing excellent nursing care." "Open and positive" **P20**	Highly Supportive
"positive" **P25**	Supportive
"Not proponents of online simulation since we are diploma program and get Medicare pass-thru dollars." **P30**	Not supportive due to financial constraints.
"Open and receptive" **P35**	Supportive
"People like on-line simulation, some programs more than others" "Some are more expensive to subscribe to then others." **P40**	Supportive but cautious with cost
"Cost" **P45**	Supportive but cautious with cost
"Accepting" **P50**	Supportive

The following descriptive and in-vivo codes emerged from the participants' responses to survey question thirteen (SQ13), linked to RQ4. Table 18 provides the specific categories of administrative and financial support, faculty support, no support yet, mandatory implementation due to the COVID-19 pandemic, and flexibility in utilization that emerged from analyzing the codes emerging from the question, "Describe the ways their organizations supported the integration of online simulation in educational settings?"

Table 18

Coding/Categories for SQ13/RQ4

SQ13 Describe the ways your organization supported the integration of online simulation in an educational setting.	
Coding: Descriptive or In Vivo	Categories
"Administrative and financial resources for the activity" **P5**	Administrative and financial support
"Allowed various vendors to assist with sim." academic freedom for faculty "P**10**	Faculty and financial support
"Not integrating online simulation in educational setting (in the classroom)" **P15**	No support yet.
"Dedicated and HIPPA protected synchronous learning platform," putting dollars to resources quickly when we needed to switch gears, having a strong support system in experienced faculty." **P20**	Faculty and financial support
"Financial, space staff provided." **P25**	Faculty and financial support
"Had no choice with Covid." "Online simulation was an effective learning strategy" **P30**	Mandatory implemented due to COVID-19 pandemic.
"Not planned for well." "Software vendor provides for faculty training." "Faculty develop the processes necessary to ensure that INACSL standards are met where/when possible." **P35**	Faculty and financial support
"We used them during the pandemic because we were working remotely. We kept track of our usage for the State Board of Nursing." **P40**	Faculty and financial support
"Ongoing Assessment; ATI modules; Simulation makeup work" **P45**	Faculty and financial support
"Provided tools to use it." Technology, staffing" **P50**	Faculty and financial support

Table 19 presents the collective categories and thematic analysis emerging from the analysis of survey questions 10-13, which were designed to address RQ4. After analyzing the codes and categories that emerged from the written responses to SQ10-13, the following thematic analysis is proposed to address RQ4. Based on the participants in this study, it was

found that the confidence of nursing faculty in using online simulation was affected by both their

learning outcomes and experience of using it, as well as the requirement for its use during the

COVID-19 pandemic. Nursing faculty have integrated online simulation in the educational

setting to promote active student learning and use it as a resource for make-up assignments and

an alternative to clinical work. Overall, nursing faculty perceive their organizations as supportive

of online simulation as a teaching strategy, providing the necessary financial and staffing

resources for this initiative.

Table 19

Survey Questions, Categories, Thematic Analysis - Research Question #4

RQ4 Did nursing faculty perceive their organization's readiness to integrate online simulation in the educational setting?			
SQ10 What do you believe influenced (or has impacted) your confidence in using online simulation in the educational setting?	**SQ11** Describe the different ways in which your organization has incorporated (used) online simulation as a teaching strategy in the educational setting?	**SQ12** What do you perceived as your organization's attitude regarding the integration of online simulation in an educational setting?	**SQ13** Describe the ways your organization supported the integration of online simulation in an educational setting.
Categories: • Learning outcomes • mandatory transition during the pandemic • experienced nursing faculty • lack of experience • support from others	**Categories:** • Makeup assignments • get together • assignments outside of class • student independent practice • active learning assignments • makeup assignments • in lieu of clinical	**Categories:** • Supportive • potentially supportive • highly supported • not supportive due to financial constraints • very supportive • supportive but cautious with cost	**Categories:** • Administrative and financial support • faculty and financial support • Accountability and flexibility in utilization

Thematic Analysis: In general Nursing faculty perceive their confidence in using online simulation was influenced by the learning outcomes observed and their level of experience and its requirement as a result of the pandemic.	**Thematic Analysis:** nursing faculty have integrated online simulation in the educational setting in varied ways including make-up assignments and in lieu of clinical. Still, overall, they use it to promote active student learning.	**Thematic Analysis:** Generally, faculty perceive their organizations as supportive but suggest it varies based on the program.	**Thematic Analysis:** In general, nursing faculty perceived that most organizations show their support for online simulation activities via their financial and faculty support.

4.4 Quantitative Results

We used SPSS version 28, using descriptive and inferential statistics. This included percentages, frequencies, shapes, distributions, and measures of central tendency like mean, median, and mode. Additionally, we used Cronbach's alpha to ensure the internal consistency of the survey responses. The Simulation Culture Organizational Readiness Survey (SCORS), a valid and reliable tool for assessing organizational readiness captured quantitative data.

4.4a Demographics – (quant & qual)

The present study gathered demographic data from 79 respondents who completed the survey's quantitative and qualitative sections. However, 92 participants did complete the quantitative portion of the survey. Additionally, not all 92 participants completed each demographic question. Only 79 responded to the demographic question regarding years of experience. The nursing faculty had a mean clinical teaching experience of 14 years, indicative of a highly experienced group. Most participants reported a range of clinical teaching experience between 2 and 14 years. The distribution of participants based on years of clinical teaching experience is graphically presented in Figure 7.

Figure 7

Years of Clinical Teaching Experience

Demographics

Distribution of Study Participants by Years of Clinical Teaching Experience (n = 79)
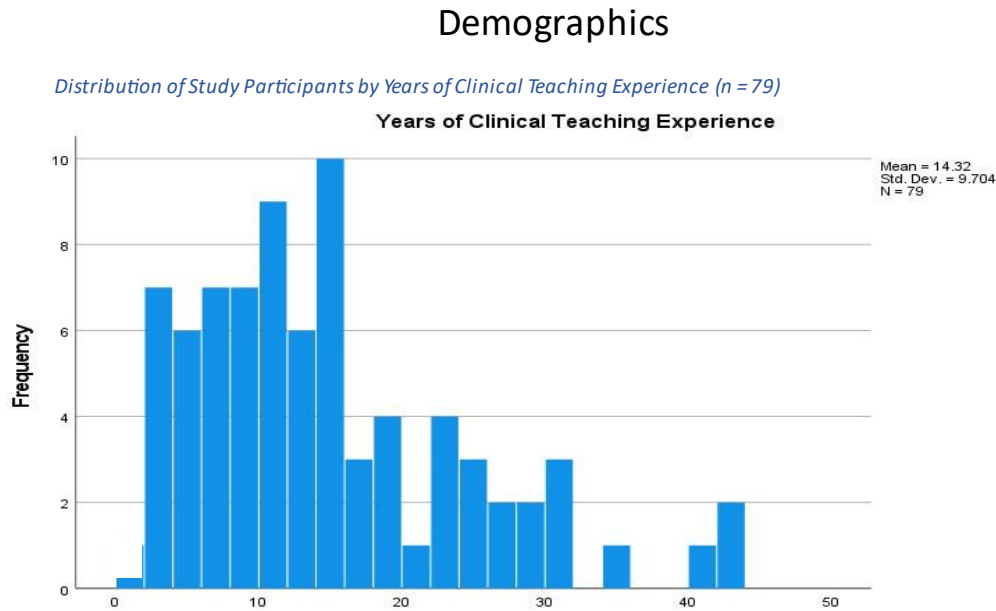
Of the 92 respondents who completed the quantitative portion of the study, 79 disclosed their educational background. 37% of respondents, 79 respondents, held a master's degree, nearly 26% held a Doctor of Nursing Practice (DNP) degree, and almost 27% held a Doctor of Philosophy (Ph.D.) degree. These results suggest that the nursing faculty surveyed comprises knowledgeable and well-educated professionals. Of the 92 participants, 81.8% held permanent full-time nursing faculty positions, with another 11% being adjuncts. Regarding clinical specialties, approximately half of the participants (50%) specialized in medical-surgical, 15% in obstetrics and gynecology, and 8% in pediatrics. The remaining 28% reported diverse clinical specialties. Out of the 92 participants, over 75% taught in the BSN program, 12% taught in the Associate Degree program, and 11% taught in other undergraduate nursing programs.

The results of the Simulation Culture Organization Readiness Survey (SCORS) provide insight into an organization's readiness to support change from the perspective of the organization member, in this case, the nursing faculty.

Figure 8 showcases the data of the SCORS Scores for the study participants. The score ranged from 36 to 180, with a mean score of 123 and a standard deviation of 29.

Figure 8

Distribution of Total SCORS Scores for Study Participants

Distribution of Total SCORS Scores for Study Participants (n = 92)
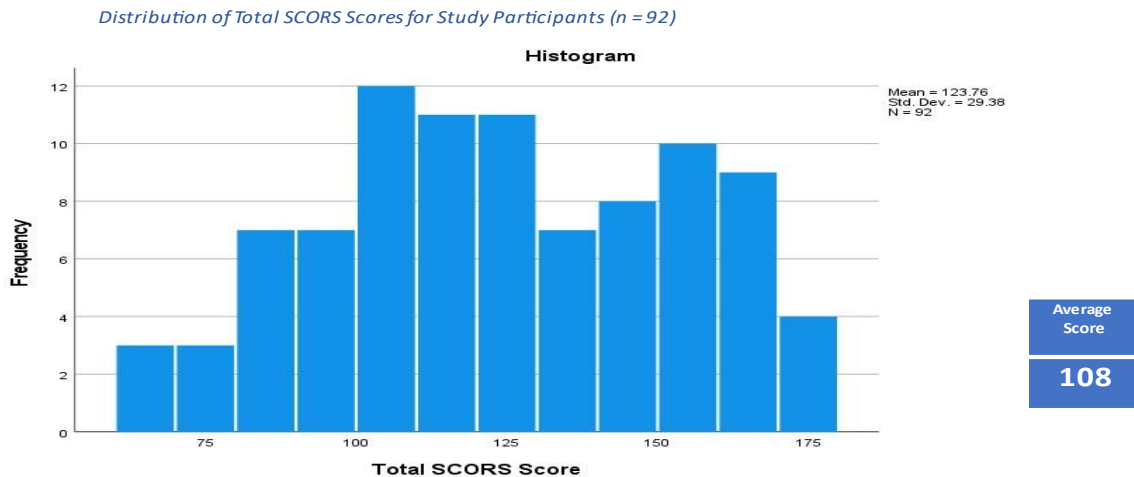
We conducted Cronbach's alpha analysis on our data to assess the internal consistency of the tool used for the group. The tool comprised 36 items categorized into four subscales. The results indicated a high level of reliability, with a Cronbach's alpha score of .97 for the overall scale. Each subscale demonstrated good to excellent levels of internal consistency, with scores ranging from .83 to .95. These findings suggest that the tool has good to excellent scale reliability. Hence, the data obtained was reliable for the questions at hand. Table 20 shows the findings of the SCORS Internal Consistency Cronbach's Alpha results.

Table 20

SCORS Internal Consistency Cronbach's Alpha

SCORS Internal Consistency Cronbach's Alpha		
Good to excellent scale reliability		
Subscale	**Number of Items**	**Internal Consistency Cronbach's alpha**
Defined Need	9	.93
Readiness	11	.89
Time, Personnel, and Resources	12	.95
Sustainability	4	.83
Total SCORS	36	.97

4.5 Quantitative Research Questions

Ninety-two participants completed a one-time Qualtrics online survey entitled the Simulation Culture Organizational Survey (SCORS) to address the study's central research quantitative questions.

4.5a Central Research Question 2: What are nursing faculty perceptions of their organization's readiness to use online simulation as a teaching strategy in the educational setting?

Central Research Question 2 had one primary and five secondary research questions, each with a corresponding hypothesis, and each hypothesis provides a null and an alternative.

A one-sample t-test was used to answer the primary research question (5) to determine if nursing faculty's perceptions of their organization's readiness to integrate online simulation measured by the SCORS survey differed from the average. A p-value of less than .001 was considered statistically significant. The obtained Mean total SCORS score of 123.76 from the sample of 92 participants greatly exceeds the average SCORS score of 108, a medium effect size

of Cohen's d=.536. The result of the one-sample t-test revealed that nursing faculty have highly favorable perceptions of their organization's readiness to implement online simulation.

To ensure the accuracy of my research findings, I conducted a post hoc analysis involving 92 participants. Although my initial A priori estimated a sample size of 156 participants, I performed the post hoc analysis to confirm that the sample size was sufficient to produce reliable and credible results. The analysis indicated a power level of 0.99, which exceeds the standard of 0.80. This confirms that the sample size was adequate to produce statistically significant results for my primary quantitative research question. Figure 9 displays the Post-hoc G* Power Analyses.

Figure 9

Post-Hoc G Power Analyses*
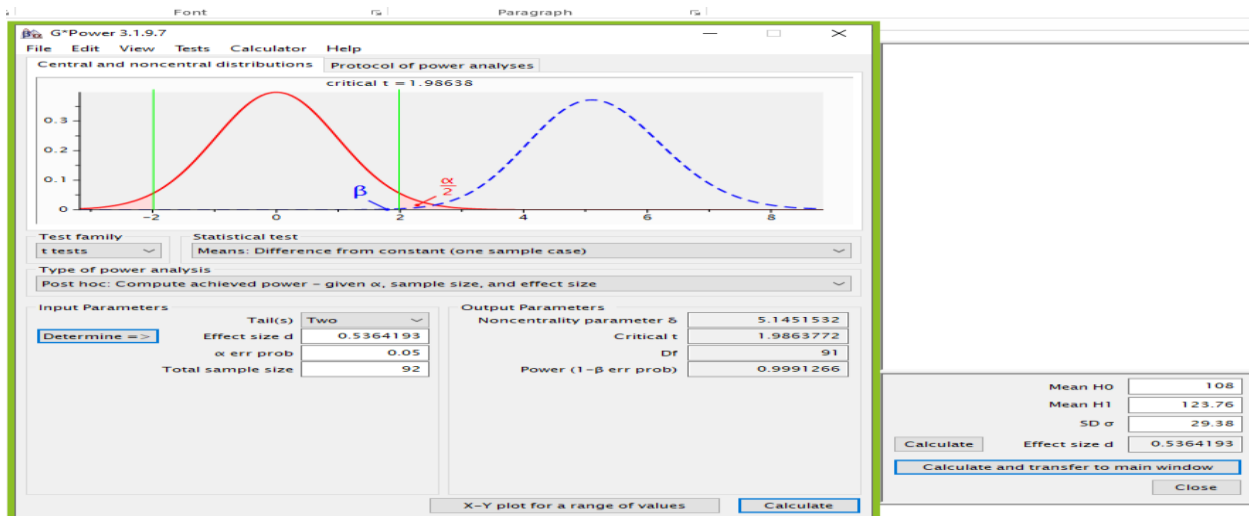
Note. Screenshot of G-Power that illustrates the values for the effect size and power.

After addressing the primary quantitative research question, several secondary questions sought to explore if a correlation existed between nursing faculty's perceived organizational readiness, measured by the SCORS score, and various demographic factors planned for analysis. Unfortunately, further analysis could not be conducted because the study was underpowered for

secondary research questions 6, 7, 8, and 10. Table 21 illustrates RQ6, RQ7, RQ8, and RQ10, which could not be analyzed.

Table 21

Secondary Quantitative Research Questions which could not be analyzed due to low power.

Secondary Quantitative Research Questions
RQ6: Is there a relationship between **nursing faculty members' years of experience** and their perceived organizations' readiness, **as measured by the overall SCORS score**, to integrate online simulation in nursing education?
RQ7: What is the relationship between **nursing faculty members' highest level of education completed** and their perceived organizations' readiness**, as measured by the overall SCORS score**, to integrate online simulation in nursing education?
RQ8: What is the relationship between nursing **faculty members' current employment status** and their perceived organizations' readiness, **as measured by the overall SCORS score**, to integrate online simulation in nursing education?
RQ10: What is the relationship between **nursing faculty members' type of undergraduate nursing program** and their perceived organizations' readiness, **as measured by the overall SCORS score,** to integrate online simulation in nursing education?

However, sub-research question 9 sought to explore whether a correlation existed between clinical specialty and nursing faculty's perceived organizational readiness, measured by the SCORS score, was powered appropriately for the statistical analysis employed. Figure 10 displays the Post-hoc G* Power Analysis for RQ9, demonstrating that clinical specialty had medium power. We found a relationship between nursing faculty members' clinical specialty and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score.

Figure 10

Post-Hoc G*Power Analysis for Research Question 9

Post-Hoc G*Power Analysis for Research Question 9
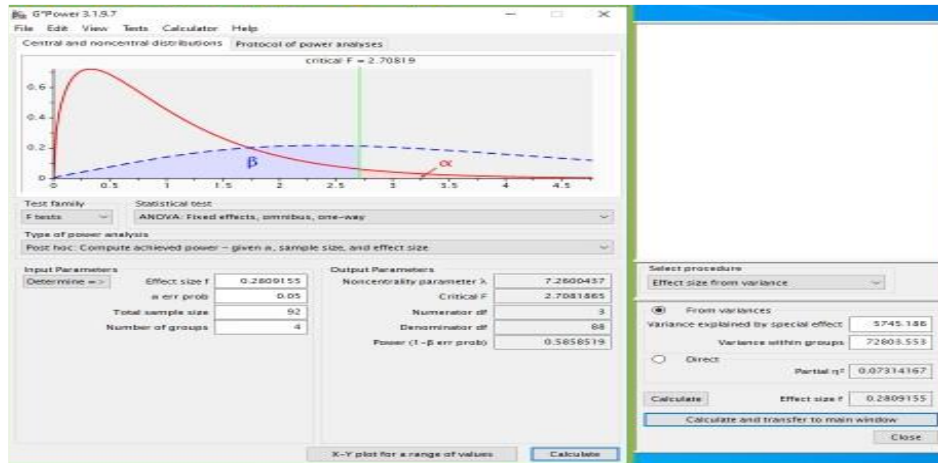
Note. Screenshot of G-Power that illustrates the values for the effect size and power.

Table 22 shows the secondary Quantitative Research Question Nine (RQ9), which was adequately powered. Demographic factors, specifically clinical specialty, were found to have a positive relationship with the overall SCORS score, indicating higher readiness levels. From this, we confidently conclude that clinical specialty significantly impacts nursing faculty members' perception of their organization's readiness to incorporate online simulation in nursing education. However, when considering the other demographic factors, no significant relationships were found with the faculty's perceptions of their schools' readiness to integrate online simulation in nursing education. These were about demographics, but it was not powered enough. The primary quantitative research question focused solely on the outcome and did not consider demographic factors. The results were above average for all participants who met the inclusion criteria, offering valuable insights that indicated positive perceptions of their organization's readiness to integrate online simulation in nursing education as measured by the SCORS score.

Table 22

Secondary Quantitative Research Questions (RQ9)

| |
|---|
| **RQ9:** What is the relationship between **nursing faculty members' <u>clinical specialty</u>** and their perceived organizations' readiness, **as measured by the overall SCORS score,** to integrate online simulation in nursing education? |
| • **Ho.** There is no relationship between nursing faculty members' clinical specialty and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score.
   • **Ha.** There is a relationship between nursing faculty members' clinical specialty and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score.   **One-way ANOVA (4 groups)** |

In summary, the study surveyed highly experienced and full-time nursing faculty members from Baccalaureate nursing programs to explore their readiness to use online simulation in nursing education. The study found that the faculty members positively perceived their readiness and that of their organizations via the SCORS score to integrate this innovation into nursing education.

By exploring faculty perceive readiness and perceptions of themselves and their organizations, academic institutions can gain valuable insights that can assist them in integrating online simulation into nursing education. Given the high demand for nurses in the coming years, it is crucial to provide efficient and practical training for students to meet this demand. The study's findings suggest that institutions should focus on preparing faculty and ensuring organizational readiness to support the implementation of online simulation in nursing education. Doing so will enable them to deliver high-quality education that meets the needs of the healthcare industry.

Chapter V. Discussion and Conclusions

This study aimed to investigate undergraduate nursing faculty's readiness to utilize online simulation as a teaching strategy. The survey data were analyzed using qualitative and quantitative methods to arrive at insights regarding the potential success of this endeavor. First, qualitative data was used to investigate the nursing faculty's personal readiness to use online simulation as a teaching strategy, including their knowledge, attitude, and confidence in using this teaching method. Findings revealed that most nursing faculty members positively perceived using online simulation as a teaching tool.

Second, quantitative data was used to explore nursing faculty's perceptions of their organization's readiness to support the use of online simulation as a teaching strategy in the educational setting. The SCORS survey provided valuable insights into an organization's readiness to support nursing faculty, as reported by its members. When analyzing various demographic factors, we found that secondary research questions 6, 7, 8, and 10 did not have enough statistical power for further analysis. However, we collected and analyzed data with medium power for sub-research question 9, which aimed to determine the correlation between clinical specialty and nursing faculty's perceived organizational readiness measured by the SCORS score. After achieving adequate power and analyzing the demographic factor of clinical specialty, we confidently concluded that our findings accurately reflect what was present in our data. In summary, the study data supports that nursing faculty have highly favorable perceptions of their organization's readiness to support the implementation of online simulation. Therefore, based on the nursing faculty surveyed they are ready at the personal and organizational' level to use online simulation.

5.1 Conceptual Framework Linkage

Our conceptual framework, which was based on Martin's readiness theory, explored importance, knowledge, and confidence at the personal level and included one's perception of their organization's readiness, community level, that can be used to further explore nursing readiness in the future given that we cannot generalize our findings beyond our study participants (Figure 11).

Figure 11

Primary Investigator Conceptual Framework with Readiness Theory
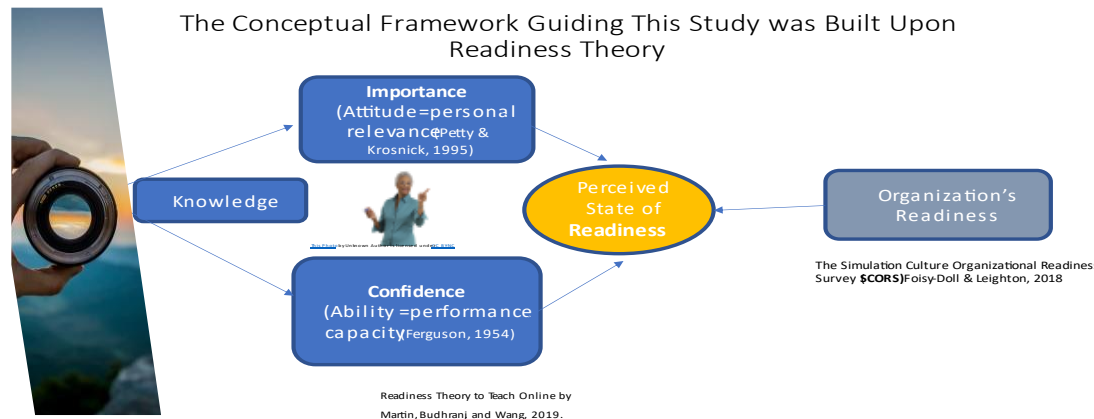
Note. Demonstrates how perceived readiness is an individual's level of readiness for a task based on knowledge, confidence, and perceived importance, which can be influenced by their organization. I incorporated the SCORS survey with Martin's readiness theory to explore the nursing faculty's perceived organizational readiness. Adapted from "Examining Faculty Perception of Their Readiness to Teach Online," by F. Martin, K. Budhrani, and C. Wang, 2019, *Online Learning Journal, 23*(3), p.100. Copyright 2019 by Florence Martin, Kiran Budhrani, and Chuang Wang. CC-BY-4.0-DEED

5.2 Related Previous Study Findings and Significance

Our study's findings are an essential contribution to the existing literature as they expand on previous findings in nursing and other health professions (Cutri & Mena, 2020; Eslaminejad et al., 2010; Kim et al., 2017; Martin et al., 2019; Press & Prytula, 2018). Our study contributes to the research conducted by Press and Prytula (2018), which examined the use of simulation as a teaching innovation in nursing education. The study found that nursing faculty members recognize the potential of this tool, but also reported that it may not be fully utilized in nursing education. Furthermore, our findings support the work of Kim et al., (2017) who found that faculty have a positive attitude or importance toward using simulation teaching for active learning.

Although not in the US education system, research conducted in Iran found in their research on 70 medical faculty members has shown that medical instructors can benefit from training and support even though they feel ready to adopt online teaching and learning. In the US, Martin, Wang, et al. (2019) based upon their work with faculty readiness to teach online strongly recommend the need for adequate institutional support to establish effective online teaching. Scherer et al. (2019) conducted a survey of 739 higher education teachers in 58 countries and found in the technological pedagogical content knowledge (TPACK) framework Survey that organizational support is critical in building capacity for online teaching and learning. Furthermore, Martin, Budhrani, et al. (2019) found that professional development, including in-house training, online activities, and webinars, is essential for acquiring strong competencies to succeed in online learning.

The results of our study, along with those from other health professions, support the need for researchers to continue to explore the readiness of teachers to transition to an online simulation learning environment. This includes not only their personal readiness but also their perception of their organizational support to make necessary changes to effectively develop work-ready health professionals.

5.3 Study Limitations

Some limitations are characteristic of convergent qualitative quantitative survey research. The survey data was based on self-reported information from the participants, as I did not conduct direct interviews. Response bias is possible, as some nursing faculty may have chosen not to participate for various reasons. Participants may have had survey fatigue – partly due to the survey length – and may have not completed the survey. Another limitation specific to the quantitative portion of the study was that there was a limitation due to the low power to examine most of the relationships between SCORS scores and demographics. Another limitation specific to the qualitative portion of the study was the small sample; thus, we cannot conclude that the results are typical and generalizable even though saturation was met.

5.4 Suggestions for Future Research

We must acknowledge that based upon our limited data we cannot infer generalizability from our findings to all nursing faculty. Thus, we support using our conceptual model to further explore nursing faculty readiness globally to infuse online simulation practices. Once a more global perspective is known which may lead to a clearer understanding of the factors impacting readiness, we can move forward to infuse a training study. In this training study we can begin to look at different strategies for training faculty on online simulation techniques to meet the needs of nursing students. Ultimately, moving forward to an implementation study that explores the

effectiveness of meaningful low stakes online simulation experiences in preparing workforce ready nurses would be advantageous. Lastly, to gauge the effectiveness of online simulation in undergraduate nursing education, comparing student knowledge levels taught with online simulation versus traditional face-to-face techniques which includes on campus simulation is imperative.

5.5 Conclusion

The participants of this study, who were nursing faculty members from Baccalaureate nursing programs, held a positive view of their ability to incorporate online simulation in nursing education. The study found that their perception was closely linked to the readiness theory, which considers knowledge, attitude, and ability. The surveyed nursing faculty members showed above-average perceptions of their organization's readiness to integrate online simulation into nursing education, as shown by their SCORS score using the SCORS tool.

Their organization's readiness to support this change was a crucial factor in their perceived readiness, offering valuable insight into nursing faculty members' readiness and their perception of their organization's readiness for this initiative. Ultimately, this study to our knowledge is the first to use the SCORS survey to assess nursing faculty members' organizational readiness along with their readiness via the Martins Readiness Theory and thus can serve as a valuable resource for future research in this area, as well as to guide academic institutions as they prepare to infuse online simulation.

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Appendix A: Permission to Use Martin's Readiness Theory

(Martin et al., 2019)

Dear Dr. Torres,

Good to hear that you are considering extending our work on faculty readiness to teach online.

You have my permission to use and adapt the instrument and framework for your research as long as we are cited and credited appropriately in the publication.

And good luck with your study.

Florence

Florence Martin, Ph.D.
Professor, Learning, Design and Technology
Department of Teacher Education and Learning Sciences, College of Education 402-T Poe
Learning, Design and Technology Doctoral Concentration Coordinator
North Carolina State University
Virtual Office   Faculty Website   Google Scholar   Research Gate

Senior Associate Editor, Online Learning Journal
Principal Investigator, K12 Educational Technologies Security NSF Project , NC Collaboratory Project - Keeping Students Safe Online

Recent Publications
Bichronous online learning: Award-winning online instructor practices of blending asynchronous and synchronous online modalities
Examining Research on the Impact of Distance and Online Learning: A Second-Order Meta-Analysis

Appendix B: Permission to Use the Simulation Culture Organizational Survey (SCORS)
Instrument

(Leighton et al., 2018)

From: Kim Leighton <huskerrn@gmail.com>
Sent: Saturday, October 16, 2021 7:07:18 AM
To: Luz-Patricia Torres <luzpatricia.torres@shu.edu>
Cc: Colette Foisy-Doll <foisydc@gmail.com>
Subject: Re: Permission to use the SCORS Survey/Questionnaire Tool

Dear Ms Torres,
On behalf of myself and Mrs. Foisy-Doll, we are pleased to provide permission for you to use the Simulation Culture Organizational Readiness Survey (SCORS) for your dissertation study. The conditions you outline are agreed upon. We wish you all the best in your doctoral study! If you have any questions regarding the tool, please do reach out. You can download from the website Evaluating Healthcare Simulation: sim-eval.org.
Kind regards,
Kim

Kim Leighton, PhD, RN, CHSE, CHSOS, ANEF, FSSH, FAAN
Executive Director
Itqan Clinical Simulation and Innovation Center

Office: (+974) 4026 5015
Mobile: (+974) 5032 7202
Email: KLeighton@hamad.qawww.hamad.qa

Appendix C: Seton Hall University IRB Approval

SETON HALL UNIVERSITY
1 8 5 6

05/13/2022

Luz Patricia Torres
Seton Hall University

Re: Study ID# 2022-314

Dear Luz,

The Research Ethics Committee of the Seton Hall University Institutional Review Board reviewed and approved your research proposal entitled "Exploring Nursing Faculty Perceived Individual and Organizational Readiness to Use Online Simulation as a Teaching Strategy" as resubmitted. This memo serves as official notice of the aforementioned study's approval as exempt. Enclosed for your records are the stamped original Consent Form and recruitment flyer. You can make copies of these forms for your use.

The Institutional Review Board approval of your research is valid for a one-year period from the date of this letter. During this time, any changes to the research protocol, informed consent form or study team must be reviewed and approved by the IRB prior to their implementation.
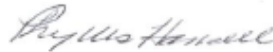
You will receive a communication from the Institutional Review Board at least 1 month prior to your expiration date requesting that you submit an Annual Progress Report to keep the study active, or a Final Review of Human Subjects Research form to close the study. In all future correspondence with the Institutional Review Board, please reference the ID# listed above.

Thank you for your cooperation.

Sincerely,

Mara C. Podvey, PhD, OTR
Associate Professor
Co-Chair, Institutional Review Board

Phyllis Hansell, EdD, RN, DNAP, FAAN
Professor
Co-Chair, Institutional Review Board

Office of the Institutional Review Board
Presidents Hall · 400 South Orange Avenue · South Orange, New Jersey 07079 · Tel: 973.275.4654 · Fax 973.275.2978 · www.shu.edu

WHAT GREAT MINDS CAN DO

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Appendix D: Letter of Solicitation Letter of Solicitation & Informed Consent Form

Dear Nursing Faculty,

Title of Research Study: Exploring Nursing Faculty Perceived Individual and Organizational Readiness to Use Online Simulation as a Teaching Strategy

Principal Investigator/Doctoral Student: Luz-Patricia Torres, MSN, RNC-OB, CHSE
Principal Investigator Faculty Advisor/Dissertation Chair: Genevieve Pinto Zipp, PT, EdD, FNAP
Department Affiliation & Sponsor: Department of Interprofessional Health Sciences and Health Administration, School of Health and Medical Sciences.
I am a doctoral student at Seton Hall University in the PhD in Health Sciences program in the Department of Interprofessional Health Sciences and Health Administration. I am conducting this research study in partial fulfillment of my dissertation requirement for the Ph.D. in Health Sciences degree under the supervision of Dr. Genevieve Pinto Zipp.
Purpose of the research study: This mixed-method research study is to explore the nursing faculty's perceived individual and organizational readiness to use online simulation as a teaching strategy.

Inclusion and exclusion criteria: You are being asked to participate in this research study because you are a nursing faculty member teaching at an accredited institution in the United States of America. You are 22 years or older, have two or more years of experience teaching nursing clinical subjects, not currently working as or have ever worked as a simulation center coordinator, and not in possession of a Certified Healthcare Simulation Educator (CHSE) certification.
This study's exclusion criteria are a nursing faculty teaching outside the United States of America with less than two years of experience teaching clinical subjects, nursing faculty working as a simulation center coordinator, or a Certified Healthcare simulation Educator (CHSE) certification.
Your rights to participate, say no, or withdraw: Participation in research is voluntary. You can decide whether to participate or not participate. You can take the survey online at any time, from any location you prefer using
any computer or cell phone you prefer. The survey should take 35 minutes to complete. You will have to complete it in one sitting.
You can choose to participate in the research study now and then decide to leave the research at any time. Your choice will not be held against you. The person in charge of the research study can remove you from the research study without your approval. Possible reasons for removal include ***missing data or submitting an incomplete survey where responses are required.***
Anonymity: You will not be identified by name or description in any reports or publications about the study. We will remove or code any personal information that could identify you before files are shared with other researchers. We will ensure that no one will identify you from the information we share by current scientific standards and known methods. Despite these measures, we cannot guarantee the anonymity of your data.
Risk of participation: The risks associated with this study are minimal. There are no foreseen risks to psychological welfare, legal, social, economic, or other privacy that the participant may

encounter as part of their participation.

Benefits of participation: This study may not directly benefit you from this study. You may obtain personal satisfaction from knowing that you are participating in a project that contributes to new information, and you may gain some additional self-insights.

Contact information: If you have questions, concerns, or complaints about this research project, you can contact the principal investigator Luz-Patricia Torres at luzpatricia.torres@shu.edu or the Seton Hall University Institutional Review Board ("IRB") at (973) 761-9334 or irb@shu.edu Further, if you have additional questions, you may contact my faculty advisor, Dr. Genevieve Zipp, Department of Interpersonal Health Sciences in the Seton Hall University School of Health and Medical Sciences, at 973- 275-2457, Genevieve.Zipp@shu.edu.

Participation and Consent: If you wish to participate in this study, please click the link below to access the survey. Once you click on the link, it will take you to the Qualtrics survey introduction to the study, where you will be given the option to participate or not participate in the study. **By selecting "I wish to participate, take me to the survey," and by submitting this answer, you are giving your consent to participate in the study.** If you do not wish to participate in this study, please select "I do not wish to participate, exit the survey" and submit this answer to exit the survey.

Thank you for your consideration in participating and contributing to my dissertation research. Your time is greatly appreciated.

Please feel free to share this letter of solicitation with any nursing faculty you believe meets this study's inclusion criteria.

Appendix E: Sub-Research Questions and Related Open-Ended Questions

(Part A – Qualitative)

RQ1 What is nursing **faculty knowledge** of online simulation in the educational setting?

SQ1 Please describe what you **know** about using online simulation as a teaching strategy in the educational setting.
SQ2 Where did you **learn** about online simulation for the educational setting?
SQ3 Describe the different ways in which you **have used** online simulation as a teaching strategy in the educational setting.
SQ4 Describe how you **could use** online simulation as a teaching strategy in the educational setting.

RQ2 What are the **attitudes** of nursing **faculty** regarding online simulation in the educational setting?

SQ5 Please describe your **attitude regarding** the use of online simulation in an educational setting.
SQ6 Please describe a situation (s) that has impacted your **attitude regarding** the use of online simulation in an educational setting.
SQ7 What do you believe impacts (or has impacted) your attitude regarding using online simulation in the educational setting?

RQ3 What is the **confidence** of nursing **faculty** regarding online simulation in the educational setting?

SQ8 Please describe your **confidence in using** online simulation in an educational setting.
SQ9 Please describe a situation (s) that has impacted your **confidence in using** online simulation in an educational setting.
SQ10 What do you believe impacts (or has impacted) your confidence in using online simulation in the educational setting?

RQ4 What are nursing **faculty perceptions** of their organization's readiness to **integrate** online simulation in the educational setting?

SQ11 Describe how your organization **has integrated (used)** online simulation as a teaching strategy in the educational setting.
SQ12 Please describe your organization's **attitude regarding** integrating online simulation in an educational setting.
SQ13 Please describe your organization's **ability to integrate** online simulation in an educational setting.

Appendix F: Simulation Culture Organization Readiness Survey (SCORS) Questionnaire

Appendix F: Research Questions (Part B - Quantitative)

RQ5: What are nursing faculty perceptions of their organization's readiness to integrate online simulation as measured by the SCORS survey different from the average?

> **Ho.** There is no difference among nursing faculty perceptions of their organization's readiness to integrate online simulation as measured by the SCORS survey.

> **Ha.** Nursing faculty perceptions of their organization's readiness to integrate online simulation varies as measured by the SCORS survey.   **One Sample t-Test (two-tailed)**

RQ6: Is there a relationship between nursing faculty members' years of experience and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

> **Ho. Is there** no relationship between nursing faculty members' years of experience and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

> **Ha**. **Is there** a positive relationship between nursing faculty members' years of experience (>) and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education? **Pearson Correlation (right-tailed)**

RQ7: What is the relationship between nursing faculty members' highest level of education completed and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

> **Ho.** There is no relationship between nursing faculty members' highest level of education completed and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score.

> **Ha.** There is a relationship between nursing faculty members' highest level of education completed and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score. **One-way ANOVA (3 groups)**

RQ8: What is the relationship between nursing faculty members' employment status and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

> **Ho.** There is no relationship between nursing faculty members' employment status and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score.

> **Ha.** There is a relationship between nursing faculty members' employment status and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score. **One-way ANOVA (3 groups)**

RQ9: What is the relationship between nursing faculty members' clinical specialty and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

> **Ho.** There is no relationship between nursing faculty members' clinical specialty and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score.

> **Ha.** There is a relationship between nursing faculty members' clinical specialty and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score. **One-way ANOVA (4 groups)**

RQ10: What is the relationship between nursing faculty members' type of undergraduate nursing program and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education?

> **Ho.** There is no relationship between nursing faculty members' type of undergraduate nursing program and their perceived organizations' readiness to integrate online simulation in nursing education, as measured by the overall SCORS score.

> **Ha.** There is a relationship between nursing faculty members' type of undergraduate nursing program and their perceived organizations' readiness, as measured by the overall SCORS score, to integrate online simulation in nursing education. **One-way ANOVA (3 groups)**