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USING SIMULATION TO ENGAGE LEARNING IN THE AFFECTIVE DOMAIN

by

Sydney R. Johnson, BSN, RN

An Independent Study

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Science

Grand Forks, North Dakota

April

2018


PERMISSION

Title: Using Simulation to Engage Learning in the Affective Domain

Department: Nursing

Degree: Master of Science

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Abstract

The aim of the project was to identify evidence that affective learning through simulation promotes development of professional values in undergraduate nursing students. Current literature demonstrates simulation as an effective strategy for psychomotor and cognitive learning. The underpinning assumption for the project was simulation of challenging experiences in a controlled environment could be used to evoke affective learning.

The two objectives for this project were to analyze evidence that supports the effectiveness of simulation for learning in the affective domain and to apply the Progressive Professional Development Model (PPDM) to an evidence-based simulation scenario intended to engage undergraduate student learning within the affective domain. The search of four databases yielded twenty articles, which met the inclusion criteria. Analysis of the evidence substantiated simulated experiences can achieve affective learning through reflective practice. The literature also suggested affective learning in simulation offered opportunities for students to consider and change their value systems. The utility of simulation, coupled with reflective practices is not limited to academic settings. This strategy could also be useful for practicing nurses to engage in life-long affective learning, which may strengthen the ability to cope with the emotional burdens of nursing. Further study regarding affective learning in simulation is needed.

Introduction

Mastering the art of nursing practice begins with developing competence through learning in three domains, the cognitive, psychomotor, and affective. Learning within the cognitive domain focuses on thinking and understanding knowledge. The psychomotor domain depends on learning physical performance of a clinical skill. The affective domain is an essential tie to professional practice, because the learner becomes aware of feelings, acquires values, and beliefs necessary for professional practice (Billings & Halstead, 2016; Ondrejka, 2014). Nursing curricula focuses heavily on psychomotor and cognitive domains, which leaves little time to provide sufficient experiences (outside of clinical experiences) for learning in the affective domain (Valiga, 2014). Nurses need education to emphasize the affective domain to acquire practice values necessary to provide holistic care. Fiske (2017) asserted that "... compassion, a professional ethic, and altruism..." are essential aspects that a nurse needs to develop to provide holistic care (p. 1).

The core of nursing is based in values, emotion, and feelings, which influences professional care of patients where ethically-charged, difficult situations arise daily. However, nurses and students may not recognize the influence of emotions, personal ideas, and beliefs on maintenance of ethical and professional practice during challenging events. It is important that nurses and students not only recognize this influence, but also have the opportunity to practice reactions to stressful situations during their education (Isabell, Banfield, & Lis, 2017; Underman, 2015). Unfortunately, this opportunity is not often available during educational experiences. Instead, students are often told how to feel, react, or what to believe during their education and may never be presented with a situation that triggers powerful emotions that challenges their value system (Benner, Sutphen, Leonard, Day & Shulman, 2010; Ondrejka, 2014).

The primary aim for this project was to determine how simulation can be used to assist nursing students to not only develop professional values, but also to experience challenges to their professional value system. Current literature demonstrates cognitive and psychomotor domains can be thoroughly engaged in simulation labs during which students practice knowledge and skills. Emerging evidence also indicated learning in the affective domain can be achieved through simulation (Foronda, Hudson, & Budhathoki, 2017; Kim, Park, & Shin, 2016; Shepherd, McCunnis, Brown, & Hair, 2010). The assumption that underpinned this project was that simulation could be a useful tool for teaching students to develop holistic and ethical nursing practice. There were two objectives to this project. The first objective was to analyze the strength of the evidence that simulation can be effective for learning in the affective domain. The second objective was to apply the Progressive Professional Development Model (PPDM) to create an evidence-based simulation scenario that engages undergraduate student learning within the affective domain.

Significance

Valiga (2014) explained educators often focus on covering content. Faculty isolate specific subject matter that they have determined learners need to know versus creating holistic lesson plans, which provide opportunities for nursing students to acquire beliefs to underpin a value-based nursing practice. Krautscheid (2017) reported that despite being taught ethics, nursing students felt ill-equipped to provide care and manage ethical situations. Many students reported knowing the right thing to do in an ethical situation, but also described an inability to act due to fear, lack of confidence, and feelings of powerlessness (Eifried cited in Dwyer & Revell, 2015; Krautscheid, 2017).

Valiga (2014) argued that although cognitive and psychomotor domain learning were crucial to developing nursing competence, the emphasis of nursing education needs to shift to affective domain learning. This shift is essential to help students develop value for doing what is ethical, while caring for patients (Benner et al., 2010; Fiske, 2017). For example, if a student makes a mistake, he or she must value doing what is right over putting the patient at risk by not disclosing the mistake and hoping not to get caught (Valiga, 2014). Affective learning in nursing education will require a student to consider personal beliefs and value systems to examine alignment with the American Nurses Association's (ANA) Nursing Code of Ethics and perhaps, to adopt this as his or her personal practice standard (ANA, 2018; Ondrejka, 2014; Winland-Brown, Lachman, & Swanson, 2015).

Increasing opportunities for affective learning in nursing curricula has the potential to revolutionize how students learn to practice nursing and ultimately, improve the quality of care future nurses provide (Ondrejka, 2014). Admittedly, nursing students must have a solid knowledge and skill base, but engaging learning in the affective domain has the potential to facilitate a deeper learning experience for the student because a feeling or emotion is tied to the learning experience (Ondrejka, 2014). Incorporating affective learning into simulation provides a unique opportunity to bridge the gap between classroom and clinical learning experiences because it brings clinical into the classroom (Benner et al., 2010). Affective learning in simulation would provide the opportunity for students to explore these feelings, learn how to cope with them, and respond appropriately in a safe, controlled environment (Hjelmfors, Strömberg, Karlsson, Olsson, & Jaarsma, 2016; Isabell et al., 2017; Underman, 2015). The affective domain creates a complete circle to the learning experience, by connecting the *what* (cognitive) and *how* (psychomotor) with the personal *why*. Incorporating affective learning into

simulation can empower students with the ability to mindfully act with knowledge and skill, because there is consideration of what drives those actions and how it impacts others (Krautscheid, 2017; Valiga, 2014).

Theoretical Framework

The PPDM served as the conceptual framework for creation of the simulation lesson intended to facilitate learning in the affective domain. The model incorporates all three learning domains and accommodates different types of simulation, to address multigenerational learning styles (Notarianni, Curry-Lourenco, Barham, & Palmer, 2009). This model has not yet been fully developed or tested (personal communication, K. Curry-Lourenco January 3, 2018); however, after evaluation of the framework, the structure of this model provided a good fit for the purposes of this project.

Notarianni et al. (2009) identified the major assumption of the model was that realistic clinical practice experiences through virtual, simulated, and standardized patient scenarios would facilitate progression of the student's practice competency from beginner practice to professional-level. The PPDM proposed that the combination of virtual, simulated environments, and standardized patient scenarios with clinical experiences provided maximum contextual control for the faculty. Faculty controls complexity of clinical situations to accommodate beginners, while creating situations that require student progress towards competencies necessary for professional practice. The complexity coupled with realistic clinical experiences enhances learning experiences leads to deeper learning and development of problem solving skills (Notarianni et al., 2009).

Process

The literature search of CINHALL, PubMed, PsycInfo, and SCOPUS, used a combination of the following key words, “simulation”, “affective domain”, “affective learning”, and “affective simulation” to search for evidence related to the effect of using simulation to engage learning in the affective domain. All searches within the databases were limited to peer reviewed articles written in English within the last five years. Exclusion criteria included, absence of a reference to the affective domain or affective learning, as well as simulation scenarios without affective learning or reflective practices. A combination of the search terms in the databases identified 228 articles, after analysis, 20 were retained.

Review of Literature

The review of literature identified levels of evidence that ranged Level One meta-analysis to Level Seven expert opinion, most of the articles classified as Level Four case-control/cohort studies (see Table 1) (Fineout-Overhold, Melnyk, Stillwell, & Williamson, 2010; University of Michigan, 2015). The qualitative studies were further analyzed using the Qualitative Hierarchy of Evidence-for-Practice created by Daly et al. (2006) and are classified as Level III descriptive studies (see Table 2).

Table 1

Melnyk Levels of Evidence (Fineout-Overhold et al., 2010; University of Michigan, 2015)	
Level 1 - Systematic review & meta-analysis of randomized controlled trials; clinical guidelines based on systematic reviews or meta-analyses	4 Studies
Level 2 - One or more randomized controlled trials	0 Studies
Level 3 - Controlled trial (no randomization)	0 Studies
Level 4 - Case-control or cohort study	8 Studies
Level 5 - Systematic review of descriptive & qualitative studies	1 Study
Level 6 - Single descriptive or qualitative study	5 Studies
Level 7 - Expert opinion	2 Studies

Table 2

Qualitative Hierarchy of Evidence-for-Practice (Daly et al. 2006)	
Level 1 – Generalizable studies	0 Studies
Level 2 – Conceptual studies	0 Studies
Level 3 – Descriptive studies	5 Studies
Level 4 – Single case study	0 Studies

Researchers studied the effectiveness of simulation to engage students in affective learning and some of the strategies studied included structuring the simulation with modalities such as virtual practice, simulated practice and standardized patients (Andrea & Kotowski, 2017; Foronda et al., 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Krautscheid, 2017; Shepherd et al., 2010; Slater, Bryant, & Ng, 2016; Underman, 2015; Ward, 2015; Wieland, Levine, & Smith, 2014). In addition, this review revealed that student engagement was an essential aspect of connecting affective learning to learning nursing practice (Andrea & Kotowski, 2017; Cantrell, Franklin, Leighton, & Carlson, 2017; Dwyer & Revell, 2015; Fiske, 2017; Isabell et al., 2017; Krautscheid, 2017; Slater et al., 2016; Underman, 2015; Ward, 2015; Wieland et al., 2014). Engagement was facilitated through reflective practice in eight studies (Andrea & Kotowski, 2017; Dwyer & Revell, 2015; Fiske, 2017; Keeley & Chase, 2012; Krautscheid, 2017; Rees, 2013; Ward 2015; Wieland et al., 2014) and academic students comprised the population studied in the literature reviewed (Andrea & Kotowski, 2017; Cantrell et al., 2017; Dwyer & Revell, 2015; Fiske, 2017; Foronda et al., 2017; Hjelmfors et al., 2016; Keeley & Chase, 2012; Kim et al., 2016; Krautscheid, 2017; Lee & Oh, 2015; Oh, Jeon, & Koh, 2015; Rees, 2013; Shepherd et al., 2010; Slater et al., 2016; Underman, 2015; Ward, 2015; Wieland et al., 2014).

The variation in methodological structure among studies created a challenge to analyze and synthesize the evidence. For example, affective learning was measured using different tools

across studies. Four studies used surveys with a Likert scale (Foronda et al., 2017; Isabell et al., 2017; Slater et al., 2016; Ward, 2015) two studies utilized group debriefing following the simulated experience and a written reflection (Krautscheid, 2017; Wieland et al., 2014). Andrea and Kotowski (2017) utilized the Lasater Clinical Judgement Rubric to measure affective outcomes and Hjelmfors et al. (2016) employed instructor led debriefing with video and audio recording of the simulation as reinforcement. Shepherd et al. (2010) also used video recordings to reinforce learning along with a piloted and validated assessment tool for instructor use with a self-assessment tool for students to complete before and following the simulated experience. This finding aligned with that of Cantrell et al. (2017) who noted 19 different debriefing methods were utilized across the analyzed studies, but they found no statistical advantage to using one method over another.

Convenience sampling and lower participation numbers provided another limitation for many studies. Sample sizes of most studies ranged from ten to 108 participants in the descriptive studies (Andrea & Kotowski, 2017; Foronda et al., 2017; Hjelmfors et al., 2016; Slater et al., 2016; Wieland et al., 2014). Experimental, quasi-experimental and longitudinal studies had sample sizes that ranged from 28 to 89 participants (Isabell et al., 2017; Krautscheid, 2017; Shepherd et al., 2010; Ward, 2015). Despite evidence that emerged primarily from studies limited by design and sample size, consistent themes emerged related to simulations that facilitate affective learning necessary for ethical nursing practice.

Virtual, Simulated and Standardized Patient Practice

Notarianni et al. (2009) proposed a model to engage students in deep learning while developing nursing competency. This model blended the use of virtual practice, simulated practice, and standardized patient practice. The purpose of this literature search was to ascertain

evidence specific to learning in the affective domain. The search found support for the effectiveness these modalities, although the research did not necessarily use the combination proposed by Notarianni et al. (2009).

Only one pretest post-test study examined the effectiveness of virtual simulation in affective learning by measuring the impact of a group virtual simulation exercise on students' affective knowledge regarding the influence that evidence has on clinical decision-making (Foronda et al., 2017). The benefits of virtual simulation found by Foronda et al. (2017) included statistically significant improvement in cognitive outcomes and an overall increase in affective knowledge of evidence-based practice when students were asked about their value of evidence-based practice when comparing the pre and post-test results. This study was limited by study design, sample size, and convenience sampling and failed to produce statistically significant evidence that supported affective learning in virtual simulation. However, the results provided some level of support for affective learning in virtual simulation.

Simulation as a learning modality clearly has garnered the greatest attention of researchers and various methods and designs were identified. However, there were mixed findings related to the effectiveness of simulation to promote learning in the affective domain. Three different systematic reviews (one umbrella and two meta-analyses) found some level of support that simulation was beneficial in promoting affective learning (Cantrell et al., 2017; Kim et al., 2016; Lee & Oh, 2015). Simulation was found to be particularly effective for improving self-efficacy (Cantrell et al., 2017; Lee & Oh, 2015; Oh et al., 2015). However, Lee and Oh (2015) cautioned that the results were inconclusive as to the overall effectiveness of simulation and suggested larger scale randomized control trials to ascertain the effectiveness of using simulation for affective learning.

Kim et al. (2016) argued that with realistic scenarios, simulation can be used to educate and train students and nurses across all three learning domains. Kim et al. (2016) found high-fidelity simulation was an effective modality to produce affective outcomes when compared to hybrid, medium, or low-fidelity simulations. On the other hand, the overall effects of simulation-based education were not proportional to the fidelity level of the simulation. These results were consistent with findings from Shepherd et al. (2010) who despite small sample size (n=28), found longitudinal growth in affective learning when students engaged in role-play versus low-fidelity manikin simulations.

Isabell et al. (2017) designed a simulation to incorporate affective learning to increase students comfort and confidence with the crucial end-of-life conversations they would have with patients and family members. Fifty-five student participants reported an increased self-confidence in their ability to communicate with dying patients and family members. Further, they recognized the emotional toll caring for dying patients and their families has on them as individuals.

Ward (2015) and Wieland et al. (2014) both utilized voice simulation experiences to simulate auditory hallucinations to evoke empathy in students caring for patients with mental illness. The students completed stations of various tasks while listening to recordings. Because of the realistic simulation experiences, students reported feeling like they were in the shoes of a patient and as a result began to feel empathy towards patients living with these hallucinations (Ward, 2015; Wieland et al., 2014). Conversely, Ward (2015) found surprising results after the voice simulation experience when some students reported fear of caring for individuals with mental illness and a preference not to work with individuals with auditory hallucinations. The general results of these studies varied in levels of evidence and some studies were limited by

small sample sizes and design. However, the overall support for affective learning in simulated environments trended towards promoting positive outcomes for affective learning. These studies echoed recurring themes of increased self-confidence (Isabell et al., 2017), increased empathy (Isabell et al., 2017; Ward, 2015; Wieland et al., 2014), and realism in practice (Isabell et al., 2017; Ward, 2015; Wieland et al., 2014).

Standardized patients had a particularly positive effect on learning in the affective domain because of the realistic nature of the experiences (Andrea & Kotowski, 2017; Kim et. al., 2016; Oh et al., 2015, Slater et al., 2016). Slater et al. (2016) compared the use of peer physical examinations (n=70) to the use of standardized patients (n=47) when testing students on their final head-to-toe assessment. Slater et al. (2016) concluded that standardized patients created a more realistic experience that resulted in decreased student use of memorization, deeper understanding of content, and improved performance on the final assessment when compared to peer-to-peer interactions. This positive affect has also been substantiated in other studies using standardized patients. Andrea and Kotowski (2017) studied 80 students to determine the effects of using standardized patients in undergraduate nursing education. They found that using simulated patients offered a controlled, realistic environment that decreased student anxiety and increased student confidence which allowed students to transfer the necessary skills, attitudes, and knowledge into the practice setting (Andrea & Kotowski, 2017).

Hjelmfors et al. (2016) and Krautscheid (2017) both employed mixed simulation strategies to engage learning by using both standardized patients and high-fidelity manikins in their simulation scenarios. Hjelmfors et al. (2016) studied 60 students through ethnographic observation, with video and audio recordings of the scenario and noted students struggled to engage with the high-fidelity manikin in the end-of-life simulation, even when the simulated

voice was that of an instructor. However, in the final part of the unfolding scenario, students interacted with an actor playing the mother of the dead patient. The students exhibited a greater positive response when interacting with a real person versus the high-fidelity manikin (Hjelmfors et al., 2016). Krautscheid (2017) imbedded micro-ethical situations, such as infection control breaches or unsafe medication practices into existing high-fidelity realistic simulation scenarios. Eighty-nine students participated in the simulation where actors played registered nurses (RN) and the students worked alongside while caring for a high-fidelity manikin. The actor committed an act of unsafe practice. The students were faced with the micro-ethical dilemma of choosing to speak up or not when they identified the unsafe practice performed by the RN actor (Krautscheid, 2017). Because of the realistic simulated experience, students became more confident communicating their concerns to the RN actor and “felt empowered to advocate” for safe practice (Krautscheid, 2017, p. 58). Although all these studies related standardized patients, they were limited by small sample sizes, convenience sampling, and some by research design, the findings provided support to the effectiveness of using standardized patients for learning in the affective domain, in particular to increase student confidence.

Learner Engagement

As previously discussed, learning in the affective domain requires that students actively engage in the process. Individual students must identify *what* feeling is being experienced, before he or she can understand *why* thoughts are formed and finally to appreciate *how* to positively change the personal perspective, when necessary (Billings & Halstead, 2016). This literature review identified effective methods for engaging students in experiential learning that stimulated affective learning. Reflective practice was the most frequently used strategy to engage students (Dwyer & Revell, 2015; Fiske, 2017; Huang, 2017; Keeley & Chase, 2012;

Rees, 2013). Reflective practices were implemented in various methods, including surveys (Foronda et al., 2017; Isabell et al., 2017; Slater et al., 2016; Ward, 2015), audio and video reinforcement with debriefing (Hjelmfors et al., 2016; Shepherd et al., 2010), and specific assessment tools (Andrea & Kotowski, 2017; Shepherd et al., 2010) however, the two most commonly identified reflective practices utilized following simulated experiences were reflective writing and debriefing (Cantrell et al., 2017; Dwyer & Revell, 2015; Fiske, 2017; Foronda et al., 2017; Huang, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Keeley & Chase, 2012; Krautscheid, 2017; Rees, 2013; Underman, 2015; Ward, 2015; Wieland et al., 2014).

Reflective experiences that inspired empathy and lived experiences helped student develop insight. Students were compelled to consider and acknowledge the personal emotional toll that comes with the challenges of nursing practice and empower the students to choose an appropriate coping mechanism (Dwyer & Revell, 2015; Keeley & Chase, 2012; Rees, 2013; Ward, 2015; Wieland et al., 2014). Beyond the modalities employed in simulation, the subject matter also impacted the effectiveness of engaging the affective domain for learning. The more sensitive the topic portrayed in the simulated experience, the more the students were forced to consider their beliefs, attitudes, and feelings regarding the topic (Hjelmfors et al., 2016; Isabell et al., 2017; Krautscheid, 2017; Ward, 2015; Wieland et al., 2014).

Finally, the design of the scenario also impacted learner engagement. The more realistic the scenario and simulated environment the more engaged the student was (Andrea & Kotowski, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Kim et al., 2016; Krautscheid, 2017; Lee & Oh, 2015; Ward, 2015; Wieland et al., 2014). The studies that incorporated the use of standardized patients, or a mix of simulation strategies were more effective at producing positive affective

outcomes because of the realistic nature of the scenario (Andrea & Kotowski, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Kim et al., 2016; Krautscheid, 2017).

Discussion

Interpretation

Although evidence indicated some level of achievement of affective learning through any simulated experience, be it standardized patients, virtual simulation, or simulated environments, students seem to achieve higher levels of affective learning with standardized patients or high-fidelity simulation (Andrea & Kotowski, 2017; Foronda et al., 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Kim et al., 2016; Krautscheid, 2017; Oh et al., 2015; Shepherd et al, 2010; Slater et al., 2016; Underman, 2015; Ward, 2015; Wieland et al., 2014). This phenomenon may result because standardized patients or high-fidelity simulation experiences provide a realistic environment that mimics the clinical environment, thereby allowing students to gain experience, knowledge, and skill, in a low risk environment. Regardless of the modality used for simulation, when the goal is to facilitate affective learning in simulation, reflective practice is essential because it encouraged the students to honestly consider their position and note any changes in their beliefs, attitudes, and emotions (Dwyer & Revell, 2015; Fiske, 2017; Foronda et al., 2017; Huang, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Keeley & Chase, 2012; Krautscheid, 2017; Rees, 2013; Underman, 2015; Ward, 2015; Wieland et al., 2014).

Realism and reflective practice emerged as essential to the use of simulation for affective learning and two common outcomes were increased empathy and self-confidence. The design of the learning strategies is vital to positive affective learning experiences, because realism provides the opportunity for a student to experience something he or she may face in future clinicals. Realism was increased when a human was used instead of or alongside a manikin to

provide an environment that mimicked the clinical environment (Andrea & Kotowski, 2017; Foronda et al., 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Kim et al., 2016; Krautscheid, 2017; Oh et al., 2015; Shepherd et al., 2010; Slater et al., 2016; Underman, 2015; Ward, 2015; Wieland et al., 2014). Reflective practice following a realistic simulation scenario enabled students to consider their feelings, beliefs and attitudes about the experience to gain a deeper understanding and assist in measuring the affective learning objectives (Cantrell et al., 2017; Dwyer & Revell, 2015; Fiske, 2017; Foronda et al., 2017; Huang, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Keeley & Chase, 2012; Krautscheid, 2017; Rees, 2013; Underman, 2015; Ward, 2015; Wieland et al., 2014).

Increased empathy and self-confidence are positive affective outcomes as they are emotions and attitudes that are a direct result from valuable affective learning. Increased empathy, was evident when sensitive and or ethically charged topics were being simulated (Isabell et al., 2017; Keeley & Chase, 2012; Ward, 2015; Wieland et al., 2014). Increased self-confidence was self-reported by many students following the simulated experiences because students were able to practice how to respond in situations they would potentially face in the clinical environment (Cantrell et al., 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Krautscheid, 2017; Oh et al., 2015; Shepherd et al., 2010). Students who experienced a realistic simulated environment and participated in a reflective practice were able to realize how the experience affected their value systems. Using a reflective practice, students can be guided to consider and change their values system to appropriately match the values, attitudes, and beliefs outlined in the Code of Ethics for Nurses (ANA, 2018).

Outcome

Based on the evidence identified in this literature search, a scenario was created that incorporated realism, through the use of standardized patients, (Andrea & Kotowski, 2017; Cantrell et al., 2017; Foronda et al., 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Kim et al., 2016; Krautscheid, 2017; Oh et al., 2015; Shepherd et al, 2010; Slater et al., 2016; Underman, 2015) and reflective practice, through debriefing and written reflection to stimulate learning in the affective domain (Cantrell et al., 2017; Dwyer & Revell, 2015; Fiske, 2017; Foronda et al., 2017; Huang, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Keeley & Chase, 2012; Krautscheid, 2017; Rees, 2013; Underman, 2015; Ward, 2015; Wieland et al., 2014).

The simulation scenario was designed for entry level nursing students with little or no nursing or health care background. The PPDM, designed by Notarianni et al. (2009) was created as a guide for creating and evaluating simulated experiences for students and practicing nurses. Based on the PPDM, I constructed this scenario for a simulated environment to include a standardized patient to provide a realistic experience that engages learners in higher levels of affective learning (Andrea & Kotowski, 2017; Foronda et al., 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Kim et al., 2016; Krautscheid, 2017; Oh et al., 2015; Shepherd et al, 2010; Slater et al., 2016; Underman, 2015; Ward, 2015; Wieland et al., 2014). Hand hygiene was chosen to illustrate the capability of the PPDM and application of the evidence to create a simple simulation scenario that incorporated all three learning domains. In this case, however, the focus was on affective learning through reflective practice. Hand hygiene is considered a basic, yet extremely effective skill to promote infection control and patient safety (WHO, 2009). The goal of the simulation was to get students to not only understand the risk and impact of germ transfer but begin to value the importance of proper hand hygiene for keeping patients and themselves

safe. Students need to understand the personal *why* behind handwashing, so they can take the skill from something they are required to do, to something they value doing.

Preparation and Pre-briefing.

A written reflective journal will be required as a ticket to lab, this will assist in the measurement of affective learning (see Appendix A) (Cantrell et al., 2017; Dwyer & Revell, 2015; Fiske, 2017; Foronda et al., 2017; Huang, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Keeley & Chase, 2012; Krautscheid, 2017; Rees, 2013; Underman, 2015; Ward, 2015; Wieland et al., 2014). To completely engage learning in the affective domain and provide a way to measure students affective learning progress, a combination of reflective practices, beginning with a written reflection, will provide a greater affective response from the students as ascertained from the evidence (Cantrell et al., 2017; Dwyer & Revell, 2015; Fiske, 2017; Foronda et al., 2017; Huang, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Keeley & Chase, 2012; Krautscheid, 2017; Rees, 2013; Underman, 2015; Ward, 2015; Wieland et al., 2014). Students will be given a brief overview of the expectations and will be encouraged to act out the scenario in a professional manner to encourage a sense of reality in the learning experience. An explanation of the series of events (pre-briefing, simulation, debriefing, and final learning journal) will be provided so the students know what to anticipate.

Simulation.

The student will enter the lab after reading through the scenario (see Appendix C) and care for the standardized patient, who will act out the skit with the student (Andrea & Kotowski, 2017; Foronda et al., 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Kim et al., 2016; Krautscheid, 2017; Oh et al., 2015; Shepherd et al, 2010; Slater et al., 2016; Underman, 2015; Ward, 2015; Wieland et al., 2014). A standardized patient mimics the clinical environment,

where students will not know the patient, which forces them to engage differently than they would with peer-to-peer interactions, thus offering a realistic practice environment (Andrea & Kotowski, 2017; Foronda et al., 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Kim et al., 2016; Krautscheid, 2017; Oh et al., 2015; Shepherd et al., 2010; Slater et al., 2016; Underman, 2015; Ward, 2015; Wieland et al., 2014). The student as the nurse will enter the patient's room and sanitize his or her hands with Glo Germ sanitizer to begin the simulation scenario and assist the patient. Following interaction with the simulated patient, the lights will be turned off and a black light will be used to show the student where the Glo Germ transferred. This timing is important because it will allow for immediate debriefing (Cantrell et al., 2017; Dwyer & Revell, 2015; Fiske, 2017; Foronda et al., 2017; Huang, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Keeley & Chase, 2012; Krautscheid, 2017; Rees, 2013; Underman, 2015; Ward, 2015; Wieland et al., 2014).

Debriefing.

Guided debriefing immediately following the simulation will allow the student to reflect on what he or she experienced (Cantrell et al., 2017; Dwyer & Revell, 2015; Fiske, 2017; Foronda et al., 2017; Huang, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Keeley & Chase, 2012; Krautscheid, 2017; Rees, 2013; Underman, 2015; Ward, 2015; Wieland et al., 2014).

Students will be faced with many fingerprints in places they may not expect. The faculty will guide students to consider the value of appropriate handwashing and the impact they have on patient safety and infection control through this simple skill. Debriefing immediately after simulation allows the students to process the information immediately, ask questions, and address concerns (Cantrell et al., 2017; Dwyer & Revell, 2015; Fiske, 2017; Foronda et al., 2017;

Huang, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Keeley & Chase, 2012; Krautscheid, 2017; Rees, 2013; Underman, 2015; Ward, 2015; Wieland et al., 2014).

Following debriefing, students will continue to complete the remainder of the lab session, practicing proper hand hygiene and checking with the blacklight to ensure effective technique. To end the lab session, students will provide a final written reflection (see Appendix B) of the simulated experience and lab session, as this allows the students to spend more time considering what they have learned, and to clarify their beliefs and value systems (Cantrell et al., 2017; Dwyer & Revell, 2015; Fiske, 2017; Foronda et al., 2017; Huang, 2017; Hjelmfors et al., 2016; Isabell et al., 2017; Keeley & Chase, 2012; Krautscheid, 2017; Rees, 2013; Underman, 2015; Ward, 2015; Wieland et al., 2014).

Implications for Nursing

Benner et al. (2010) have called for a radical change to nursing education to improve the quality of nursing care, because for nursing to advance as a profession change needs to start at the beginning, with education. Including the affective domain in nursing curricula is one way to meet this necessary change. Ondrejka (2014) refers to the affective domain as the lost pedagogy, because it is a type of teaching that engages students in ways, "...that impact their knowledge of self, how they value or believe certain things, and it assists them in understanding the choices they make and actions they take" (p. 4). Including affective learning in lesson plans can take education from simply a learning experience, to a transformative experience, where the student emerges with more than just knowledge or skill, but instead he or she is a different individual (Ondrejka, 2014).

The literature supports achievement of affective learning from simulation in academic education, but affective learning should not stop after a student passes the NCLEX exam.

Instead, simulation-based affective learning could be used in staff development to change how nurses practice by giving them tools to use when faced with ethical and emotional situations. On the other hand, there is a limit to the experiences that education can provide to engage affective learning. Whereas experiences abound when a nurse is practicing in the field, learning to use reflective practices and contemplative activities could provide a useful way for nurses to respond and cope with the emotional challenges of practice (Fiske, 2017; Rees, 2013). Thus, there is a clear potential for simulated experiences to be used in continuing education for practicing nurses and allow for further exploration of the affective domain in nursing practice.

Since there is limited evidence regarding affective learning in simulation, further research must be done on larger scales to strengthen the evidence for the effectiveness of using simulation to engage affective learning. Virtual simulation is a relatively young pedagogy with many possibilities to facilitate simulations that are difficult to re-enact with standardized patients or manikins and research is especially lacking in how it can impact affective learning in nursing education. Nursing education and practice would benefit from further research as affective learning has the potential positively impact both areas of nursing.

Conclusion

Learning in the affective domain completes the circle of deep, holistic learning, as it brings information to a personal level by encouraging the learner to focus on *why* they think like they do. Affective learning needs to be incorporated into nursing curricula to meet the needs of tomorrow's patients and assist students and nurses with mastering the art of nursing care (Benner et al., 2010). Simulation is a useful teaching and learning tool to develop the psychomotor and cognitive domains and shows promise in promoting affective learning to develop holistic and ethical nursing practice (Andrea & Kotowski, 2017; Foronda et al., 2017; Hjelmfors et al., 2016; Isabell et al.,

2017; Kim et al., 2016; Krautscheid, 2017; Oh et al., 2015; Shepherd et al, 2010; Slater et al., 2016; Underman, 2015; Ward, 2015; Wieland et al., 2014). Integration of affective learning in simulation could increase the holistic knowledge of the learner and provide a positive change in his or her beliefs and attitudes towards patients and their health conditions. Simulation scenarios, like the one developed in this project, could effectively provide a safe, realistic environment where one's attitudes, beliefs, values, and emotions can be exposed and changed to meet the standards set by the ANA Code of Ethics (ANA, 2018). These reflective and contemplative practices are useful tools for students to employ when learning to manage the challenges of nursing practice and can also provide methods for practicing nurses to cope with the burdens of caring for patients in a multifaceted healthcare environment (Fiske, 2017; Huang, 2017; Krautscheid, 2017).

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Appendix A

Hand Hygiene Learning Journal

Name: _____

Ticket to Hand Hygiene Lab

A reflective learning journal will engage your learning by asking you to honestly consider your knowledge, thoughts, feelings, beliefs, and attitudes about a topic. Please write a brief dialogue using the topics and questions below as a springboard for your reflective writing. Feel free to use the back of the paper for more writing space.

How often do you wash your hands in a day? When do you usually wash your hands and how long does it take you to wash your hands? Is hand washing important to you? Why or why not? Would you say something to someone if you noticed they did not wash their hands?

Appendix B

Hand Hygiene Post-Simulation Learning Journal

Name: _____

Post-Simulation Learning Journal

A reflective learning journal will engage your learning by asking you to honestly consider your knowledge, thoughts, feelings, beliefs, and attitudes about a topic. Please write a brief dialogue using the topics and questions below as a springboard for your reflective writing. Feel free to use the back of the paper for more writing space.

How did you feel when you realized you had Glo Germ on your hands? What was your reaction to seeing the Glo Germ transfer to multiple areas that you had touched? Did you realize that you touched as many areas as you had? Consider how well you scrubbed your hands to remove the Glo Germ and some was still present after, how does this impact your handwashing? After this experience, do you feel handwashing is more or less important than your previous thoughts? Why or why not?

Appendix C

Hand Hygiene Simulation Scenario

Requirements prior to the scenario: class, lecture, required readings, and videos regarding hand hygiene.

Supplies for this scenario: Actor to play the role of “patient” (standardized patient) powdered Glo Germ, hand sanitizer, black light, handwashing stations, a hospital-type setting with a bed, bedside table, chairs, snacks, and water.

A brief, guided learning journal, will be completed by the student as a ticket to lab to assist in the measurement of the affective outcomes (see Appendix A). For students to understand the impact and importance of handwashing they will be subject to a “silent” Glo Germ scenario where they will be required to attend lab and foam in with Glo Germ that has been mixed with sanitizer. Glo Germ provides visual feedback of areas that had been touched and simulates the germs that are already on an individual’s hands.

Debriefing immediately following the scenario will include bringing the student back in to view the Glo Germ and where it transferred to the patient under the blacklight. This should stimulate discussion regarding Glo Germ transfer and examine topics including mindfulness of touch, patient safety, and infection control. Students will then proceed to practice proper handwashing and re-check with the black light to see how effective their handwashing was. Following the lab session, a brief, guided journal would be completed that would encourage students to consider their handwashing once again (see Appendix B).

Nurse

You are caring for a 22-year-old patient who has been battling leukemia for 2 years and was admitted to the hospital because of pneumonia. The patient is not doing well, and their family is unable to be with them at the hospital overnight. The patient is very anxious and concerned that they will not get better because of the pneumonia and leukemia. You are going in to talk to the patient and do what you can to offer comfort and support. Use sanitizer on your way into the room and discuss the patient’s concerns. After talking to them for 10 minutes, offer to re-arrange their pillows, bedding, and get them something to eat and drink. If they choose to eat or drink, retrieve it from the patient kitchen area and set up their bedside table so they can access it. Ask the patient if there is anything else that they need and then leave the room.

Patient

You are a 22-year-old who has had leukemia for the last 2 years and have been sick with pneumonia for the last 5 days. You were admitted to the hospital yesterday because the oral antibiotics were not helping. You are extremely tired and are anxious that you will not get better and perhaps die because of complications of pneumonia and your body’s inability to fight the infection due to the cancer. Your family is unable to spend the night at the hospital and you call the nurse in for reassurance. When the nurse comes in, remind her to foam in and then grab her hand and hold it while you talk about your fear of not getting better and possibly dying. After about 10 minutes of discussion, allow the nurse to re-arrange your pillows and bedding and take a snack and beverage that your nurse offers. The nurse will bring back your choice of food and some water to drink and set it on your bedside table. You can eat this right away and the nurse will ask again if you need anything else, which you will not, and the nurse will leave.

