

Positive Outcomes of Rapid Freeware Implementation to Replace Baccalaureate Student Clinical Experiences

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ABSTRACT

Background: Loss of in-person clinical experiences due to the COVID-19 pandemic created the need for a rapid transition to online clinical education using virtual simulation, which has been shown to be an effective teaching–learning method. Standards of best practice for simulation provide a framework for implementation. **Method:** Using free online simulation programs, 15 faculty members offered 3-hour synchronous sessions covering 20 different topics via an online meeting platform to 42 senior nursing students. Students were invited to complete an evaluation following each session. **Results:** Students collectively logged over 1,200 hours of simulation time attending approximately 100 sessions. Postsimulation evaluations captured students' responses to sessions. Students appreciated the opportunity to review content covered in previous semesters and engaged most when simulations followed a consistent structure, were interactive, and contained visually engaging materials. **Conclusion:** Resourceful faculty responded quickly and creatively to the urgent need to transition to online clinical learning and created positive experiences for students. [*J Nurs Educ.* 2020;59(12):701-704.]

The rapid onset of a novel coronavirus in 2019 (COVID-19) placed unprecedented and severe strains upon global society, including institutions of higher education. Traditional brick-and-mortar schools of nursing had to quickly transition from in-person didactic lectures and onsite clinical experiences to online delivery of education. Although many faculty members are well versed in using online learning management systems

such as Canvas and iCollege, for asynchronous classroom communication and assignment coordination, the move from classroom lectures and clinical placements to online platforms was new territory for most.

The loss of baccalaureate nursing student clinical placement sites presented a particularly daunting challenge. Preparing students for rapidly approaching graduation dates and initial employment as graduate nurses was critical not only to their educational progress but also for the increasing needs of society at this crucial time. As it was neither desirable nor acceptable to suspend nursing education, nursing faculty were faced with replacing in-person clinical experiences with online simulation-based learning experiences (SBLEs) quickly.

The purpose of this article is to describe the innovative way nursing faculty met the challenge of transitioning clinical learning to online delivery by using existing online SBLEs and incorporating them into interactive synchronous sessions for baccalaureate nursing students enrolled in their final-semester clinical course. Psychomotor skills training was not a part of these sessions; instead, faculty worked to build students' clinical reasoning skills by focusing on clinical decision making.

Background

In their notice, *Considerations for COVID-19 Preparedness and Response in U.S. Schools of Nursing*, the American Association of Colleges of Nursing (2020) recommended creating a plan to counter restrictions of student attendance at clinical sites, noting that virtual reality could be considered an option. The Commission on Collegiate Nursing Education (2020) released a statement reinforcing that schools of nursing still must meet accreditation standards during this challenging time but also provided reassurance that the standards “allow for innovation, flexibility, and changes in program delivery” (p. 1). The International Nursing Association of Clinical Simulation and Learning (INACSL) and the Society for Simulation in Healthcare issued a joint statement supporting the use of virtual simulation to replace clinical hours for students enrolled in health care professional programs (Foronda & Armstrong, 2020).

Virtual and/or web-based simulations have been used in nursing education for at least 20 years (Cant & Cooper, 2014). Weeks et al. (2019) “stress that ‘technology enhanced and simulation-based learning’ does not mean that the learning is simulated, far from it, learning in appropriate and authentic simulated practice environments is very real. Only the practice environments are

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re-created and simulated” (p. 30). Studies have shown that students benefit in significant ways, including knowledge transfer and knowledge retention, from virtual simulation (Padilha et al., 2019; Smith et al., 2016; Tschannen, 2012).

A randomized controlled trial with 42 participants (Padilha et al., 2019) found that students participating in a virtual clinical scenario demonstrated greater knowledge retention immediately after and 2 months after the experience in comparison with students participating in a simulation based on the same content in a traditional simulation laboratory setting. Students also reported greater satisfaction with the virtual clinical experience. Both simulations followed the same structure, which included prebrief and debrief sessions. Tschannen et al. (2012) conducted a quasi-experimental study with 115 nursing students to test the effects of virtual simulation on knowledge transfer, “defined as the ability of students to take what is learned in the classroom and transfer those skills into practice” (p. 19), comparing an SBLE embedded in the Second Life® virtual reality platform to role-play. Students in the virtual simulation group performed better overall on specific variables of priority setting, communication with providers, and recognizing the need for intervention.

A key component to the creation and implementation of SBLE, regardless of platform, is adherence to the standards of best practice for simulation (INACSL Standards Committee, 2016). Each SBLE must have a prebrief to orient learners to the activity, learning objectives, and expectations for participation; a facilitated learning experience; and a guided debrief session to encourage students to share their thoughts and feelings about the experience. Debriefing is considered by many to be the most critical part of the SBLE learning process because this is where discovery of decision-making processes and underlying feelings related to nursing care can occur (Shinnick et al., 2011).

Method

Fifteen clinical faculty volunteered to assist with the clinical capstone course, in which 42 students needed 150 clinical contact hours to meet course requirements and graduate on time. Faculty cast a wide net to search for free virtual and online simulation resources to substitute for in-person clinical experiences and chose four platforms: Canadian Alliance of Nurse Educators Using Simulation (CAN-Sim) virtual simulation games (<http://can-sim.ca/virtual-simulation-games-vsg/virtual-game-preview/>); the Virtual Healthcare Experience (<https://de.ryerson.ca/games/nursing/hospital/index.html>); National League for Nursing’s (NLN) Advancing Care Excellence Series unfolding case studies (<http://www.nln.org/professional-development-programs/advancing-care-excellence-series>); and Augmented Reality Integrated Simulation Education (ARISE) scenarios posted on Skills Commons (<https://www.skillscommons.org/>), an open education resource.

CAN-Sim (2018) is a virtual community for teaching with simulation sponsored by the Ontario Simulation Alliance; the website serves as a repository of resources. High-quality video-based virtual simulations are focused on adult acute care scenarios involving medical diagnoses of urosepsis, diabetic ketoacidosis, and respiratory distress. CAN-Sim simulations include decision-making moments when the learner is presented with a

choice and subsequent video footage shows potential outcomes of choices; learners are given the option to reselect when an incorrect choice is made.

The Virtual Healthcare Experience was created through a collaborative effort between Centennial College, Ryerson University, and George Brown College (n.d.) and was funded by the Canadian Ministry of Advanced Education and Skills Development. The portal provides learners with the opportunity to explore a virtual hospital with five different departments: emergency, pediatrics, medical–surgical, maternal and child, and mental health. Similar to the CAN-Sim simulations, Virtual Healthcare Experience includes high-quality video vignettes with decision-making points that allow learners to see the consequences of their choices.

The NLN’s (2020) Advancing Care Excellence unfolding case studies provide fully developed curriculum in the form of clinical scenarios that can be used for training in colleges, hospitals, and community settings. The series addresses six vulnerable populations: pediatrics, Veterans, seniors, individuals with disabilities, Alzheimer’s patients, and caregivers of individuals with Alzheimer’s. The scenarios include first-person narrated monologues introducing learners to the situation and unfold in three stages with new developments presented in each step.

ARISE was founded by a collaboration of 16 technical colleges and partners in Wisconsin, formed to enhance health care training programs as part of an educational grant from the United States Department of Labor (Wisconsin Technical College System TAACCCT IV Consortium, 2016). Simulations use augmented reality technology via the ARIS Mobile Access application, a commercial application supporting access to databases enabling the sharing of multimedia (<https://resources.softwareag.com/bpa/2017-1-fs-aris-mobile-en-facts-about-aris-mobile-access>). ARISE simulation scenarios contain real-life storylines with four levels that increase in complexity from basic assessment to crisis. Scenarios cover the topics of chest pain, heart failure, wound management, pediatric asthma, obstetrics, therapeutic communication, and end-of-life.

From this vast menu of options, we offered more than 20 different 3-hour synchronous online sessions via Zoom for small groups of students limited to no more than five and no fewer than two to encourage engagement and exchange of ideas through dialogue. Faculty were instructed to adhere to INACSL standards of simulation via video and online resources, noting that each session needed to include time for prebrief and debrief. Sessions were offered at different times of the day and multiple days of the week. Sessions were facilitated by one or two faculty members with expertise in the content area of the simulation. Prebrief was limited to no more than 15 minutes and included an orientation to how the session would unfold and what was expected of student participation. Debrief sessions lasted approximately 30 minutes and started with the basic plus/delta approach (i.e., What worked well? What would you change?).

After participating in a session, students were encouraged, but not required, to complete an evaluation of their experience. Items on the evaluation form were taken from the Simulation Effectiveness Tool-Modified (SET-M; Leighton et al., 2015), which asks respondents to rate a series of statements on

a disagree–agree Likert-type scale, in addition to a few other items. Frequencies of quantitative responses were tallied.

The evaluation also included four free-text questions that asked what students liked best about, what they learned from, and what they would change about the simulation along with an opportunity to share general reflections, comments, or thoughts. Responses were read once in their entirety for analysis and then coded and verified by two independent reviewers to reduce bias using both deductive and inductive strategies. Themes were identified for each response.

Faculty facilitators were invited to participate in a debrief session at the end of the semester; this session was also guided by the plus/delta approach. Full institutional review board review was not required, as this project does not meet the definition for human subjects research.

Results

Over 4 weeks, clinical nursing faculty offered a total of 100 separate sessions, and students collectively logged over 1,200 hours of clinical simulation time. End-of-life, pediatric asthma, chest pain, and therapeutic communication were the most attended sessions.

Evaluation completion rate ranged from 13% to 100% per session. Detractors for students completing evaluations was that evaluations were posted in a separate tab in the online course site, and some of the titles of the evaluations did not precisely match the titles of the sessions. Completion of evaluations was not required. In addition, the rapid transition to online was overwhelming, and some students were not able to make completing evaluations a priority.

Students attended multiple simulation sessions and were asked to complete an evaluation for each session attended; at the completion of the course, 167 evaluations had been completed. Overall, responses to the items from the SET-M were positive and correlated with INACSL standards of best practice. Most (94%) of the respondents agreed that learning objectives were identified prior to the start of the session, and 95% agreed that orientation to the session adequately prepared them to engage in the session. Ninety-eight percent agreed that the session was appropriate for their level of learning, and 95% reported feeling empowered to make clinical decisions during the session. As a result of participating in the sessions, respondents reported experiencing positive growth in confidence of their assessment skills (96%); their ability to prioritize care and interventions (95%); their ability to communicate with patients and their families (95%) and the health care team (94%); and their ability to provide interventions that foster patient safety (97%).

The strongest theme to emerge in answer to the question “What did you like best about the simulation” was that students enjoyed having an engaging and interactive simulation. One student wrote, “I have never really learned about this topic in a clinical type of way, so I just really enjoyed the whole thing!” Students also noted that they liked reviewing or synthesizing material learned earlier in their program of study. One student wrote, “I also really appreciated the holistic approach to the simulation through a review of the pathophysiology along with nursing care and a pharmacology review. The integration

of those components was very valuable to me.” Some students noted that a few faculty members were particularly good at facilitating the session and made a difference in their learning by being prepared, open, and engaging. One student noted, “I loved that the professor sent some information to look at before the simulation started so that I could adequately prepare to be able to answer questions about the situation.”

The predominant theme identified in student responses to the question “What did you learn from the simulation?” was not about a particular concept but rather an echo of how they responded to the first question in that they learned by reviewing materials covered in previous semesters. One student wrote, “We learned more about labs like troponin and [creatine kinase myocardial band]. I have a hard time connecting labs to real life beyond just memorizing, so this talk was helpful.” Students also reported gaining new knowledge and experiencing an increased sense of confidence as nurses. One student noted, “I learned how to comfortably communicate with my patients and their family members on the topic of death. I grew more comfortable with the topic of death myself.”

To the query asking what they would change about the simulation, most students wrote “Nothing!” However, some students reported that a consistent organizational structure was needed as different faculty members did things a little differently. Students preferred to have materials sent ahead of time to review and to have a consistent method for debriefing. A few students also indicated that some sessions needed more visually engaging materials, such as photographs or videos, and that they were not able to engage as fully if the faculty facilitator experienced technological difficulties.

The final free-text question asked students if they had any further reflections, comments, or thoughts to share; most students used this as an opportunity to express appreciation for the simulations and indicated that they learned a lot. One student wrote, “I really enjoyed this online simulation better than [commercially-available online simulation product] because it was more of a multiple choice simulation while this simulation allowed for more hands-on experience and critical thinking.” Because there were no psychomotor skills associated with sessions, we interpret “hands-on experience” to mean that the student felt a high level of engagement with the simulation.

Faculty feedback about positive aspects of the simulation sessions included feeling that students were engaged and prepared for sessions, online resources used for sessions were effective and of good quality, and small groups helped to ensure that all contributed to discussion. Less positive aspects included difficulties encountered when trying to manage multiple technological devices to display videos or other materials from websites, sessions being canceled on short notice, and inability to ensure student engagement if the student did not turn on or keep their camera on. Changes to make with the next iteration of sessions included downloading materials to the faculty’s computer for easier access and installing a firm cancellation deadline at least 12 hours prior to the scheduled start time. Faculty discussed at length the issue of asking students to keep their cameras on for the whole session; however, some students’ living arrangements may create privacy issues, and streaming video requires a lot of internet bandwidth.

Conclusion

The rapid transition for a baccalaureate program from in-person clinical experiences to online and virtual simulation due to the COVID-19 pandemic was challenging, but resourceful faculty met the challenge in creative ways that met, and even exceeded, students' learning needs, fulfilled program requirements, and ultimately supported on-time graduation. Our findings are reflective of results of Allred's and Gerardi's (2017) study that incorporated interactive computer simulation to teach pain management to undergraduate nursing students who found the approach to be "entertaining, fun, educational...and with potential to change practice" (p. 287).

Student engagement with simulations was best supported through consistent organization that included opportunities to review content ahead of time, high interaction, and visually engaging materials. Students appreciated faculty efforts and tolerated technology challenges because they seemed to understand it was a new experience for everyone.

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