Simulation-Based Learning in Nursing

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Within nursing education, the use of simulation-based learning (SBL) has drastically altered the process, and added to the success of students leaving the classroom, and entering their new career. The types of simulation used in nursing education include anatomical models, task trainers, role playing, games, computer-assisted instruction (CAI), standardized patients, virtual reality, and low-fidelity to high-fidelity mannequins (Nehring, 2009). The use of simulations has blossomed throughout the past few decades, and researchers have increasingly probed its use inside the classroom, the developmental progress of educators and students alike, and have pummeled questions relating to a wide array of issues concerning the various technologies that encompass SBL in nursing education.

More specifically, the use of SBL in nursing education continues to stir debates as to whether the pros outweigh the cons; including the lack of sufficient research contributing to SBL providing evidence to support its efficiently in the development of students participating in nursing simulations, importance of decreasing the level of anxiety in order for students to become self-confident as they move from the classroom to a career in medicine, subjectivity of educators conducting and designing simulations, the cost of the SBL equipment, and the structure of hybrid programs (simulations and objective structured clinical examinations (OSCEs)).

Research focusing on high-fidelity simulations characterized by the use of manikins which contain physiological responses to teach skills to students; which was designed to reevaluate the work of Isenberg et al. evaluated simulations included eight areas of criteria to eliminate studies that did not meet the desired outcome in order to the answer to the question, "What are the features and uses of high-fidelity medical simulations that lead to most effective
learning?" (Harder, 2010). The results of the examination created seven different categories: area of application, objective, methodology, effect size (if any), type of simulation, results and conclusion, and suggestions and future directions. Further dissecting the data, it was determined that simulation technology is essential to modern-day education, in order to properly prepare students for their future careers.

Also, aligned with many other scholars academic work on simulation-based learning, a decrease in anxiety is perceived to be one of the most significant results in this research. Thus, centralizing on two aspects of simulation-based learning; the competency and confidence of the student, and the predictors and mediators of nursing student's caring adequacy. The results of extensive research was an overall decrease in anxiety, and increase in self-confidence (Khalaila, 2014). There was also a correlation between the level of anxiety v. self-confidence with that of the degree to which the student's ability to care for the patient. Conclusively, students with higher self-confidence, lacking anxiety provided the student to focus on their ability to care properly for their patients (Khalaila, 2014). Furthermore, research conducted resulted in the suggestion of promotion of a program to lower the anxiety of nursing school students due to the fact that a high level of anxiety is typical during their first clinical practice.

One of the most profound statements mentioned throughout recent research regarding SBL research stated that, "simulations are variable in themselves and this creates some incongruity by what constitutes a simulation (Harder, 2010)", which strengthened the argument for additional research to be conducted, in order to reach a more objective result to the question posed by the initial research. In conclusion, it was dually noted that the cost of the equipment can often exceed the actual goal for which it was purchased (Harder, 2010). It was also
determined that there must be a measurement tool that can successfully conduct objective research on SBL (Harder, 2010). Simulation-based learning has increasingly become a part of the education process of nursing. The development of clinical simulation, and the overall improvement of education has been a focus of scholarly research since its initial introduction into the classroom.

As simulation-based learning has increasingly become a part of the education process of nursing, the development of clinical simulations, and the overall improvement of education has been a focus of scholarly research since its initial introduction into the classroom. Illustrating the challenges of obtaining objective data to analyze simulation-based learning, the primary intention was to critique the scholarly research that nursing students had submitted to the Clinical Simulation in Nursing Journal; however, the authors found that there was evidence of issues that had been typically occurring in nursing students research and analysis of simulations across the board (Dreifuerst et al. 2015). Examining student's submissions, the conclusion was that there were four key, or common themes: single-site data collection, low numbers of subjects, common use of subjective instruments, and instrument cherry picking. Yet, out of the four themes, the authors argued that the selection and use of instruments in nursing education research causes the greatest amount of subjectivity.

Hence, the editorial remarked that there is a the need for improvement throughout the world of academia. Although the editorial did not provide any insight into the development of clinical simulation, it did illustrate the difficulty that nursing students have found as they attempted to apply their practice to research based on scientific inquiry, thus contributing to their specific field of study. It was also clear that as technology excels, and becomes more familiar in
the classroom, everyone involved in the learning process must be held accountable for the quality of education which can follow.

Addressing inconsistencies based upon subjectivity, utilizing the Q-methodological approach offered results that illustrated nursing educators subjectivity in designing and conducting simulations (Paige, 2015). The aim of the research that was conducted using the Q-methodological approach was to gain a better perspective of educators opinion regarding operationalizing simulation design characteristics within simulation-based learning (SBL) educational interventions. To gain insight into the varying beliefs held by educators, this specific type of research utilizes both qualitative and quantitative techniques to calculate factors, providing results from collecting tabulation sheets from nursing educators. The most significant result that this research found was that nurse educators feel most strongly about getting at students' thinking processes (Paige, 2015).

Furthermore, having students watch simulation videos after they have participated, can assist them in their awareness of how they conduct themselves, and offers students with valuable insight into aspects of the learning process that without simulation videos, would be difficult to comprehend. These results suggested that the perspectives that the nursing educators had in regards to facilitating the discovery, or the independent student's ability to establish the reasoning behind what they do; correlated with the debriefing period of the simulation-based learning exercises. The significance of these results suggested that nursing educators' perspective of simulation design is similar. It also concluded that it is imperative that nursing educators think critically as they reflect upon their personal teaching practices, and offer student support throughout the entire SBL process (Paige, 2015).
During the pre-briefing period, research recommended that educators should explain that the students will be leading the debriefing period so that they prepared, and it is an active learning strategy and a must for knowledge retention (Rutherford-Hemming, 2015). It was also suggested that it is important to encourage the observers of the simulation to take notes. The six most essential aspects mentioned included: setting, teamwork, communication, nursing interventions, positive interactions, and mistakes (Rutherford-Hemming, 2015). It has been found that students that have taken advantage of the debriefing period by listing important interventions and laboratory data, and identifying appropriate nursing diagnoses, have shown improved clinical reasoning when using simulation (Nehring, 2009).

Lastly, the use of hybrid bachelor of science in nursing programs that include SBL and OSCEs, which were initially composed to facilitate students with an enhancement in learning and evaluation had been investigated; and it was determined that the hybrid program can lead to inconsistencies. Most notably, in learning and the inability to evaluate student progress (Preston-Safraz, 2015). Recent research analyzed whether educators were able to evaluate the skill attainment and transfer of learning among students within the hybrid program. The essential three key points in the result of the research ascertained that students reported that their participation in the hybrid program increased their ability to demonstrate mastery of physical assessment across the life span; hybrid students are an unique population that return to college with a varying degree of knowledge and experience; and that the SBL and OSCEs could be used to evaluate student learning and transfer from didactic to clinical in the hybrid program (Preston-Safraz, 2015).
References


