

Infusing Simulation in Classroom Teaching

Carla Henderson DNP, MSN, RN, CNE and Deborah Trotta MSN, MEd, RN-BC
University of Cincinnati Blue Ash College

Lecture content previously taught in the classroom, guided by PowerPoint, was redesigned as a flipped classroom to promote active learning, retention, and application of nursing knowledge. The teaching strategy involved taking students out of the classroom and into the clinical skills lab. The addition of simulation and nursing skills to didactic promoted active student engagement, stimulated critical thinking, and provided the opportunity to immediately bridge theory to clinical practice. Students and faculty comments acknowledged the positive impact of this active teaching strategy. Opportunities exist to promote additional active learning strategies in a traditional nursing curriculum.

Infusing Simulation in Classroom Teaching

Nurse educators strive to integrate a variety of teaching strategies, such as case studies, games, and iClicker response questions in the classroom. While students are actively participating during these strategies, there is not an immediate bridge to the clinical component of lecture content. Increasingly complex health care environments demand that nurse educators rethink the development and delivery of teaching materials to develop a student nurse who is prepared to critically think (Bristol, 2014). Regulatory agencies and consumers hold health care professionals accountable for providing high-quality, safe patient care (Loyola, 2010).

The focus in education, health care, and the National Council Licensure Examination (NCLEX) is on providing safe, quality patient care. Human patient simulation (HPS) has been described as a successful teaching strategy in the college laboratory and this teaching strategy provides the opportunity to bridge theory with clinical practice. Adding HPS enhances the opportunity of a safe, practice learning component actively engaging student nurses in critical thinking and clinical decision-making (Berndt, 2014; Haskvitz & Koop, 2004). Blending HPS teaching strategies with lecture, case studies, discussion, and college laboratory skills provides the ultimate learning experience (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014).

This instructional design strategy involves taking students out of the classroom and into the college skills laboratory. Content previously taught in the classroom with lecture, guided by PowerPoint, was redesigned by nurse educators to promote active learning. The addition of simulation and nursing skills to didactic content allowed for application and analysis of materials and promoted active student engagement, stimulated critical thinking, and provided the opportunity to immediately bridge theory to clinical practice.

Literature Review

Student nurses in a pre-licensure education program need to be prepared for a complex health care system, higher patient acuity, and increased integration of technology. Nursing programs are being challenged to make critical thinking and clinical judgment top priorities (Steiner, Hewett, Floyd, Lewis, & Walker, 2010). Nurse educators need to re-examine traditional teaching strategies when preparing nursing students for an ever changing health care system. When planning active teaching strategies it is important that educators realize the additional time it takes to develop a quality, interactive, learning experience. Faculty planning must also student preparation activities. Completion of these preparation activities prepare the learner to fully participate in the flipped classroom hands on activities. A partnership between student and educator, will result in a more meaningful learning experience. Student engagement through interaction, questions, and contributions will increase their understanding, confidence, and competence.

An educator can formatively assess the students' needs during the class, fill in gaps of knowledge, make corrections where needed, and build on the students' knowledge. Active student participation builds not only ownership but sets the stage for lasting success, improved critical thinking, and greatly impacts patient outcomes (Bristol, 2014). Active teaching strategies require flexibility of the nurse educator. As students move through the activities, additional teaching moments may occur. When students struggle with application or analysis of a

particular activity it may be necessary to adjust the flow of the activities to accomplish understanding of content before moving to the next activity.

Making a paradigm shift from passive, traditional learning to an active, result-oriented approach to learning leads to better outcomes based education (Loyola, 2010). The responsibility to prepare students with competencies and skills required for clinical practice will lead to higher quality patient care outcomes and highest level of patient safety. It is essential to transform nursing education to meet emerging health care needs (Halstead, 2012). According to Halstead (2012) nursing education needs to design evidence-based practice (EBP) learning experiences with innovative new teaching strategies to prepare well qualified student nurses at the point of graduation.

To become safe, competent student nurses, the learning process needs to go beyond levels of knowledge and comprehension; student nurses need to be able to apply and analyze clinical situations as they occur. When using HPS in the college laboratory setting as a teaching strategy, nurse educators are provided with an opportunity to teach safety competencies in simulated patient scenarios. A simulation college laboratory environment allows students to apply didactic knowledge in controlled practice settings. The use of simulation within nursing curricula provides a flexible learning and teaching model that can be developed to meet specific learning aims and objectives (Wall, 2014). Berndt (2014) reviewed evidence of using simulation to teach safety competencies. Students' knowledge, skills, and attitudes in pre-licensure education can be enhanced by simulation and is more effective than traditional lecture alone. The National Council of State Board of Nursing simulation study found that adding simulation to nursing curriculum can be used effectively to teach nursing skills, critical thinking, and clinical competency (Hayden et al, 2014). Moreover, simulation allows educators to replicate clinical learning experiences not accomplished by lecturing in a traditional classroom.

Learning Activity

To ensure successful outcomes using active teaching strategies, educators need to purposefully plan each phase of the activity, including preparation work, implementation, and evaluation. The flipped classroom teaching strategy involved taking students out of the lecture hall and into the clinical skills lab. Previously, students expected faculty to stand in the lecture hall to deliver content. The student preparation work included reading assignments and a short online presentation. It was necessary to ensure students had enough physical space to fully participate. Instead of utilizing one lecture hall, three college nursing clinical labs and a simulation lab were reserved. Since the structure and location of this class was changed, strategic communication with students through the course management system prior to this activity was crucial. A faculty guide was developed to standardize the instructional methods and a student guide was prepared to standardize the education.

On the day of class, students were randomly divided into four smaller groups to enable peer interaction and to experience the benefits of teamwork. Working in small groups emulates the teamwork health care providers experience in the clinical setting. Students attended the following stations: Patient with a chest tube, patient on a mechanical ventilator, arterial blood gas practice questions, and an acute respiratory distress syndrome case study. At each station, a faculty member provided formative assessment, answered questions, and clarified content.

Discussion

During the flipped classroom time, students became immersed in the HPS activities. The students were energetic, engaged, and appeared to learn in this dynamic environment. The majority of the students agreed that an HPS flipped classroom experience stimulated critical thinking, bridged lecture with clinical, and increased confidence in feeling better prepared to take care of patients in clinical setting.

Nurse educators value student feedback and utilize this information to revise future activities. Students had the opportunity to experience the realism of each clinical patient scenario, increase their understanding of the nursing concepts presented, and implement nursing care, immediately bridging theory with clinical application. Conversely, when students are at the clinical agencies, not all students have the opportunity to care for patients on a mechanical ventilator or with chest tubes, even though all students need the knowledge and skills to work with these patients.

Conclusion

Transforming lecture to a flipped classroom allowed students the opportunity to experience patient scenarios and to provide nursing care they might not be able to experience in the clinical agencies. The goal during the flipped classroom was to get to a deeper understanding of the concepts and allow students to use their knowledge and skills during the implementation phase of classroom activities. In addition, students are always concerned if topics presented in class are going to be on the test.

To promote student success, educators need to make sure there is no disconnect between concepts covered in class, content on the test, and no disconnect with items on the National Council Licensure Examination (NCLEX). Not all students completed the preparation work, which provides the knowledge and comprehension of the nursing concepts, prior to the flipped classroom. Without this knowledge, student nurses found it difficult to complete the application and analysis of the concepts, which is the focus of active learning. "The foundation of flipping the classroom is a student that arrives to class ready for the learning experience." (Bristol, 2014).

Novice student nurses are mostly task oriented. Nurse educators need to ensure the students move beyond knowledge and comprehension to being able to apply and analyze curriculum concepts in a nursing program. This can be accomplished by infusing simulation in a flipped classroom learning environment. A learner centered approach works well, leading to increased clinical reasoning and clinical judgment, and preparing a student nurse to work in a complex health care environment providing safe, confident, and competent patient care. Adding HPS as a teaching strategy has been validated in literature to improve patient safety. When nurse educators work towards changing the traditional classroom it is beneficial for educators, student nurses, and ultimately patients.

References

- Berndt, J. (2014). Patient safety and simulation in prelicensure education: An integrative review. *Teaching and Learning in Nursing Journal*, 9(1), 16-22.
- Bristol, T.J. (2014). Flipping the classroom. *Teaching and Learning in Nursing Journal*, 9(1), 43-46.
- Haskvitz, L. M. & Koop, E. C. (2004). Students struggling in clinical? A new role for the patient simulator. *Journal of Nursing Education*, 43,181-184

- Hayden, J.K., Smiley, R.A., Alexander, M., Kardong-Edgren, S., Jeffries, P.R. (2014). The NCSBN National Simulation Study: A Longitudinal, Randomized, Controlled Study Replacing Clinical Hours with Simulation in Prelicensure Nursing Education. *Journal of Nursing Regulation*, 5 (2). Journal of Nursing Regulation. Retrieved from NCSBN.org December 15, 2014
- Loyola, S. (2010). Evidence Based teaching Guidelines: Transforming Knowledge into Practice for Better Outcomes in Healthcare. *Critical Care Nursing Quarterly*, 33 (1), 19-32.
- Steiner, S.H., Hewett, B.J., Floyd, E., Lewis, N.C., Walker, E.H. (2010) Creating a Learner-centered environment in nursing education: An immersion experience. *Journal of Adult Education*, 39, 11-17
- Wall, P., Andrus, P., Morrison, P. (2014) Bridging the Theory Practice Gap through Clinical Simulations in a Nursing Under-Graduate Degree Program in Australia *International Journal of Learning, Teaching and Educational Research*, 8 (1), 127-135.