Brief Report

The Use of Benner’s Framework in High-fidelity Simulation Faculty Development
The Bay Area Simulation Collaborative Model

K.T. Waxman, DNP, MBA, RN, CNL\textsuperscript{a}, Connie L. Telles, DNP, RNC-OB, CNE\textsuperscript{b}
\textsuperscript{a}California Institute & Healthcare, Bay Area Simulation Collaborative, Berkeley, CA 94710, USA
\textsuperscript{b}Chabot Community College, Hayward, CA 94545, USA

KEYWORDS
simulation;
novice to expert;
training;
Bay Area Simulation Collaborative

Abstract: Simulation is a technique to replicate real patient experiences in an interactive manner without causing potential harm to a patient. The nursing field is rapidly incorporating simulation into curriculum, and nursing educators are receiving training to use high-fidelity simulators. Benner’s novice-to-expert framework can be used in the nursing curriculum to train these instructors. The clinician, faculty member, or educator may be an expert in his or her own specialty but becomes a novice in simulation pedagogy. The Bay Area Simulation Collaborative has recognized this reality and has incorporated Benner’s framework into a regionwide faculty development program for hospitals and schools of nursing.

Cite this article: Waxman, K. T., & Telles, C. (2009, NOVEMBER). The use of Benner’s framework in high-fidelity simulation faculty development: The Bay Area Simulation Collaborative model. Clinical Simulation in Nursing, VOL(5). doi:10.1016/j.ecns.2009.06.001

© 2009 International Nursing Association for Clinical Simulation and Learning. Published by Elsevier Inc. All rights reserved.

Background

Historically the airline and nuclear industries have used real-life simulations to train and respond to potential crises that could have very serious consequences which, fortunately, rarely occur. Learning through high-fidelity simulation has been used by the aeronautics industry, the defense industry, and medical schools for decades, yet it is in its infancy in nursing education (Haskvitz & Koop, 2004).

Hospitals and schools of nursing in the United States are incorporating simulation-based training into their curricula. Clinical simulation for health care has been active in medicine since the mid-1980s and in nursing for only the past 10 years. In contrast, the aviation industry has been using simulation as its primary teaching method for decades, which has provided us with ideas that we can modify for use in the health care industry. Just as pilots need to experience many hours of flying in aircraft simulators before they ever fly a plane on their own, we can utilize this system of simulation learning in clinical practice. Currently, nurses often perform procedures on live patients without having previously practiced the technique. It is not uncommon for nurses to perform a procedure on a patient that they have never done before but have only seen or read about. In specific reference to health care, simulation is an attempt “to replicate some or nearly all of the essential aspects of a clinical situation so that the situation may be more readily understood and managed when it occurs for real in clinical practice” (Morton, 1996, p. 77).
Teaching using simulation methodology requires a new pedagogy that includes active learning and best practices. Students using patient simulation learn by participation, observation, and debriefing. This process stands in contrast to the lecture methodology, which involves passive learning. When a student is actively involved in the learning process, critical thinking skills are enhanced (Billings & Halstead, 2005). Experiential, or active, learning allows students to work as a team, solve problems, and use critical thinking in a safe environment (Jefries, 2007; Rothgeb, 2008).

### Theoretical Framework for the Intervention

Research in simulation is evolving each day as schools and hospitals are beginning to integrate this methodology and experts are developing universal frameworks and models. Doerr and Murray (2008) asked, “How do you create those key components necessary for learning via simulation?” (p. 771). They developed a model known as the simulation learning pyramid, which involves four basic components: The simulator plan, in which goals and objectives are developed; the simulation, when the actual scenario unfolds; the debriefing, when reflection takes place; and transference, when the information learned in the simulation session translates into successful clinical skills. In their model, Doerr and Murray refer to Knowles’s (1984) adult learning principles: (a) Adult learners bring life experience that they expect to be used and respected; (b) adult learners expect to influence how they are educated; and (c) adult learners expect to influence how learning will be evaluated. Furthermore, Doerr and Murray explained that Kolb’s (1995) theory of experiential learning and his proposed four-stage cyclical learning process, concrete experience, reflective observation, abstract conceptualization, and active experimentation, are all applicable to the simulation learning pyramid. Experiential learning is linked directly with simulation and can guarantee a clinical event (concrete experience), reflection (debriefing), conceptualization (reviewing and understanding), and experimentation (learning on the simulator). Simulation provides a strong ground for experiential learning. Lambton (2008) explained that simulation can be guided by pedagogy, which emphasizes role modeling by experts, authentic case studies, self-discovery, analysis by students, and demonstration of the way in which experts “think” through a given patient situation. Her description fits into the simulation learning pyramid design.

### The Bay Area Simulation Collaborative

One example of a structured faculty development plan based on the novice-to-expert framework is the Bay Area Simulation Collaborative (BASC) faculty development plan. The BASC is a group of more than 100 member schools and hospitals, totaling more than 600 faculty and patient simulators (HPS). Simulation trainers may be expert nurses in the clinical setting, yet they may be novices when learning to write and run scenarios using an HPS. These trainers will need support and resources to become skilled at using the software to program an HPS, storyboarding a scenario, and conducting a debriefing session. Reverting to a novice requires a nurse to be dedicated to learning and to possess enough confidence to return to this early stage.

### Theories Used in Simulation

Various theories have been proposed for simulation education. Rogers (2007) has indicated that constructivist learning, adult learning, brain-based learning, cognitive learning, experiential learning, and novice to expert are all theories that have been used in simulation training. Jefries (2005) proposed a Nursing Education Simulation Framework to design and evaluate simulations in nursing education. The components of this framework include the teacher, the student, educational practices, outcomes, and simulation design characteristics.

The Dreyfus and Dreyfus (1980) model of skill acquisition identifies five levels of skill competency that students pass through: novice, competent, proficient, expert, and master. Benner (1984) applied this model to nursing practice and identified the stages as novice, advanced beginner, competent, proficient, and expert. In the novice stage, basic skills are taught, and teaching is task oriented. The advanced beginner still needs to follow lists or directions but begins to ask simplistic questions. The competent stage is characterized by beginning to prioritize actions and an understanding of the impact of measures that contribute to long-term goals for the patient. In the proficiency stage, experience guides decisions, intuition develops, and the nurse begins to anticipate occurrences. Finally, the expert in Benner’s model can easily appraise the situation, make intuitive decisions, and act accordingly. Differentiation among the levels is determined by the nurse’s experience and theoretical knowledge (Waldner & Olson, 2007).

The Benner model is applicable to training faculty members in simulation because they will start at the novice stage when learning how to teach with high-fidelity human

---

**Key Points**

- Simulation is a technique to replicate real patient experiences in an interactive manner.
- Educators that are experts in nursing but novices when teaching with Human Patient Simulators can be successful.
- The Bay Area Simulation Collaborative has incorporated Benner’s Novice to Expert framework into a faculty development program.
hospital educators from both service and academia in the 10 counties of the San Francisco Bay Area. The California Institute for Nursing and Health Care (CINHC), in Berkeley, leads the BASC, which was funded through a grant from the Gordon and Betty Moore Foundation. CINHC was developed to increase educational capacity in schools of nursing, increase diversity in the nursing workforce, and develop leadership. The 3-year BASC project is designed to train and teach nursing faculty and hospital educators in the concepts of simulation. The BASC is also designed to develop clinical simulation scenarios for use among its members. Finally, the project implements a research and evaluation agenda to demonstrate that simulation makes a difference in the critical thinking skills of nursing students.

**Faculty Development Plan**

The faculty development plan was designed by the BASC operating committee and program director. The goal is to train a large number of expert clinicians and nursing faculty in the Bay Area, and the plan is built on the novice-to-expert
model (Figure 1). In this plan, the faculty member in Level 1 training (basic technical skills) is in the novice stage, Level 2 (simulation methodology) is the advanced beginner stage, Level 3 (apprenticeship) is the competence stage, and Level 4 (train the trainer) is the proficient and expert stage. Ultimately, a train-the-trainer model will allow the BASC to have its own qualified instructors to teach others.

Level 1 and Level 2

The plan begins at the novice level of simulation so that trainees will all acquire the same basic knowledge of simulation concepts and a common set of terms. This taxonomy includes definitions of simulation adopted from the Society for Simulation in Healthcare (n.d.), fidelity, scenarios, criteria, and more. The operating committee felt that creating a common language was important to the success of the program. This 2-day curriculum is an amalgam of content from Laerdal (one of the primary simulator manufacturers) and BASC faculty.

The second level, intermediate training (Level 2), is designed for those who have completed Level 1 training and want more education in simulation. This 2-day foundations class reviews simulation concepts and allows the student to participate in writing scenarios, running simulations, and debriefing a simulation and includes basic technological training on the simulator. The curriculum was provided and taught by SimHealth Consultants from Oregon, who were engaged by the BASC to teach these classes. The BASC has since licensed the curriculum for its specific region and will train local instructors to teach the class.

Level 3

As the literature reflects, competency is achieved after 2 to 3 years (Benner, 1984; Dreyfus & Dreyfus, 1980), and the BASC Level 3 component of the faculty development plan contains multiple classes to help faculty achieve competency. Level 3 training includes specialized training such as debriefing, moulage, and advanced technical skills, as well as the BASC apprentice program. The apprentice program, which was licensed from SimHealth Consultants, is a 72-hour full-immersion program designed to train faculty at the advanced beginner level in the skills they need to be able to teach students. These faculty are mentored by an expert in a BASC-approved simulation center; the ultimate goal of this stage is for the faculty members to become competent and move toward becoming experts. These graduates will become the trainers of tomorrow.

Level 4

Finally, Level 4 solidifies the trainers through a competency program, experience, willingness to serve, and commitment to teaching in simulation. To date, six apprentices have completed the program, and these graduates will be trained as Level 1 and level 2 instructors. They have been trained as Level 2 instructors. The result is a group of qualified, BASC-trained instructors who will serve the ongoing training needs of the Bay Area and surrounding areas.

The Scenario Development Process

The Benner model can also be used when developing scenarios as their complexity should match the learning level of the student. Novice students may start with very basic scenarios that include communication with a patient or performing a task such as taking a blood pressure. This training can be accomplished with a low-fidelity manikin or task trainer (Jeffries, 2007). In comparison, a student near graduation will need a full-scale simulation with a higher level of fidelity and a more complex scenario and environment. This scenario may include four patient manikins experiencing various complications and may introduce outcomes relating to leadership, communication, and delegation skills. All levels should include decision-making, problem-solving, and communication skills (Seropian, Brown, Gavilanes, & Driggers, 2004).

More than 40 scenarios have been written by academic and service partners, and 10 more are in progress. The process for this task includes writing the scenarios on the BASC-approved template, validating the scenario through a peer review process, and testing the scenario with actual students or staff. Once tested, these scenarios are available to the members of the BASC.

Results

To date more than 400 clinical educators and nursing faculty have been trained in the San Francisco Bay Area. More than 200 have been trained at the basic level (Level 1), more than 100 at the intermediate level (Level 2), more than 100 in debriefing, and six have completed the apprentice program and have demonstrated competency in being a simulation instructor. As for Level 4, there are currently 10 instructors that are trainers. As a result of the success of the BASC, the work is being leveraged to create a Southern California Simulation Collaborative and will include replication of the faculty development plan.

Summary

The BASC is one of the few urban academic—service collaboratives in the country, and its faculty development plan was needed to address both service and academia. The Bay Area had other academia—service partnerships in place, such as the centralized clinical placement system and the centralized faculty resource center. The group members felt that not only did they want to be trained...
together but that they also wanted to write scenarios together in order to serve both academia (students) and service (staff). Development of a solid, comprehensive curriculum allows the program to be replicated in other areas of the state. The common language, standards, and consistency of the curriculum will allow the BASC to develop a critical mass of simulation users that share the same goals and philosophy regarding simulation education. Faculty development is critical to the success of any simulation program, and having qualified instructors to run the simulations is more important than purchasing expensive equipment. The ultimate goal of the BASC is to foster competency in the pedagogy of simulation in order to enable educators in the Bay Area to deliver quality education to students and staff in the region.

References


