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Featured Article

Expect the Unexpected: Simulation Games as a Teaching Strategy

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KEYWORDS

gaming and simulation;
nursing students;
teaching strategy;
preparation for clinical;
decreasing fears;
patient safety;
environment of care;
constructivist theory

Abstract

Background: The clinical environment is intimidating for novice nurses. Educational games promote learning and enhance collaboration among nursing students. This pilot teaching strategy consisting of three simulation games was implemented in the first and fourth semester of an undergraduate baccalaureate nursing program. Traditionally, students learn in relatively stable environments such as laboratory settings. However, students' clinical experiences may include patients with high acutities and complex health issues. Nursing students express fear regarding attending clinical experiences.

Methods: These gamified simulation scenarios were designed to have students experience the unexpected, to face their fears in a controlled environment. This unique design combined game elements with a simulation experience. Students' assessment was based on their knowledge of patient safety and the environment of care as reflected in our program outcomes based on Quality and Safety Education for Nurses competencies. The aim of this project, gamified simulations, was designed as an innovative teaching strategy to engage students and encourage reflective self-assessment of skills.

Results: One hundred percent of the participants expressed that the learning experience was beneficial, engaging, and decreased their fears of the unexpected. All students expressed increased readiness for the clinical setting based on this experience.

Conclusions: The gamification of patient safety simulation scenarios was found to be a creative innovation to increase student enthusiasm for learning and self-reflection. Developing gamified simulations provides faculty with a more complex picture of students' abilities.

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Background

Simulation technology focuses on the learning needs of the students. Simulation-based games used in nursing education have been known to reduce stress, increase engagement, and

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improve knowledge retention (Popil & Dillard-Thompson, 2015). Blakely, Skirton, Cooper, Allum, and Nelmes (2010) suggest benefits of using gaming in education include enhancement of student learning, enjoyment and interest, and interaction among students.

Key Points

- Gaming simulation helps students identify their own strengths and weaknesses.
- Gaming simulations stimulate students' enthusiasm and motivation to learn.
- Games have outcomes and feedback that enhance knowledge self-awareness.

Jefferies (2012) supports using simulations to involve students in clinical situations they may not see or be allowed to participate in with actual patients such as resuscitation. These games were developed based on this premise. Billings and Halstead (2014) describe the advantages of games in nursing education as increasing cognitive and affective learning, are fun/exciting, motivate adult learners to take responsibility for their own learning, and can connect practice experiences to theory.

These simulation games were also designed based on the constructivist learning theory. Assumptions of the theory include focus on experiences, interactions, and reflections; the learner constructs knowledge in an attempt to understand his or her experiences and seeks significance (Billings and Halstead, 2014; Dewey, 1938; Piaget, 1973; Vygotsky, 1978). Billings states, "In the constructivist paradigm, knowledge representation is open to change as new knowledge structures are added to the existing foundation structures and connection" (p. 242). Learners become active constructors of their own conceptual understanding (Vygotsky, 1978).

Educational games promote learning and enhance collaboration among students. Simulation games keep learning active and student centered in a safe environment. Common characteristics used to describe today's students are confident, team oriented, and highly achieving (Strauss, Howe & Markiewicz, 2006). They develop critical thinking through experimentation and active participation (Black, 2010). Modern learners are familiar with game-like, interactive, and engaging materials that often have an appealing look and feel (Roberts, Newman, & Schwartzstein, 2012). Nursing students have difficulty combining critical thinking, traditional theoretical foundations, and complex motor skills. Although current students may not spend time reviewing books, many of them are curious, motivated to learn, and are interested in seeking novel answers to difficult questions (Roberts et al., 2012).

Learning traditionally involves three separate processes: (a) instruction, (b) practice, and (c) assessment. When students participate in a game, the three processes occur concurrently allowing the student to work in more natural conditions (Siegle, 2015).

Students have a sense of inquiry and ask questions. Frequently, the question is: "What do I do if this (blank) happens?" Nursing students prefer a concrete answer from faculty. Students fail to recognize that each situation is different and will require clinical judgment and critical thinking. Students must be prepared to "expect the unexpected" or anticipate potential changes in a patient's condition. Benner (2000), describes the Domain of "Effective Management of Rapidly Changing Situations" as a challenge for nurses with a need for competency, concluding, "Nurses must be able to manage as well as prevent crisis" (p. 109-119). These simulation games were developed to help students understand how they will handle unexpected situations. Using simulation gives them an opportunity to self-reflect and identify how they apply their knowledge and what improvement may be necessary. In this sense, simulation gaming can be viewed as a teaching strategy to promote problem solving and decrease the fear of "what if this happens."

Today's students have been playing games from early childhood and continue to play computer games, spend time surfing the Internet, watching videos, and playing games on their smart phones. Siegle (2015) describes key principles for gaming. Games played in the academic environment are more likely to be enjoyed by students when the stakes are not too high, teams are recognized, all students have an opportunity to win, there are no consequences related to scores, and games target essential academic content.

Gaming promotes challenges for students and stimulates adult learning. It is an active process that provides an atmosphere of enjoyable learning, friendly competition, sparks interest, and motivates students to obtain knowledge (Henry, 1997; Royse & Newton, 2007). Debriefing after the simulation uses elements of formative and summative feedback including performance, development of self-assessment, and dialog between faculty and students focused around learning (Jefferies, 2012).

The aim of this project was to have students engage in a fun simulation game atmosphere to decrease their fears about unexpected patient events. One important aspect of the learning principles of Gee (2003) is that learners can take risks in a space where real-world consequences are lowered. The novel aspect of this project was combining simulation with game-like elements. Deterding, Dixon, Khaled, and Nacke (2011) define "situating gamification" as the use, the design, the elements, and the characteristics of games in nongame contexts. This "situating gamification" influenced the design of this project's scenarios (Table). The design intent was to encompass characteristics of a game (teams, scoring points, prizes, and competition) with a focus on applying knowledge rather than just for playfulness. The activities of the game and the simulation were linked, so learners took action within the scenario. The linkage was envisioned as using patient safety components of the scenario to obtain points in the game. Kapp,

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