

Kaizen: An Innovative Team Learning Experience for First-Semester Nursing Students

Using elements of game design in nongame environments can increase game players' motivation and learning retention (Deterding, Dixon, Khaled, & Nacke, 2011). Games may not only be fun for nursing students, but they may improve student learning of fundamental nursing content and promote teamwork and communication. Practice answering NCLEX-style questions may also enhance the retention of new knowledge among nursing students (Poorman, Mastorovich, Molcan, & Webb, 2009).

The game *Kaizen*, a term meaning continuous learning, was developed in by James Willig, MD as a way to supplement learning for medical residents (Nevin et al., 2014). The Kaizen software delivers questions online in a game format, generating competition among participants. Immediate feedback, including a rationale for the correct answer, encourages individual and team participation.

Nursing faculty began adapting the Kaizen game for incoming undergraduate nursing students in a baccalaureate nursing program beginning in the fall of 2015. First-semester nursing students were assigned to Kaizen teams in clinical groups of eight. Course faculty used fundamental nursing terms and concepts to assign team names such as Trendelenburgs, Fowlers, Sims, Binders, and Korotkoffs. They then constructed knowledge and application questions in an NCLEX format, with rationales directing students to other resources for further study.

During the course orientation, faculty explained the game and invited the 135 students enrolled in the course to participate throughout the semester. They announced that the winners would receive

an exclusive invitation to a fun-with-faculty party at the end of the semester. Participation in the game was voluntary and of the 135 students enrolled, 94 participated in the game. Kaizen questions aligned with course content were scheduled and posted weekly. Participation, team scores, and individual scores were tracked and tallied in real time.

Badges designed by a nursing instructor and an instructional designer were awarded as players rose in rank, providing positive reinforcement. Players received hot streak badges when they answered a predefined number of questions correctly in a row. They earned marathon badges simply for attempting to answer questions within 24 hours of their publication. Some of their favorite badges were those associated with nursing content, including the first badge, which featured a urinal and congratulated players by proclaiming "Urine the game!" Other popular badges praised students for "moving forward like wheels on an unlocked wheelchair" and proclaimed that playing Kaizen was "infectious like poor hand hygiene." Leaderboards showed each team's progress, encouraging teams to compete against each other to win rounds. Players could also send messages to each other within the game to encourage their teammates to participate.

The Kaizen game could be accessed from the participant's smart phone, tablet, or computer using a password-protected link. Once participants logged in, they could change their user names to remain anonymous. Some of the most innovative aliases included Florence Nightingale, Sue Demonas, Khan Jested, and Don Gloves.

Students reported that playing the game helped them study for tests. They also expressed to faculty that they were

motivated by peer pressure, liked the team competition, and bonded with their teams. Faculty were also enthused about the team competition, and their engagement resulted in greater student participation and increased interest in adding Kaizen to other courses. During summer 2016, three undergraduate nursing courses and five graduate courses used Kaizen. The authors are currently investigating both the quantitative and qualitative outcomes related to student perception and performance.

References

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