Undergraduate Nursing Team-Building During a CyberCANOE® Heart and Lung Sounds Race

As opposed to classical, passive learning strategies, such as classroom lectures, appropriately implemented collaborative learning strategies provide opportunities for nursing students to actively work together to gain clinical knowledge and skills that require critical thought and effective interpersonal communication and teamwork (Zhang & Cui, 2018). Collaborative learning activities give students valuable experience because, in general, nursing care with active participation in collaboration with care teams is a strong focus for current popular patient safety initiatives including TeamSTEPPS®, Situation–Background–Assessment–Recommendation communications, and American Heart Association resuscitation trainings. Competitive gaming in nursing education may enhance class engagement, learning motivation, and self-confidence for students. Kinder and Kurz (2018) described four systematic reviews that all found that gaming “has a positive impact on the learning environment” (p. 213).

To supplement a first semester undergraduate nursing fundamentals course, an extra credit team activity was offered. Students were invited to attend a 90-minute extracurricular event. The event was titled “CyberCANOE® Heart and Lung Sounds Race.” CyberCANOE uses proprietary software for a cyber-enabled Collaboration, Analysis, Navigation, and Observation Environment (Cristobal, Pelayo, Van Hoose, & Chi, 2018) with an interactive shared computer wall screen, with which students may actively add, edit, and move files and digital objects on the shared screen with other students who have also logged in online.

After teams of three to four students (n = 17) were created, students were oriented to the competition parameters, and to the CyberCANOE shared computer screen system. Then a brief faculty-led 20-minute class discussion and review of lung and heart sounds with audio/visuals followed. The heart lung–team race, which came after this presentation, was used as the test of the students’ retention of the presentation.

At the start of the competition, students heard five different Littmann Library heart sounds recordings (http://www.3m.com/healthcare/littmann/) followed by five different Medical Training and Simulation LLC lung sounds recordings (https://www.practicalclinicalskills.com/). Students were required to post their answer on the wall-sized shared screen under their team name. A running score sheet was visible to all people in the room. A team of three additional nursing faculty judged which one of the student teams had been the first team to correctly identify the heart and lung sounds.

Heart and lung sounds learning objectives included identifying and recognizing: (a) major anatomical landmarks in relation to auscultation assessment, (b) preferred stethoscope placements, (c) normal versus abnormal rates, rhythms, gallops, murmurs, and (d) types of abnormal sounds for crackles, wheezes, stridor, and rubs.

Students conferred within their small groups when the recordings were played during the actual race, with most teams needing 2 to 3 minutes to post their answer on the shared screen. There were two instances of ties, when two or three teams were all awarded a winning point. Each member in the first place and second place teams won a gift-wrapped USB flash drive.

Learning activity SurveyMonkey® evaluations were completed by 11 of the 17 students (65%), ranging in ages 20 to 50 years. The eight students responding to the learning section of the survey affirmed that they had learned something new about heart sounds. Comments included that the students “had more confidence in identifying abnormal heart sounds” and had learned “how to critically think of what is going on.” Overall, learning was affirmed.

Several students described a variety of positive teamwork experiences, for example: “It was a fun and friendly type of competition that allowed us to also improve our identification of abnormal heart and lung sounds.”

In summary, the students’ evaluations provided an enthusiastic response to this teaching–learning modality. The methodology enhanced complex clinical nursing skill learning while simultaneously developing team building and group processing skills.

References