ABSTRACT

Background: Engaging nursing students in theoretical courses, such as research, can be challenging. Innovative instructional strategies are essential to engage nursing students in theoretical nursing courses. Method: This article describes an educational innovation using technology as a tool in an undergraduate nursing research class. All students in the course received iPads for the semester. Lecture material was presented in class using Nearpod, an interactive presentation embedded with slides, multimedia components, and learning activities. Result: Students reported that using the mobile technology helped them minimize off-task activities, interact more with each other and the instructor, solve problems in the class, and develop skills and confidence related to their career. Conclusion: Allowing device use in the classroom, such as iPads and interactive mobile applications, can be a useful learning tool. Intentional use of technology and pedagogy can increase engagement and interaction with students. [J Nurs Educ. 2018;57(3):170-173.]

Baccalaureate education for nurses consists of a blend of theoretical and practical learning experiences that allows nursing students to develop and refine knowledge to efficiently make critical decisions while grasping the full essence of a clinical situation (Benner, Sutphen, & Leonard, 2010). Theoretical course learning empowers nursing students to think critically while recognizing a connection between the standard situations presented in the classroom and the constantly changing reality of actual patient care (American Association of Colleges of Nursing, 2008). Despite the clear importance of theoretical course work, students often misunderstand its relevance and become disinterested in such courses (Halcomb & Peters, 2009). Many students prefer courses that focus on anatomy, physiology, and clinical skills, thus making them likely to question the reasoning behind a theoretical course that does not fall into these categories (Ax & Kincade, 2001). It is well documented that students view a research and evidence-based practice course as irrelevant for their nursing practice (Christie, Hamill, & Power, 2012; Lechasseur, Lazure, & Guilbert, 2011; Mattila & Eriksson, 2007; Meeker, Jones, & Flanagan, 2008; Niven, Roy, Schaefer, Gasquoine, & Ward, 2013; Schoenfelder, 2007). This lack of interest and motivation can make it challenging for faculty to engage students and cultivate a stimulating learning environment (Kohtz, 2011).

The importance of student engagement in education is widely accepted, with substantial evidence supporting student engagement in the form of active and collaborative learning strategies. The use of active learning strategies to engage students has shown to positively influence college students’ problem solving and critical thinking skills, as well as encourage persistence in their studies (Braxton, Milem, & Sullivan, 2000; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2007). Despite the clear importance of engaging students with active and collaborative learning, engaging nursing students has been shown to be difficult in general. Popkness and McDaniel (2011) indicated that undergraduate nursing students demonstrate less active and collaborative learning and spend significantly less time in activities such as contributing to class discussions, working with other students in and out of class, making presentations, and tutoring others, compared with students in other majors.

The use of handheld, mobile, and wireless devices for educational purposes has significantly expanded, creating innovative possibilities for student learning and leading to new opportunities and challenges in pedagogy. Mobile learning is unique be-
cause it can support more personalized and contextual learning and will facilitate an array of teaching methods (Traxler, 2007). Although technology use is intended to enhance learning in the classroom, unstructured use of technology can potentially encourage off-task activities, such as checking e-mail or Facebook® during class (Kay & Lauricella, 2011). Prior research on student multitasking shows that switching between tasks in class affects academic achievement, as it overloads students’ ability to process information and engage in deeper learning (Junco, 2012). However, when used correctly, in a structured and controlled manner, mobile device use in education has the potential to promote student engagement in the form of active and collaborative learning (Chen, Lambert, & Guidry, 2010; Diemer, Fernandez, & Streepey, 2012). A study by Mango (2015) found that using iPads® in class made learning more enjoyable to students. In addition, students believed that the iPads helped them learn better and facilitated participation and collaboration in class. Rossing, Miller, Cecil, and Stamper (2012) found that iPad use is positively correlated with improved academic performance; iPad usage engages students in learning activities, promotes a collaborative learning environment, and allows students to interact with a greater range of content. Integrating mobile technology into instruction also creates possibilities for implementing learning activities that engage students’ various learning styles (Rossing et al., 2012).

A variety of mobile applications that go beyond the scope of the traditional voting handsets or PowerPoint® presentations is now available. Nearpod (http://www.nearpod.com) is an example of an Internet-based application that allows educators to design an interactive presentation embedded with learning activities (poll questions, videos, slides, and quizzes), while at the same time, preventing off-task media distractions during class. Nearpod creates a secure sharing environment for synchronized learning among mobile devices in a classroom (Delacruz, 2014). In a study examining Nearpod use in science, technology, engineering, and mathematics courses, most students found Nearpod promoted student engagement, improved understanding of course materials, and enhanced student discussion and interactivity during class (McClean & Crowe, 2017). In addition, Diliberto-Macaluso and Hughes (2016) found that the use of mobile applications in a psychology course was enjoyable to students, enhanced student learning, and significantly increased academic performance. Despite the interactivity and increasing popularity of mobile devices, research on the potential benefits of mobile applications as pedagogical tools in nursing education is largely understudied. Therefore, the purpose of this article is to describe the use of an innovative teaching strategy using mobile devices in an undergraduate nursing research course.

Theoretical Framework

Kearsley’s and Shneiderman’s (1998) framework for technology-based teaching and learning describes the role of technology in supporting students’ engagement in learning activities through interaction with others and worthwhile tasks. The theoretical framework emphasizes three components of learning activities: relate, create, and donate. The relate component occurs in a group context and emphasizes team collaboration. This encourages students to clarify and discuss their problems and create solutions together, as well as increases motivation to learn and facilitates understanding from multiple perspectives. The create component is project-based and emphasizes making learning a creative and purposeful experience, giving students a sense of ownership over their learning. Finally, the donate component emphasizes the value of making a useful contribution to an outside area of the community, which increases student motivation and satisfaction in their learning (Kearsley & Shneiderman, 1998).

The Innovation

The instructor was a part of the learning scholar program through the university’s instructional design and educational assessment shop that uses a cohort model to engage faculty across disciplines to learn about a variety of mobile technologies and discuss ideas and pedagogical approaches to teaching with mobile devices. At the beginning of the semester, the instructional design and educational assessment shop provided iPads to all students (n = 58) enrolled in the nursing research class. The class met once per week for 3 hours, and students were expected to complete the readings and preclass activities prior to class. Nearpod was used to present lecture content to the class; the remainder of the time was spent working on assignments and group projects. To prepare the lecture, the instructor can upload material from previous PowerPoint presentations, create new material in Nearpod using slides (e.g., JPEG files, PowerPoint, Adobe®), and add in multimedia components and active learning activities. Active learning activities are interspersed with every three to four slides of content to utilize the potential active and collaborative benefits of the interactive application. The most common learning activities used included open-ended questions with the think–pair–share technique to encourage student collaboration, polling, quizzes, and draw it. All student responses are received on the instructor’s iPad and can be shared anonymously with the class to engage further discussion. When presenting a lesson to the class, students use a code to sign in and the instructor can see students as they enter and leave the lesson. Students are not able to open any additional programs or websites other than those embedded in the presentation. The instructor’s mobile device is used to advance the slides allowing freedom for the instructor to move around the classroom.

Outcomes and Lessons Learned

During the implementation of this educational innovation, students were invited to provide feedback through an online questionnaire to examine whether the use of technology affected interaction and engagement. Many students (72%) either agreed or strongly agreed that using Nearpod increased overall engagement during class discussion. In addition, students thought it helped them to participate in activities that enhanced learning (89.7%), develop skills applicable to their career (89.7%), connect ideas in a new way (77.6%), apply course content to solve problems (82.8%), and increase confidence in the participant (70.7%). Several students’ comments supported the idea that using Nearpod encouraged interaction between students and the professor, enhanced student engagement during lecture, and limited distraction from off-task activities. They commented:

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• Things are more interactive in class, as far as the Nearpod, and that made it more interesting so that I was not going to lose focus and definitely pay attention more.
• I do like the fact that when she [the professor] used Nearpod, it took control of your device so you [could not] be off searching Facebook or surfing the web.
• It kept me awake during class. And I liked how she [the professor] would ask questions and you were able to answer right away and the results came up…. It encouraged interaction among classmates.
• [What stood out with Nearpod] was to be able to interact with the professor.

In addition, several students indicated that they wished that Nearpod and other applications could be used even more in the course and in other courses as well to improve engagement, commenting:
• I liked the way that Nearpod worked. So maybe incorporate other apps, not just Nearpod.
• She [the professor] was able to send out questions onto our tablets and we could all answer them at the same time. I think you are more engaged when you have the questions in front of your tablet. And I think it could be used for other classes too, I thought that was really cool.

Other students’ comments reflected the advantages of using the iPads for group projects, with emphasis on portability and convenience, easy access to information, and easy means of sharing and working on documents together:
• Using the iPads was really helpful for the group work because we could all have our iPads and be working in Google Docs in the Google Drive.
• I felt like we were always using our iPads to do the group project… just because it’s really easy to search things. You can use the Google Drive, we were able to work on documents with each other.
• If we had the tablets, we were all able to all be working on the group project, instead of one person that remembered to bring their computer…. It made it so that everybody contributed.

Drawbacks that were reported by students centered on unfamiliarity with the technology. They stated:
• Some people really like it, but I’m kind of old school.
• Hard to be able to click and type on a tablet. And, so I know a lot of us, we would bring both our tablets and our laptops, so we could be able to work better.
• Not knowing how to use the thing in the first place. And [still] kind of getting used to it, trying to figure out what we could and [could not] do.

Discussion
The addition of new technology presented a few challenges and lessons learned. There can be a steep learning curve for educators, and it is important to determine the available resources to support this innovation. Nearpod provides excellent training and resources for educators. In addition, peer support is invaluable in discussing ideas and troubleshooting problems. Technological support is extremely important for persistent issues. However, students assisted each other for simple issues such as logging in, downloading applications, and so forth. The instructor must be mindful when choosing applications, as some are compatible only with certain platforms and some students may have access to laptops only. For example, although iPads were used, Nearpod is multiplatform and is compatible with any mobile device and PC or Mac. Larger classes (> 30 students) require a yearly subscription. However, to overcome this, students were paired for the Nearpod learning activities. Using the think–pair–share strategy with Nearpod encourages students to develop higher level thinking, oral communication skills, leadership skills (Cornell University, 2012), and overall critical thinking skills (Kaddoura, 2013). As technology continues to emerge and change, it is crucial for educators to assume a creative and critical approach to implementation. It is important to consider pedagogy before technology and to view technology as a supplemental tool to enhance effective teaching strategies.

Conclusion
Although technology can be a distraction, it can also be used as a tool to increase engagement and interaction in theoretical courses where hands-on learning is not as prominent as in clinical nursing courses. The use of iPads and Nearpod in this theoretical nursing research course was a positive experience. Specific applications and technologies geared toward education can support student engagement by (a) promoting interaction in the context of collaborative activities, (b) promoting purposeful project-oriented learning, and (c) limiting off-task activities. When nurse educators use technology intentionally, along with good pedagogical design, they can create an environment for students to be more engaged and open to learning challenging theoretical ideas.

References


