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Using Technology Immersion to Promote Student Engagement

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***Abstract*—** This article describes the transformation a graduate nursing education course using new teaching strategies aimed at student engagement. These technology based initiatives include the use of e-portfolios, Prezi presentations, a digital conceptual framework poster, a group paper, and a group video. Formative and summative course evaluations indicated students found the new learning techniques to be beneficial and enjoyable. Rogers Theory of Diffusion of Innovation frames the use of the new technology. By sharing and embracing new approaches to teaching based on technology, nurse educators can engage their students while enhancing their skills as future educators.

Keywords- *innovation, technology, nursing education, group process*

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I. INTRODUCTION

The use of technology in the classroom is not a bonus, it is essential for engagement of the modern student. For the teacher of future teachers, technology has two foci. Technology must aide the future teacher as learner and the future teacher as teacher. In this paper, the future teacher as learner is the target. However, the skills learned in the future teacher as learner role are also available to enhance the skills of the future teacher.

In a graduate nursing course, faculty revised and updated curriculum to include active learning strategies aimed at improving student engagement. An additional goal was to give the nursing education students an opportunity to learn about adult learning principles using new technological strategies. Students were asked to describe their experience with new technology as an educational strategy at the end of the semester.

The theoretical framework for this study was based on Roger's theory of Diffusion of Innovations (DOI). Everett Roger's Diffusion of Innovations (DOI) theory was first introduced to the social sciences in 1962 and contains five stages of change known as knowledge, persuasion, decision, implementation, and confirmation that can be incorporated at the individual, team, or organizational levels (1; 2). Roger's DOI theory provided a strong theoretical framework for this study by guiding the process of teaching new technologies to graduate nursing education students while reducing their resistance to change.

II. METHOD

This study utilized evaluation research as the study design. Evaluation research emerged from the social sciences with the primary purpose to "inform and guide practical action" based on effectiveness (3). The Participant –Oriented Model implemented as the underlying methodology by placing the students as the primary stakeholders (4). This summative evaluation placed an emphasis on course outcomes and more specifically addressed the students' ability to integrate current nursing education strategies into practice.

A. Data Collection

All students who completed the course were invited to participate in the survey for a convenience sample of 14/18 participants. The survey was conducted anonymously with no identifiers using an online course survey in a learning management system. Approval to conduct the evaluation study was obtained through the university IRB. Students were asked to rate each of the technologies used as a valuable learning experience, including e-portfolios, prezi presentations, a digital conceptual framework poster, a group paper using problem based learning, and a group video with animoto on a Likert scale using options, not applicable, strongly disagree, disagree, neither agree or disagree, agree, or strongly agree. Essay questions were included to allow the students to make general comments about their experiences in the course.

B. Data Analysis

The survey contained seven questions based on a 6-point Likert scale and open-ended essay questions. Based on

the survey results, the majority of students rated each assignment that incorporated new technology as high. The eportfolio assignment had the highest rating at 86% Strongly Agree and 14% Agree. The group video on adult learning had the second highest rate at 64% Strongly Agree and 36% Agree. The electronic poster demonstrating a conceptual framework had the lowest rating at 57% Strongly Agree, 29% Agree, 7% Neither Agree or Disagree and 7% Disagree. Other assignments that were in the median range included a small learning group theory paper, a prezi presentation on regulatory agencies, a reflective journal, and a course critique.

III. THEMES

The open-ended, essay style questions were coded as a means of organizing and analyzing the data. As concepts and ideas became more refined, they were coded into five different themes which were then collapsed into three final themes. The themes that emerged are: Groups and Active Learning, Technology, and Fun and Beneficial.

A. Groups and Active Learning

It was surprising that group work was so beneficial and enjoyable for the students. Reasons for positive experiences included: activities encouraged active learning, the group members worked well together, the information was relevant to the students' future career, connections were made as an adult learner, students learned about adult learning by utilizing adult learning techniques, and the group work was similar to the workplace. One student mentioned her learning as, "The group projects and individual assignments got me thinking deeply and helped me understand the course content. Usually I am not a fan of group projects, but these were fun!"

Faculty did recognize one negative case involving groups when members did not respond in time to meet the criteria for the project. This student said, "The group I was in had one person drop the course 2 days before the assignment was due and the one other member of the group was not responding until the day the assignment was due. This was very frustrating and a hard start to the class. I agree that group work is useful, but the way this worked out, it made for a very difficult first week."

B. Technology

Students recognized the value of using a variety of technology as an educational strategy and being exposed to various technological tools. The students realized they did not have to be an expert to use and understand a new method as demonstrated by this statement, "I can't say that I am proficient at the use of Prezi, Web-site, or video; nonetheless, I have had exposure and know more than I did before."

C. Fun and Beneficial

The creative technology programs used made learning fun and enjoyable. Two statements illustrate the student's experiences, "I learned a lot in this class and had fun doing it!" and "This course was enjoyable which added to the benefit even more." Students expressed gratitude that the faculty kept learning fun in the course and assignments.

IV. DISCUSSION

Stage 1 of Rogers' framework, knowledge, occurs when a person is introduced to the innovation and gains some understanding (1). The students were introduced to learning and using new technology on the first day of class. Explicit instructions on how to use the technology was provided in a video produced by the faculty and in the assignment portal.

Stage 2, persuasion, occurs when a change agent presents the change in a favorable light (1). In this case, two nurse educators who were teaching the course promoted the idea of learning new technology through excitement and reinforcement. Students in the class initially expressed anxiety and frustration at the thought of learning new technology in addition to the course concepts. The faculty anticipated student resistance and found a brief you tube video that illustrated Problem Based Learning the students would use in their first assignment.

Stage 3, decision, is when the idea or innovation is either adopted or rejected (1). As students began to experience success in learning the technology in a safe environment, they became more receptive to the innovations. The students continued to have questions about the process but their attitude seemed to have changed from being overwhelmed to one of excitement about learning more.

Stage 4, implementation, involves putting the change in place and can lead to reinvention or alterations of the original innovation (1). Reinvention and alteration of the original change occurred when the students began to become proficient at the technology introduced in class and in turn, shared new technologies they had discovered outside of class.

The final stage of Rogers' framework is confirmation. Confirmation occurs when the change is reinforced or the decision to accept it is reversed (1). The nurse educators teaching the course provided encouraging feedback to the students regarding their use of the new technology. Some students shared with the faculty their own

experiences utilizing new technology in the classes they were teaching.

V. SUMMARY

Implementing changes in nursing curriculum and education continues to be a challenging process that can be met with resistance and uncertainty. Educators are responsible for using appropriate technology strategies based on theory for effective teaching and learning (5; 6). Providing a course that implements new technology based on adult learning theory incorporates students' life experiences while providing rationales for learning and outcomes. How nurse educators embrace and share technology can mitigate barriers and open doors for successful collaboration. This innovative teaching method will work for other colleges of nursing by creating a model or a way to incorporate multiple new teaching techniques focused on engaging students in active learning strategies.

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