

**Subcommittee Academic Technology Grant
Final Report – June 2009**

Project Category: Personal Teaching Improvement

Project Title: Innovative Approaches for Success with Millennial Learners and the Google Generation: Using Personal Response System Technology to Enhance Student Nurse Learning in Large Size Classrooms

Dr. Susan M. Hunter Revell, RN
Dr. Mary K. McCurry, RNC, ANP, ACNP

Assistant Professors
Department of Adult and Child Nursing
University of Massachusetts Dartmouth
285 Old Westport Road
North Dartmouth, MA 02747

Original Objectives and Strategies

The goal of this project was to use PRS technology as an innovative strategy to enhance student nurse learning in Millennial and Google Generation learners in the large classroom. Our objectives were to:

1. Increase active student participation
2. Obtain instantaneous student evaluative feedback
3. Increase student opportunity for clarification and linking of key concepts
4. Increase active engagement of every student
5. Use instantaneous evaluative feedback for content reinforcement
6. Evaluate student comprehension through integrated testing
7. Determine efficacy of PRS technology with student nurses
8. Evaluate ease of use of selected PRS system
9. Provide pilot study data for future implementation within the undergraduate nursing program

Activities Carried Out

In the summer 2008, the project received an exempt status from the Institutional Review Board of the Office of Research Administration at the University of Massachusetts Dartmouth. The co-principal investigators (co-PIs) reviewed several operating systems (eInstruction, iclicker, Turning Point). After careful consideration, eInstruction was selected because it provided the most flexibility in designing polling, multiple choice, true-false, short answer, multiple response, and multiple response with prioritization of items type questions (eInstruction, 2008). The campus bookstore ordered the PRS equipment and the co-PIs piloted the use of the technology to assure system performance in assigned classrooms. Didactic materials with embedded evaluative questions for two undergraduate nursing courses, NUR 214: Scholarly Inquiry and NUR 326: Care of the Adult with Acute and Chronic Illness were then developed. The co-PIs

researched case studies for use with the technology and created quantitative and qualitative evaluation tools.

In the fall of 2008, PRS technology was integrated into two nursing courses, nursing research (n = 33) and junior medical-surgical nursing (n = 116). Students completed a 14-item evaluation tool designed to collect demographic data and students' perceptions of the effectiveness of PRS technology. The demographic data collected included gender, age, years of experience with technology; nursing course currently enrolled using PRS, and previous use with PRS. Students' perceptions were collected by asking level of agreement statements about PRS using a six-point Likert scale. Students in the nursing research course answered an additional item evaluating effectiveness of reading quizzes. Data were analyzed using SPSS version 17. Faculty provided evaluation data at an end of course meeting. The co-PIs analyzed the effectiveness of PRS technology in increasing class participation, identifying concepts that required reinforcement, and integrating testing for student comprehension. In the early spring 2009, quantitative and qualitative evaluation data was analyzed and summarized.

Deliverables

The co-PIs developed lecture content that included multiple choice, true-false, fill in the blank, multiple response, and chart-exhibit response questions within didactic Power Point presentations. The questions were focused on content review, case studies, and reading quizzes. A course evaluation tool determined effectiveness of the integration of PRS technology in a large and smaller-sized undergraduate nursing class. Student respondents suggested the inclusion of PRS in a variety of nursing courses from freshman to senior year. This study supports the integration of PRS technology across undergraduate nursing curriculums.

The co-PIs presented an oral paper to the Interdepartmental Seminar Series in the College of Nursing, UMass Dartmouth in February, 2009 to share their study findings and facilitate and encourage integration of PRS technology into other nursing courses with the college of nursing. Additionally, the co-PIs wrote, submitted, and had a manuscript accepted in April 2009 by the Journal of Nursing Education titled, "Engaging Millennial Learners: Effectiveness of Personal Response System Technology with Nursing Students in Small and Large Classrooms."

Assessment

Data was successfully collected from 140 undergraduate nursing students in two didactic courses. Students and faculty perceived PRS technology to be effective in engaging students, fostering critical thinking, and improving learning outcomes with millennial learners in both the large and smaller sized class. PRS promoted active learning, increased participation, and provided students and faculty with immediate feedback that reflected comprehension of content and increased faculty-student interaction. Students and faculty also reported ease of use with the PRS technology.

Issues and Further Questions

The current study did not evaluate the effect of PRS technology on examination grades. Future research to evaluate the effect of PRS technology on examination grades, overall course grades and nursing licensing exams (NCLEX scores) may be beneficial. The co-PIs anticipate their work with PRS technology will continue in the next academic year, with an exploration of how to examine these perspectives.

Disposition of Funds

Budget Total	\$7,150
PRS receiver and 40 hand-held response devices	\$4,150
P.I summer salary compensation (2 x \$1,500)	\$3,000
Total Expenses	\$7,150

Additional Comments

None