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Technologic Support for a Nursing Classroom: Clickers and Computers

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Technologic Support For a Nursing Classroom:
Clickers and Desire2Learn

Clickers (Student Response Systems) and Desire2Learn (an online support program) have been incorporated as teaching methodologies to enhance nursing student interaction and learning in a didactic pediatric course. The present generation of students has a preference for digital literacy, experiential learning, interactivity, and immediacy (Skibba & Barton, 2006), therefore grater technology has been brought into the course. Also, research supports that a variety of teaching/learning methodologies enhance the learning of students with differing learning styles. Learner centered teaching (Weimer, 2002) and the creation of significant learning experiences (Fink, 2003; Barell, 2003) are touted as effective means of creating interaction in the classroom. Both clickers and small group work have been utilized in the pediatric course to increase student interaction. The interactive methodology of problem based small group work has been shown to be an effective means of enhancing learning through student engagement in using course content to develop and solve problem issues within scenarios (Richardson & Trudeau, 2003). Clickers, an emerging technology, were also used to actively engage students within the lecture and give immediate feedback in regard to the students understanding lecture material (Hatch, 2005; Stein et.al.2006; Trotter 2005). The clickers were first used in the fall 2006 course with partial support of a Technology Innovation for Teaching (TIE) grant. The TIE grant supported use of technical methodologies and the grant was offered based on research evidence that clickers create an atmosphere of student interaction to enhance critical thinking and the ability to utilize the knowledge through the safety of the classroom environment.

FMHN 435: Nursing: Families and Children with Health Deviations is a senior level first semester nursing course focusing on the relationship between nursing practice and the issues surrounding families and children experiencing health deviations. This course is offered every semester. In the spring semester it is taught at the main campus only with 40 students. In the fall semester it is taught via ITV to include a group of 24 students at a distance for a total of 64 students.

The FMHN 435 course was primarily a lecture course with use of quizzes and case studies in an attempt to encourage student interaction within the classroom. The course was also supported through online access to Power Point slides, handouts, schedule, syllabus, articles and grades. The course had been especially challenging teaching from the distant site. It had been noted by faculty that students often are not attending to the topic at hand even with the use of enhanced power point presentations and case studies. This was evident on exams in that students found the multiple choice

application questions difficult to answer. The students believed they were familiar with the information on the slides, but found difficulty in expanding the information to use in clinical scenario questions. It was proposed to use a student response system (SRS) to assess student understanding of the information through immediate feedback, allowing the faculty to determine if further clarification was needed and to also use an online format for scenario development.

The clickers were utilized as an avenue of assessing what the students knew and tailoring lecture content accordingly. The previous quiz questions were revamped to utilize the SRS, noting the students understanding of a topic area, and expanding on discussion of the topics the students found difficult while briefly reinforcing topics the students understood. The students were actively involved throughout the class period through the use of questions and SRS documented the students' level of understanding of the material through assessment of the responses. The instant feedback promoted greater discussion of topic areas and enhanced communication between the students and instructor through discussion of "why" an answer is right. The immediate validation of the student knowledge facilitated the "fine tuning" of instruction through identification of areas that need improvement. The assessment of the student learning was ongoing. The student clicker quiz responses were available to document the initial responses and secondary responses. The student exam grades and level of participation in case studies was monitored to note any needed changes.

The development of scenarios was expanded to allow student groups to create scenarios based on classroom topics and submit them to Desire2Learn (D2L) for online group responses. The "presenting" student group also provided discussion questions assist in clarification of pathophysiology of the health problem as well as family interaction/impact. The student response groups then discussed and replied to the questions provided. The student groups rotated responsibility for "presenting" and "responding". The instructors reviewed the student scenarios for content and student responses prior to the next class to support learning and provide correction of misunderstanding as needed.

A student satisfaction/perception survey was used as evaluation of the course changes. The surveys were taken at the end of the semester to evaluate the students' perceptions of meeting course objections as well as satisfaction with the teaching methodologies, to include use of clickers and D2L in the course.

The results of the student satisfaction survey were interesting. The survey assessed the students' perception of accomplishing the course objectives and satisfaction with teaching methods, to include use of clickers and Desire2Learn (D2L). The evaluation of survey information was based on a

Likert scale of 1-5, with 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree) and 5 (strongly agree), to statements regarding the course, as well as space for student comments. The results revealed that the students felt that they were able to accomplish the seven objectives of the course at an average of 3.62 – 4.14 on the Likert scale. The teaching methodologies results for D2L and clickers were as follows. When looking at the students satisfaction with the use of D2L for access to course materials, the satisfaction results were as follows: syllabus 3.54; schedule 3.62; grades 3.43; groups 3.57; scenarios 3.11; and handouts 3.59. The comments shared by the students were supportive of the online access: “Very helpful resource – easy access”; “I did like being able to look at and print out all of the handouts whenever I wanted…”; and “I appreciate the accessibility of D2L”. The students also expressed that they “liked doing the group scenarios online rather than an individual paper”, “I liked working in groups”, and “I gained a lot of knowledge about certain health processes and how to help families (through the scenarios)”.

Further survey responses were supportive of using the clicker in general. The results to selected statements were as follows: I liked using clickers in this course 3.8; Receiving credit for answering the question made me more likely to participate in using the clickers 3.96; Using clickers helped me to better understand concepts in the course 3.65; and Discussion with other students during the clicker questions were helpful in understanding the concepts in this course 4.26. The survey statement all students disagreed with was: I feel the cost of clickers was worth it 1.91. When looking at individual comments, the theme of the cost came up often. However, many students felt clickers were beneficial, as one student wrote, “The anonymity made me more likely to participate in quizzing, which didn’t feel like quizzing as we called it “voting”. When we are graded, I am less likely to participate, sometimes preferring ‘no participation’ to a wrong answer.” The theme of being able to select an answer anonymously was supported in other comments also.

The instructors in the course were looking for new avenues of engagement in the classroom. The students were bright and often appeared bored and inattentive. The offering of challenging topics and discussion of actual clinical cases flowed from recognition of areas the students need further assistance in understanding. At the same time, the instructors could limit the time spent on those areas that students had mastered, thereby customizing the course to fit student needs. The use of D2L in the course continues to be enhanced with availability of access to support materials and an ability to submit assignments such as the scenarios. With the support of the TIE Fellows Community grant, part of the cost of the SRS equipment needed for the two classrooms was deferred, faculty support in revising the course to utilize the SRS was obtained and results were evaluated. The university has moved toward support one SRS, which has decreased the cost and may satisfy

some of the negative points of evaluation of the use of clickers in the classroom. The instructors will continue to evaluate the changes made in the classroom with use of clickers and D2L support through the impact on the student outcomes and evaluations.