

i>clicker Pedagogy Case Study
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COURSE OVERVIEW

Course Title/Subject: Medical/Surgical Nursing (Nursing III).

Typical Enrollment/Student Information: ~60 students per class. All students taking the class are enrolled in the university's Associate Degree Nursing Program. Sixty students are admitted twice per year and progress through a 4-semester program.

Course Structure: Medical/Surgical Nursing is a 12-credit course. Full-time faculty work as a team to teach content, and each member supervises 10 students in the clinical rotation at various clinical sites. Adjunct clinical faculty members are also used as needed to supervise students in the clinical area. Full-time faculty members teach 4 hours of theory each week as two 2-hour classes. Theory classes address blocks of material centered on common health problems of the major body systems in adult clients, with an additional focus on cancer and diseases of the eye. Additionally, each faculty member is responsible for 10 students in the clinical rotation for 16 hours each week. Of the 16 hours, there is a 2-hour laboratory held on campus, and the remaining 14 hours are spent in the hospital or designated clinical site. Upon graduation from the program, new graduates are required to pass the NCLEX-RN licensure exam before they can practice as registered nurses.

Course/Student Challenges: For students, the greatest challenge is probably the requirement to perform well on each theory exam. After long days in the clinical area with substantial paperwork demands, students often come to theory class unprepared, unable to discuss major concepts as identified in their learning objectives, physically tired, and unfocused; however, to progress through the program, they must score 75% or greater on each theory exam. If students do not achieve that score on the first try, they are permitted to retake the exam once. At that point, if they fail to score at least 75%, they are dropped from the program (each student is allowed 1 readmission into the program). For me, the greatest challenge is helping students manage the high levels of stress associated with each exam and keeping them actively engaged in the learning process in the classroom.

Course Grading Policy: Ninety percent (90%) of a student's grade is derived from theory exam scores (including a final exam), and 10% is derived from a group project. Students must also demonstrate competence in the clinical rotation with a formative evaluation documented each week and a summative evaluation documented at the course's end.

MOTIVATION FOR USING i>clickers

My primary reasons for using i>clickers in the classroom are as follows:

- **To facilitate student participation in and retention of classroom discussions.**
- **To counterbalance the program's physical and intellectual demands with engaging classroom activities.**
- **To identify and resolve areas of confusion or difficulty, helping students internalize course content and perform well on exams.**

During the Fall 2007 semester, Medical/Surgical Nursing faculty discovered that i>clicker questions were available with the required course textbook as part of the faculty resources. We explored the use of personal response systems in the classroom and requested that the i>clicker system be purchased for evaluation in the classroom with nursing students during the medical/surgical semester.

IMPLEMENTATION

Obtaining/Registering i>clickers: Because we wanted to conduct a “test run” of clickers, we purchased 2 faculty base units and 100 student clickers; students were not required to purchase their own devices, and so we skipped the registration process.

Classroom Technology: All classrooms used for the nursing program are “smart classrooms.” Each classroom is equipped with a computer (and internet access), LCD monitor, screen, overhead projector, television, VCR/DVD, and Elmo (similar to an overhead projector). We routinely supplement traditional lectures with PowerPoint presentations and other classroom teaching aids/strategies appropriate for the material being addressed, and i>clickers worked very well with them.

i>clicker Grading Policy: Clickers were used to aid in discussion/review activities. I did not grade clicker answers or award participation points for using clickers in my class.

Daily Use: We used i>clickers in the majority of the theory classes. Generally 5–10 questions were interspersed throughout the PowerPoint presentation used in each class.

Questions Asked: The i>clicker system was implemented in a variety of ways in the classroom. Commonly, clickers were used to test basic knowledge of textbook content. For example, pharmacology and knowledge of medications used in nursing practice was a component of each theory class; thus, clicker questions related to pharmacology were included in those classes. Also, we developed a pharmacology review using clicker questions and presented it prior to the final exam.

Example: general knowledge question

Lasix, a loop diuretic, increases renal excretion of water, sodium, and chloride resulting in increased renal excretion. A common side effect of this drug is:

- A. Hyperkalemia.
- B. Hyponatremia.
- C. Hypocalcemia.
- D. Hypokalemia.

Another common use of i>clickers was to assess student understanding and application of important concepts. Clicker questions were strategically placed following important concepts throughout PowerPoint presentations. If student answers demonstrated any confusion about the concept, we further discussed that concept as necessary.

Example: concept application question

A student nurse is teaching a diabetic client about foot care. The student determines that the client needs more teaching when the client says:

- A. "I will only be without shoes at home because there is wall-to-wall carpeting in every room."
- B. "I will wear cotton socks because they wick perspiration away from my feet."
- C. "I will take my shoes off when seeing my healthcare providers to remind them to check my feet."
- D. "I will use lotion on my feet because they are dry, but I will not put lotion between my toes."

Clicker questions were also used for pre- and post-class testing and general polling. For instance, a group of students would present a legal/ethical project to the class in the form of a mock trial. At the end of that trial, the presenters distributed clickers to the other students in class, who then acted as the jury with a vote of *guilty* or *not guilty*.

The majority of i>clicker questions used in the medical/surgical nursing course were faculty generated and written at the application level and above. This reflects the level of questioning used on course exams and on the NCLEX-RN exam for nursing licensure. Faculty resources included in the course textbook also contained i>clicker questions, which were frequently incorporated into the class.

Example: i>clicker question from textbook instructor resources

Ideally, the goal of patient diabetes education is to:

- A. Make all patients responsible for the management of their disease.
- B. Involve the patient's family and significant others in the care of the patient.
- C. Enable the patient to become the most active participant in the management of the diabetes.
- D. Provide the patient with as much information as soon as possible to prevent complications of diabetes.

(Lewis, 2007)

RESULTS

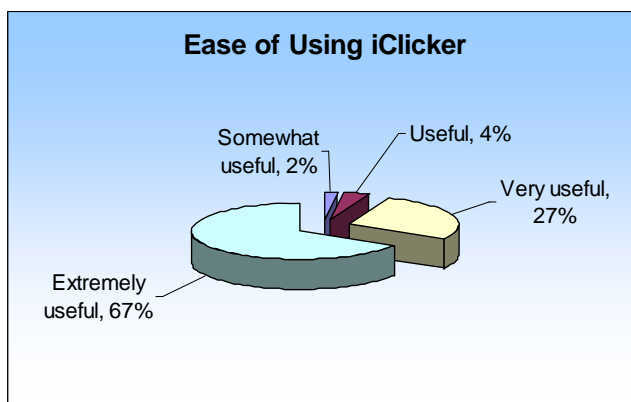
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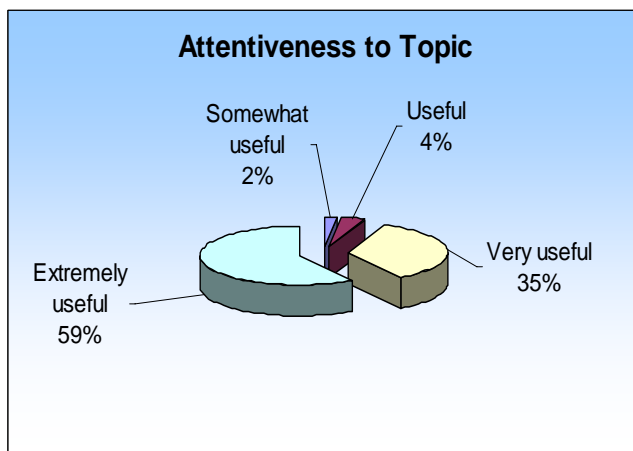
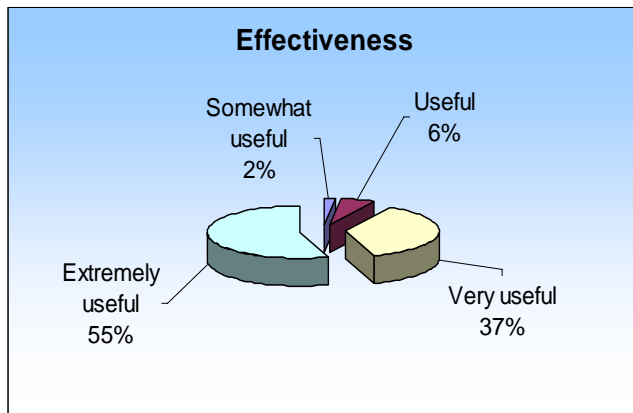
Gained Insight about Problem Areas. i>clickers allowed us to pinpoint specific areas of uncertainty for students. With this knowledge, we were able to focus on this content, resolve any confusion, and ensure that students grasped important course material.

Improved Performance on Exams. Because clickers helped us to identify the root of incorrect answers provided on exams, we achieved a marked improvement in exam scores. For instance, when we addressed diabetes and peripheral vascular disease, more than one-third of students failed to score 75% or better on the exam. This seemed like a perfect opportunity to assess the potential of i>clickers, so we developed a test review prior to the retake exam. We found that many students didn't understand basic physiologic concepts surrounding these topics, so we knew to discuss the material, resolve misconceptions, and present concepts in a different way to facilitate understanding. As a result of our formative assessment activities, all students requiring a retake of this exam successfully scored 75% or higher and were able to progress through the course.

Obtained Immediate Feedback. One benefit of using i>clickers in the classroom was obtaining immediate feedback about content discussed in class. We often used clickers at a class's beginning and end to be sure that students were grasping important material. An example of this was our discussion of clients with musculoskeletal problems; this is typically an area with which students struggle. With the aid of i>clickers, we determined that only 1 student recognized certain signs of an orthopedic emergency before classroom discussions; however, by the end of class, three-fourths of students identified the problem.

At the end of the semester, students were asked to rate the i>clicker system in 3 areas: ease of use; effectiveness as a learning tool; and attentiveness to topic being presented. Using a 5-point Likert scale, with 1 being "not useful" and 5 being "extremely useful," 92% to 94% of students surveyed rated the i>clicker system as very useful to extremely useful in all 3 areas.





We also provided room on the evaluation tool for written comments, which were overwhelmingly in favor of using the i>clicker system to enhance classroom learning.

Challenges

We had no pedagogical challenges using i>clickers.

CONCLUSION/DISCUSSION

Based on the terrific results achieved and the positive student evaluations, we will definitely continue to use i>clickers in the Medical/Surgical Nursing course. Furthermore, faculty who evaluated the i>clicker system have demonstrated its use to professors in other health sciences programs and recommended that it be adopted in all health sciences programs [at our university]. In fact, as the system was demonstrated to health sciences faculty and positive results were emerging in the Medical/Surgical Nursing course, professors in 3 courses (outside of nursing) concurrently began using the system: Introduction to Health Occupations; Medical Terminology; and Surgical Technology. We all look forward to familiarizing ourselves with and using more features of the i>clicker system, such as registration and i>grader, in future semesters.

Looking forward, faculty utilizing clickers in their health sciences courses have recommended that clickers be placed in the campus store for student purchase. This would allow students to use their i>clicker remotes in more than 1 course on campus over multiple semesters, thereby reducing students' costs and removing faculty's administrative task of passing out and retrieving remotes each class period.

The i>clicker technology is a fun, interactive way to encourage student participation in the traditional classroom setting. Student evaluations and comments indicated that the system helped them prepare for exams, focus on areas for further study, and become totally engaged in the learning process. This type of tool provides a rare opportunity to excite students about learning and inspire them to take ownership of their own education.

REFERENCES

Lewis, S., Heitkemper, M., Dirksen, S., O'Brien, P., & Bucher, L. (2007). *Medical-Surgical Nursing: Assessment and Management of Clinical Problems*, ed 7. Available at <http://evolve.elsevier.com> (Accessed August 5, 2008).