



UNIVERSITY OF  
ARKANSAS

# i>CLICKER CASE STUDY: SCHOOL OF NURSING, UNIVERSITY OF ARKANSAS

School of Nursing instructor successfully identifies the root of incorrect answers on exams and increases student exam scores

## Challenge:

Given the level of course components, students often struggle with comprehension and application of various course subjects.

## Solution:

i>clickers are an effective response system that keeps students accountable for the entire course, making it very easy for everyone to participate and become involved with course material covered.

## Benefits:

Immediate feedback can be provided to students regarding overall course performance which improves student attentiveness and engagement.

Nursing program leverages i>clickers to counterbalance the program's physical and intellectual demands with engaging classroom activities.

## Motivation For Using i>clickers

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

Medical/Surgical Nursing faculty utilizing i>clicker questions available with the required course textbook as part of the faculty resources were able to explore the use of personal response systems in the classroom, and request from students that the i>clicker system be purchased for evaluation in the classroom.

## Technology Implementation & Usage

**Obtaining/Registering i>clickers:** 2 faculty base units and 100 student i>clickers were purchased although students were not required to purchase their own devices.

**Classroom Application:** Each 'smart' classroom is equipped with a computer (and internet access), LCD monitor, screen, overhead projector, television, VCR/DVD, and Elmo (similar to an overhead projector). Routinely supplement traditional lectures with PowerPoint presentations and other classroom teaching aids/strategies appropriate for the material being addressed, and i>clickers integrated easily.

**i>clicker Grading Policy:** i>clickers are used to aid in discussion/review activities although i>clicker answers are not graded or awarded participation points for using i>clickers in the class.

**Daily Use/Questions Asked:** i>clickers are used in the majority of the theory classes. Generally 5–10 questions were interspersed throughout the PowerPoint presentation used in each class. The i>clicker system is implemented in a variety of ways in the classroom. Commonly, i>clickers are used to test basic knowledge of textbook content.

“ This type of tool provides a rare opportunity to excite students about learning and inspire them to take ownership of their own education.

Deborah Fulmer, RN, MSN, CWOCN  
School of Nursing University of  
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## Question Examples:

### 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. Hypocalemia
- D. Hypokalemia

Another common use of i>clickers is to assess student understanding and application of important concepts. i>clicker questions are strategically placed following important concepts throughout PowerPoint presentations. If student answers demonstrated any confusion about the concept, 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."

i>licker questions are 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 i>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 are 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 are frequently incorporated into the class.

### Example: i>clicker Question From Textbook Instructor Resources

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

(Lewis, 2007)

## Course Overview

**Course Title/Subject:** Pharmacy Practice I and II (Pharmacy 309 and 310)

### Typical Enrollment/Student Information:

The courses are taught in the fall and spring semesters, respectively, and each has an enrollment of 65 first-year pharmacy students.

**Course Structure:** As a two-course sequence, the first course has a significant pharmacy law component; the second has a major emphasis on career opportunities. The primary method of instruction is lecture, two or three times a week, for 50 minutes each. Co-ordination of course material and subject is completed each semester with another faculty member in the pharmacy practice department.

**Course/Student Challenges:** Both courses have writing assignments that involve reporting on interviews the students have conducted with elderly people (a senior over 65 years of age). These interviews not only improve their writing and interviewing skills, but also help students hone their empathy skills. Each course has quizzes—some announced, others not—and exams. There are a myriad of other assignments throughout the sequence. Since a fair amount of the first course is related to pharmacy law, the students struggle with new terminology. Most students lack pharmacy practice experience, and as a result the concepts seem abstract.

**Course Grading Policy:** Final Exam: The final exam could be worth up to 200 points and will cover the key aspects of the entire course including the lab.

ASSIGNMENTS	POINT VALUE
Ambulatory Case	10 points
OTC Case	10 points
Liability Case	10 points
Drug Names	20 points
Internship	10 points
Senior Partner Assignment	20 points

The +/- system may be used when assigning final grades.

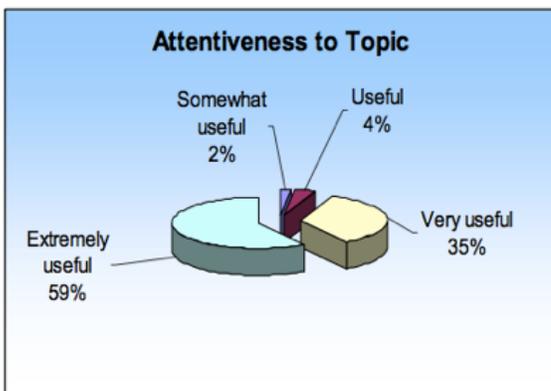
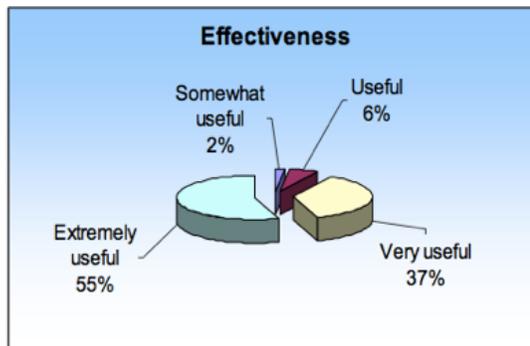
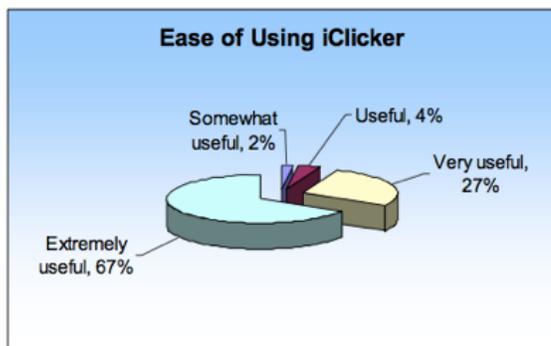
**Grading Scale (percentage = points earned divided by total possible points):** 92 and above = A 84 to 91 = B 76 to 83 = C

The final grade will be derived by taking a student's total points earned from all assignments, plus the exam, plus i>clicker points earned (let's say 100 possible i>clicker points for this example) and dividing them by the total points possible for the class. For example,  $352/380 = 92.6\% = A$ .

## Results

- ▶ **Gain Insight About Problem Areas** i>clickers allow to pinpoint specific areas of uncertainty for students. With this knowledge, instructors are able to focus on this content, resolve any confusion, and ensure that students grasped important course material.
- ▶ **Improve Performance On Exams** Because i>clickers help to identify the root of incorrect answers provided on exams, a marked improvement in exam scores was achieved.
- ▶ **Obtain Immediate Feedback** Instructors are able to obtain immediate feedback about content discussed in class using i>clickers at a class's beginning and end to be sure that students are grasping important material.

## Conclusion



The i>clicker technology is a fun, interactive way to encourage student participation in the traditional classroom setting. Student evaluations and comments indicate 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).