

i>clicker Pedagogy Case Study
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COURSE OVERVIEW

Course Title/Subject: Financial Accounting for Decision Making.

Course Enrollment/Student Information: ~40 students per class. Students taking the course are both majors and non-majors. This course is required for all School of Business students majoring in business or accounting.

Course Structure: On average, we offer 6 sections of this 3-credit course per semester. Classes meet either once a week for 2½ hours or twice a week for 1¼ hours. As a department, we have standardized the overall topic coverage, with some flexibility, and have adopted the same textbook to be used. Other minimal requirements, such as a comprehensive final exam and an annual report project, are also included in each section.

Course/Student Challenges: Two of the biggest challenges in teaching the introductory course are getting students to come to class prepared and, once there, keeping their attention.

Course Grading Policy: Final grades are determined by the following:

Exams	40%
Comprehensive Final Exam	25%
Quizzes / Other learning activities **	15%
i>clickers (includes homework)	10%
Annual report project	10%

** Learning activities: during the semester, students complete individual quizzes, participate in group discussions, and prepare a solution to a problem to be presented in class and/or submitted for grading. The purpose of these activities is to more actively involve students in the learning process. For the activities to be effective, students must come to class prepared both to complete the individual part of the quizzes and to contribute to the group part of the exercise; groups generally do well only if all members come to class prepared.

MOTIVATION FOR USING i>clickers

Background

I'd heard about interactive systems at conferences but had no direct involvement until I saw a psychology professor using the i>clicker system in the classroom across from my

office. With his permission, I attended the class to observe how the system was used, and I was impressed by how engaged the students were. I thought this was an ideal system to try and so incorporated it into 2 sections of my introductory accounting classes for the Fall semester of 2007.

During the Summer, I familiarized myself with the i>clicker system using instructional materials and attending a webinar (web-based seminar) with i>clicker staff, as well as speaking to and observing university faculty in other disciplines using the system. At that time, i>clickers had not yet been used in any School of Business courses, including accounting.

My primary motivations for exploring the use of i>clickers in class were to:

- Capture and maintain student attention and interest in the classroom.
- Generate more in-class discussions.
- [secondary motivation] Use the system for some evaluative measures, such as maintaining a record of attendance, checking homework assignments, and administering class quizzes.

My general intent was to experiment with i>clickers in various ways and use the system to maximize learning.

IMPLEMENTATION

Obtaining i>clickers: My first decision was to either buy the clickers for distribution or have students buy them and bring them to class. If clickers were going to be mandatory, then a certain weight on the final grade needed to be added as an incentive. After receiving input from faculty in other disciplines and acknowledging the difficulties of trying to obtain funding, I decided to have students purchase clickers individually; this was with the idea that the bookstore would buy back some—if not all—of the devices at the end of the semester (as they do with used books).

Registering i>clickers: I had students register in class using the roll-call tool. I also had a few clickers on hand in every class in case any students had forgotten to bring their devices.

Classroom Technology: This was my first semester using i>clickers, so even though I felt well prepared, I was apprehensive about the technology—both hardware and software—working properly and consistently. I was also concerned about students' reactions and any problems that might occur with introducing new technology.

Fortunately, my concerns were unfounded. The i>clicker system was easy to use and flexible in different formats. For instance, I incorporated clicker questions into my PowerPoint presentations to reinforce material discussed. I also successfully used clickers in conjunction with overheads during lectures, along with Microsoft Word.

i>clicker Grading Policy: i>clickers accounted for 10% of the course grade. At the end of the semester, I had total points summarized by students through the i>clicker software. The i>clicker system allows you to observe by (a) class, (b) student, and (c) question. Because this was my first time, I simply used the overall total points, using a sliding scale to assign the grade for that portion of the course. For example, if a student scored 900–1000 points it was an A, 800–899 was a B, etc. Students were given points for being in class and for answering questions. Points were accumulated for participation (5 points per class, plus additional points for answering at least half of the questions for that session) and for correct answers. In some classes, I increased the points awarded for performance (eg, 10 points for each correct answer on approximately 5–10 questions).

Daily Use: i>clickers were generally used in every class but to various degrees. In some classes, I presented only a few questions, while in others, I presented 10 or more questions (depending on the topic and whether it was new or review material).

Questions Asked: I used clickers in various ways in the classroom: within the lecture to reinforce lecture materials and generate discussion, to administer homework assignments, and to execute quizzes.

Clicker Questions within Lecture

I often incorporated clicker questions into my PowerPoint presentations at the end of a lecture to reinforce the material discussed and to let students compare their knowledge with that of their classmates. I also used clickers in conjunction with overheads to ask questions, and I just verbally asked questions on the fly to see where the class was overall (I often did this when I felt students were not being attentive). This also helped to reinforce material not fully understood by the majority of the class. In most cases, questions were either conceptual or problematic (factual) in nature.

Example, conceptual question:

USM Company collected \$500 cash on an account receivable that was due from L Company. Based on this information, which of the following statements is true?

- a. K Company's total assets would increase.
- b. L Company's total assets would not change.
- c. K Company's equity would decrease.
- d. None of the above.

Example, problematic question:

The following amounts were drawn from the records of Huskies Company: Total Assets: \$1,575; Total Liabilities: \$600; Common Stock: \$300. Based on this information alone, retained earnings must be equal to:

- a. \$-0-
- b. \$675.

- c. \$900.
- d. (\$675).

Administering Homework with i>clicker

Collecting homework from students had previously been problematic—not only was there a lag time before I could grade and return work, but students who were late with assignments made it cumbersome to try to maintain accurate records. i>clickers allowed me to check assigned homework by asking questions that gave students—and me— instant feedback. I could ask questions about specific problems they had to prepare for class, and offering credit for correct answers helped to motivate more students to in fact come prepared. These questions were asked in a multiple-choice format and were more problematic than conceptual.

Example, problem to monitor homework:

EXERCISE 13a, PART B:

- | | | |
|-------------|----|---------------|
| Net Income: | or | Total Assets: |
| a. \$56,000 | | a. \$20,000 |
| b. \$15,000 | | b. \$65,000 |
| c. \$32,000 | | c. \$8,000 |
| d. \$24,000 | | d. \$4,000 |

Students were expected to have the entire problem completed for homework and be able to click on the correct answer as I walked around the room.

Administering Quizzes using i>clicker

With i>clickers, I could easily give, review, and score quizzes on the spot. This would allow students to monitor their understanding of course material during the semester, and I could monitor understanding on an individual and group basis. With quizzes, I used both manual in-class handouts and i>clickers. The system lets you place any number of points on the questions and records each student’s performance. On some questions, I encouraged students to work together. I also called on students to explain their answers after quizzes were completed. The questions were multiple choice and addressed both concepts and problems (within reason), similar to the examples previously included.

RESULTS

Successes

Consistently Engaged Students. Perhaps my biggest hope in bringing i>clickers into my classroom was to capture student interest in a way that I hadn’t previously been able to do. I was thrilled to see that adding the technology did engage them—in both the

technology itself and the course material. Using clickers throughout each lecture kept students attentive and helped to create a more energetic and dynamic environment.

Fostered Collaborative Environment. One of the main reasons I adopted i>clickers was to generate more in-class discussions. Many clicker questions lent themselves to discussion, and so I encouraged students to work together to arrive at the correct answer. The discussions that occurred were invaluable in their learning. I also called on students periodically to explain their answers, and, in so doing, they and their classmates seemed to develop a deeper understanding of the material.

Easily Monitored Attendance. With i>clickers, I'd hoped to have an easy way to record students' attendance as I got to know them. Mission accomplished. Though I don't have any formal comparisons, I do believe attendance did increase (based on informal student feedback and their need to receive the participation points for each class).

Ensured the Completion of Homework. As mentioned earlier, collecting homework from students had been problematic before bringing clickers into the classroom (mainly because of administrative issues). With i>clickers, however, I was able to easily determine if students had completed their assignments, as well as obtaining and offering instant feedback. In fact, knowing that clicker questions would be presented—and would provide an opportunity to earn points toward their final grades—motivated students to come to class better prepared.

Gave Quizzes Regularly. With i>clickers, I could easily give, review, and score quizzes in class. This instant feedback enabled students and me to continually assess their understanding of important course material. I emphasized to students, at the start of the semester and throughout, that when they submitted incorrect answers—especially when the majority of the class was correct—they needed to go back and review their weak area(s). I'd like to see more of this in the future. One benefit of i>clickers was anonymity; students saw only overall answers (so no one knew who submitted the incorrect responses), while I could record individual scores and review them later.

To reinforce the positive results achieved with i>clickers, I've included some student responses from a survey I distributed at the end of the semester:

The majority of students either strongly agreed or agreed with all of the following statements:

- **The clickers serve to break up the monotony of note-taking in class.**
- **The clickers serve to refocus my attention.**
- **The clickers allow me to compare what I am thinking with what others are thinking.**
- **The clickers serve to tell the instructor when the students understand his/her ideas.**
- **The clicker is a worthwhile tool.**

Following are a few student comments from the survey:

“I really like knowing that when I didn’t understand something in class, I wasn’t the only one.”

“I feel the clickers are a good form of participation because some people are afraid to participate because they do not want to say the wrong answer, but this way it is confidential to the classmates.”

“The i>clickers have helped me determine what I’ve understood and what I need to improve on. It’s a great classroom tool.”

Challenges

We had no pedagogical challenges using i>clickers. The i>clicker system flowed well with the class and I had no problems.

CONCLUSION/DISCUSSION

Based on the results achieved in class, as well as feedback given in 1-on-1 conversations with students and the survey responses, I will definitely continue to use i>clickers in the future. Clickers certainly increased classroom activity over a straight lecture format, and they helped to get students more focused. The devices even inspired some good-natured competition in class, as some students often aimed for 100% correct responses. Overall, this has been a very positive experience, and I’m sure that my students and I will derive even greater benefit with continued use (I haven’t yet made use of all the features the system offers). I would recommend i>clickers to any professors hoping to turn their traditional lectures into more animated, interactive, and productive classrooms.