Educator Study with iClicker 2018-01

COURSE:	General Physics, delivered face-to-face to 75 students
PRODUCT USED:	iClicker Cloud
STUDY DESIGN:	Mixed methods with descriptive and correlational analyses

How iClicker Cloud supports student success in medium-sized General Physics classrooms

Institutional and Course Context

The University of Wisconsin-Eau Claire is a public liberal arts university offering bachelor's and master's degrees. The institution serves over 11,000 students and is one of 26 University of Wisconsin System's campuses. This General Physics course was taught face-to-face to 75 students in two classes. Students met either two or three times a week and were expected to keep up with their reading and assignments throughout the week. The instructor has been teaching for six years and has been teaching in this specific department for five years. The instructor has used digital learning tools in the past and has been comfortable implementing them.

Instructor Implementation

The instructor used iClicker Cloud to track participation credit. Students were required to answer at least 75% of the questions presented to them during class to receive participation credit. iClicker questions accounted for 5% of the students' overall course grade. The instructor used iClicker in all of the classes, with a total of 165 questions asked over the course of the semester. The instructor only used multiple-choice items.

Course Goals and Challenges

The University of Wisconsin-Eau Claire chose iClicker Cloud as their preferred student response system. The university provided technical support for instructors who used the product. The Physics department asked all their instructors to use iClicker Cloud similarly to ensure consistency in how grades were awarded. This particular instructor presented iClicker questions to introduce concepts and start a dialogue with students. The instructor believed the most effective way to use iClicker was to ask questions and then have students discuss the reasoning behind their answers with a classmate. Students were asked to discuss why their conclusions may have differed with a classmate and then come back together as a class to discuss what they learned from each other and the available iClicker data.

"The positive thing is that [iClicker Cloud] draws out students who [are usually] more silent or passive in a class and has them talking. Say I have a question [that] no one wants to answer. I don't have to force them to answer. Instead, I can ask the students to talk about what they discussed. Then we can still get a conversation started. It helps not put people on the spot."—Instructor

Study Design

The study examined whether use of iClicker Cloud was related to student outcomes, including learning, course completion, engagement, and satisfaction. In addition, information about instructor and student perceptions of iClicker Cloud was

gathered. iClicker Cloud usage was documented through platform data along with midsemester observations of classroom implementation and instructor interviews. Student learning data were collected at the end of the semester via course records shared by the instructor. End-of-semester surveys were used to gather data on instructor and student perceptions of the product along with student engagement. Data were matched across sources, and descriptive and correlational analyses were conducted.

Results

Eighty-eight percent of students reported that they were more engaged in class because they used iClicker Cloud. Students rated their level of engagement on a survey at the end of the semester, and their mean level of engagement was higher than average (3.64 on a 5-point scale). The instructor strongly agreed that iClicker increased student engagement in the class. A majority of students (82%) also reported that iClicker made the class more enjoyable.

Students' Perception of iClicker
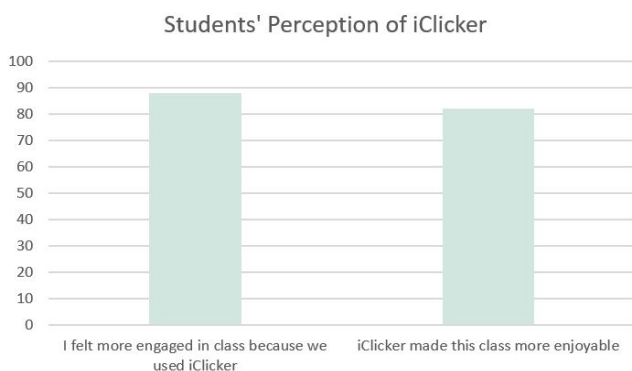
The majority of students (79%) reported that iClicker made them more likely to participate in class when compared to classes that did not use iClicker Cloud. Students reported that they enjoyed using iClicker to respond to the instructor's questions. The learning tool also gave the students the opportunity to interact with their classmates to better understand concepts. The instructor also reported that iClicker increased classroom participation and discussion. The instructor reported that iClicker made lecture-based material more interactive.

"I love that iClicker allows me to have a dialogue with 80 students at once. It doesn't have to be physics questions—[students] can ask something about homework or anything. It allows them to have a voice."
—Instructor

Eighty-five percent of students reported that use of iClicker Cloud contributed to the increase in their course grade. When asked about their favorite iClicker feature, multiple students reported that the learning tool helped them retain information and better understand concepts. Eighty-seven percent of students said using iClicker helped them understand course material better than traditional classes.

Ninety-one percent of students reported that iClicker Cloud was easy to use. In addition, students took a survey called the System Usability scale at the end of the semester. This survey provides an indicator of product ease of use and is rated on a scale of 0–100. Scores over 68 indicate that a product is easier than average to use. Students scored iClicker Cloud at 78, which indicated that it was an easy product to use. The instructor also reported that iClicker Cloud was easy to use and would like to continue using it frequently in classes.

Insights for Optimization

The instructor has reported experiencing challenges using the geolocator in the attendance feature early on in the semester. The instructor has worked with the department chair and Macmillan to identify the problem with specific accounts and now feels better prepared to use the attendance feature next semester. The instructor has also reported a preference for students using iClicker devices as opposed to mobile devices next semester in order to minimize distractions.

Insights for Instructors

One of the most critical findings from this educator study is that students are more engaged in classes that use iClicker Cloud than classes that do not and that students enjoy the opportunities for interaction that iClicker provides. Therefore, instructors who teach General Physics and find it challenging to maintain student engagement might consider implementing iClicker or increasing the learning tool's usage in the course.