

Educator Study with iClicker 2018-01



COURSE: Physical Science, delivered face-to-face to 129 students

PRODUCT USED: iClicker Cloud

STUDY DESIGN: Mixed methods with descriptive and correlational analyses

How iClicker Cloud supports student academic achievement in large Physical Science classrooms when used by an instructor who reported being very uncomfortable implementing digital tools

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 Physical Science course was taught face-to-face to 129 students in two classes. Students met three times a week and were expected to keep up with their reading and assignments throughout the week. The instructor has been teaching in this specific department for less than one year. The instructor has not used digital learning tools in the past and has been extremely uncomfortable implementing them.

Instructor Implementation

The instructor used iClicker to track student participation and performance, as well as attendance. Students were required to

answer all of the questions presented to them during each class. iClicker questions accounted for 5% of the students' overall course grade. When a student answered an iClicker question, they received 90% of their participation points, and they received the remaining 10% if they answered the question correctly. The instructor believed this scoring method would ensure students were taking the questions seriously. The instructor also took attendance with iClicker Cloud. Attendance did not contribute to the students' overall course grade. However, the instructor reviewed attendance if a course grade was borderline and took attendance into account when assigning the final course grade, so it was important that the information was correct. The instructor presented iClicker questions to students in 71% (30 out of 42) of the classes, with a total of 142 questions presented over the course of the semester. The instructor used only multiple-choice items.

"The best way to use iClicker is to ask a couple of conceptual questions to see how many students understand the concepts of each topic."—Instructor

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 the instructors who used the product. The Physical Science department asked all their instructors to use iClicker Cloud similarly to ensure consistency in how grades were awarded. This particular instructor opened each class by using iClicker Cloud to review material from the previous lecture. After ensuring students had mastered previous material, the instructor presented new class material. The

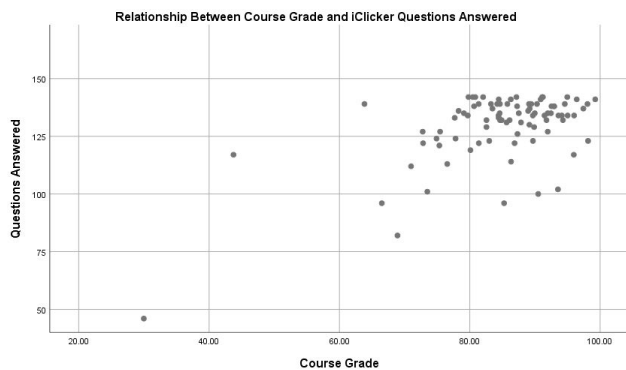
instructor used iClicker throughout the lecture to check for student understanding of new concepts. The instructor encouraged students to discuss the questions presented and work together to solve them. The instructor reviewed the students' responses to check for understanding and planned to review class material if less than the majority of students answered the questions correctly. The instructor required students to use either iClicker devices or their mobile devices to respond to iClicker questions—the instructor did not allow laptops or tablets to be used during class.

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 usage was documented through platform data along with midsemester observations of classroom implementation and instructor interviews. Student learning data were collected via course records shared at the end of the semester 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

Use of iClicker supported academic achievement. The more a student used iClicker the higher their overall course grade was. Students who answered more iClicker questions, irrespective of whether their answer was correct, had higher overall course grades. Conversely, students who answered less iClicker questions tended to have lower grades, suggesting a strong relationship between use of iClicker and student course performance.



Positive performance on iClicker questions was related to positive student course performance. There was a significant positive relationship (.511) between the amount of iClicker

questions students answered correctly and their performance in the course. There was also a significant positive relationship (.515) between the mean number of iClicker questions answered correctly per session and student course performance.

iClicker helped students better understand concepts. The majority of students (91%) reported that immediate feedback helped them better understand concepts. Students reported that they enjoyed using iClicker Cloud to check their understanding of concepts with their classmates and their instructor. They also enjoyed checking their retention of information. Ninety-four percent of students reported that iClicker helped them be more aware of misunderstandings. The instructor continually monitored student understanding of concepts through iClicker Cloud and adjusted instruction accordingly. The instructor felt that iClicker helped close the information gap between instructor and student and that it contributed to collaborative discussion.

Students were more engaged in their course when using iClicker Cloud. Ninety-six percent of students reported that they were more engaged in class because they used iClicker. When students were asked their favorite iClicker Cloud feature, several students responded that it helped them pay more attention in class. Students were asked to rate their level of engagement on a survey at the end of the semester, and their mean level of engagement was higher than average (3.43 on a 5-point scale).

Insights for Optimization

The instructor has expressed concern about not being comfortable with technology and is worried that students would not pay attention in class if they were allowed to use their mobile devices to access iClicker. The instructor has sought support from department colleagues to ease iClicker Cloud classroom integration. Moving forward, the instructor has also decided to request that students use only iClicker devices in order to prohibit all mobile devices in the classroom.

Insights for Instructors

One of the most critical findings from this educator study is that student course performance tends to increase as students answer more iClicker questions. This finding should help mitigate the concerns the instructor has expressed about students not paying attention in class due to using mobile devices.