

Educator Study with iClicker 2018-01



COURSE: Introductory Cell Biology, delivered face-to-face to 1,329 students

PRODUCT USED: iClicker Cloud

STUDY DESIGN: Mixed methods with descriptive and correlational analyses

How iClicker Cloud supports student content understanding in large Introductory Cell Biology classrooms

Institutional and Course Context

The University of Waterloo is a public research university located in Canada catering to both undergraduate and graduate students throughout one main campus, four satellite campuses, and four affiliated colleges. The institution serves over 30,000 students. This Introductory Cell Biology course was taught face-to-face to 1,329 students in a “megacourse” with three sections. The class was held at three different times, and students were able to attend class during any of the offered times. Students met two times a week and were expected to keep up with their reading and assignments throughout the week. The instructor has been teaching for 15 years.

Instructor Implementation

The instructor used iClicker to track student participation and attendance. Students were required to answer at least 75% of the questions to receive a one-point participation score. They received the participation point regardless of whether they answered the question correctly. Participation credit contributed to 5% of the students’ overall course grade. The instructor reported using iClicker Cloud in every class except the first one, and the instructor presented a total of 438 questions

over the course of the semester. As long as students answered one question per session, they were given credit for attending the class. The instructor only used multiple-choice items.

“I can design a question that sets up the correct answer against a common misconception, which allows me to talk about the concepts again. Also, I can take [students] through the levels of reasoning required for the questions that are Blooms level II or III. The ‘buzz’ of conversation around each question is also fun to listen to.”—Instructor

Course Goals and Challenges

This particular instructor taught large Introductory Cell Biology classes. The instructor used iClicker to facilitate communication with students and to check student understanding. The instructor used multiple-choice items and designed the questions to give students insight about how exam questions would be structured. The instructor did not release iClicker questions directly to students. Instead, the instructor projected them onto a screen at the front of the class. The instructor chose not to release the questions directly to students’ devices so that students who attended earlier class times would not be able to share the questions with students who attended later class times. The instructor believed that iClicker provided a quick overview of whether students were grasping the material and that it helped students discover if they understood the lessons.

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 on

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

Ninety-six percent of students reported that they were more engaged in class because they used iClicker Cloud. The instructor also believed that students were engaged in class and actively participating. Several students noted in an open-ended survey that they enjoyed the question/answer aspect of iClicker. Students rated their level of engagement in a survey at the end of the semester, and their mean level of engagement was higher than average (3.33 on a 5-point scale).

“A break from me talking at them?! But seriously—the somewhat ‘game’ environment I create around it, immediate feedback on their grasp, [and] having the questions as a study tool for exams.”—Instructor perspective of what students like best about iClicker

The majority of students (98%) reported that immediate feedback helped them better understand concepts. Students reported that they enjoyed using iClicker to check their understanding of concepts with their classmates and instructor. The instructor reported that iClicker provided a measure of student understanding and the data needed to inform instruction. The instructor said the least effective way to use iClicker is to “blast through the multiple-choice questions with no explanation—no value is added.”

Ninety-six percent of students liked the anonymity iClicker Cloud provides. In fact, ninety-eight percent of students said they were more likely to participate in class because of iClicker.

Ninety-eight 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 79, which indicated that it was an easy product to use. The instructor also rated iClicker as easy to use and reported feeling confident using the product.

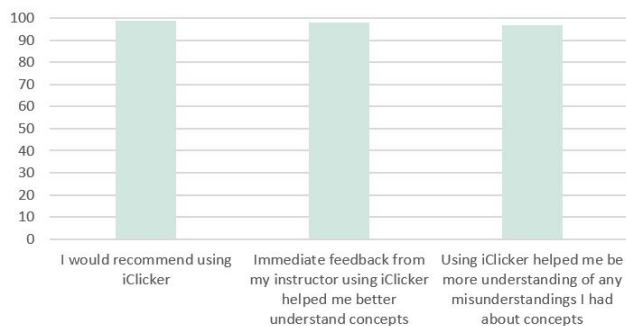
Insights for Optimization

The instructor has provided insightful feedback on challenges with data management. For example, the instructor wants to award students points for participation instead of percentages. The instructor also wants to have the ability to minimize the graphics for viewing and more opportunities to export data. The iClicker Cloud team is examining different possibilities for data export and better communication with learning management systems to make transferring information easier for instructors.

Insights for Instructors

One of the most critical findings from this educator study is that students feel very engaged when using iClicker Cloud in a large classroom and that instructors are able to provide immediate feedback to students to ensure mastery of concepts. Therefore, instructors who teach large face-to-face sections and find student engagement challenging should consider either implementing iClicker Cloud or increasing the learning tool’s use in the classroom.

Students' Survey Responses



Note: These results are part of a larger iClicker Cloud implementation study across multiple institutions. To access the full report and results, please visit <http://www.macmillanlearning.com/catalog/page/learningscience>