

Meridian Community College and InQuizitive for Biology



Instructors: Valerie Bishop and Stephanie Brown

Course Materials: *Discover Biology, 6th Edition* and InQuizitive

Background

We implemented a pilot version of InQuizitive, Norton's adaptive quizzing system, in three sections of Principles of Biology classes in Fall 2015. A total of 96 students finished the classes, with class size ranging from 22 to 74.

Principles of Biology at Meridian Community College is a non-majors biology course taught in two semesters in both traditional and online formats. Most students enroll in this course to fulfill a general education science graduation requirement. From Fall 2012 to Spring 2015, Smartwork, an online homework resource also developed by W. W. Norton, was used to prepare students for chapter tests and the comprehensive final examination. Both the reading and study quizzes were used for each chapter tested. InQuizitive activities replaced the Smartwork assignments starting in Fall 2015.

Course Challenges

In our non-majors biology courses at MCC, most students feel like they have a good background in biology and do not need to study, but many students have a false sense of their readiness for an introductory, college-level biology class.

Another challenge we face at MCC is that it's very difficult to get students to read the material before or after a lecture period. Many community college students work, have a family, or both; trying to balance the demands of school, work and family is difficult.

Lastly, many of our students are challenged in the area of technology. They are very good with text messages, but they shun email and computer use. The lack of technology skills is especially apparent for many students who take the class in an online setting. Technical issues can demoralize these students. One problem or computer glitch may keep them from trying again and completing any or enough work to be successful in the class.

Implementation

InQuizitive activities replaced the Smartwork assignments previously assigned in Principles of Biology courses. InQuizitive counted as one test grade or approximately 12% of the overall grade in the course. It was thought that making the InQuizitive grade equal to a test score would incentivize students to complete the InQuizitive assignments. All InQuizitive activities were assigned a due date and had to be completed before the unit test on the material.

InQuizitive was integrated into MCC's Canvas learning management system, enabling single sign-on for students and automatic grade transfer of InQuizitive grades to the Canvas gradebook.

COURSE AT A GLANCE

- Two semester non-majors biology
- Diverse group of majors
- Often taken as general education requirement

Results

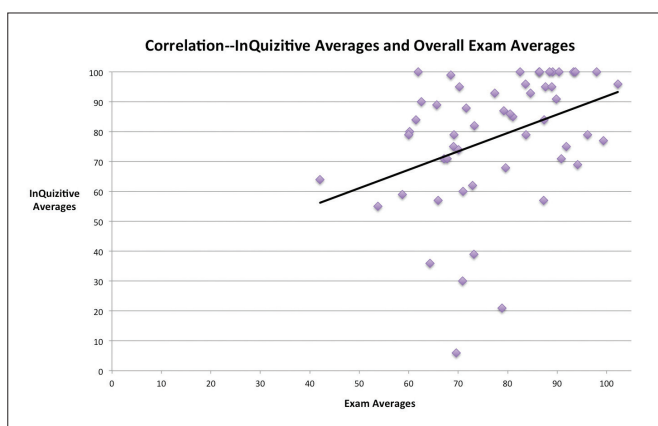
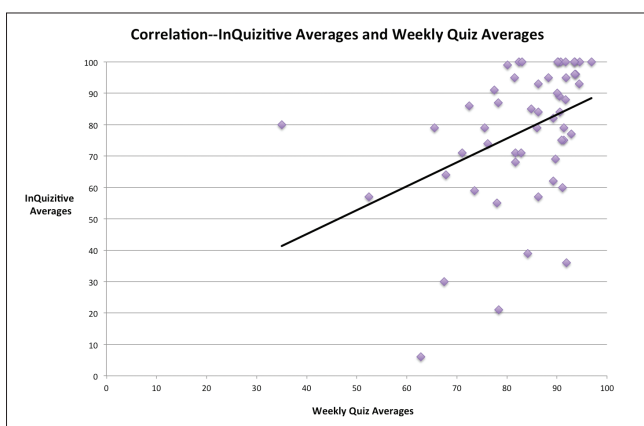
Methodological Note: Data analysis was performed on student grades ($n = 54$) from Fall 2013 in which InQuizitive was not used and on student grades ($n = 55$) from Fall 2015. Students who did not complete any InQuizitive activities were removed from the data set.

Relationship between InQuizitive and other course assessments:

An analysis of student InQuizitive averages, weekly quiz averages, and exam averages revealed positive correlations between InQuizitive grades and other graded course materials. These correlations between InQuizitive averages and exam averages ($r = .37$) and between InQuizitive averages and weekly quiz averages ($r = .41$) suggest that InQuizitive activities were relevant to other course activities and assessed students on a similar body of knowledge to exams and quizzes.

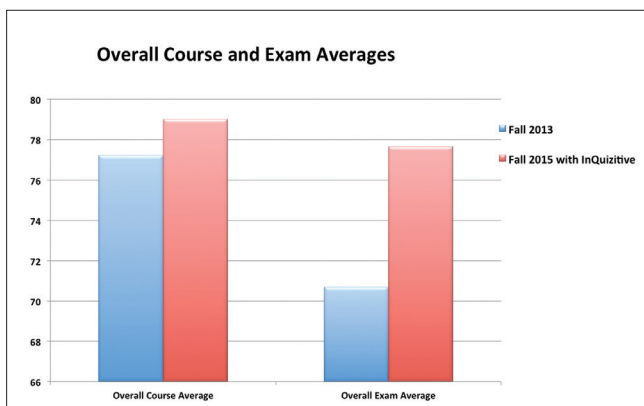
RESULTS AT A GLANCE

- Correlation between InQuizitive averages and exam and quiz averages shows relevancy of InQuizitive to course.
- Exam and overall course grades increased in Fall 2015.
- Student survey feedback was very positive.



Semester to Semester Performance:

Class exam averages increased from 70.70 in Fall 2013 (without InQuizitive) to 77.65 in Fall 2015 (with InQuizitive), while overall course averages increased from 77.22 in Fall 2013 (without InQuizitive) to 79.021 in Fall 2015 (with InQuizitive). A change in textbook editions and a relatively small sample size make it difficult to draw conclusions from semester vs. semester analysis, although we are confident that one thing InQuizitive made students do better than they had in previous semesters was to study and research material beyond our PowerPoint presentations. InQuizitive averages were actually lower than the averages of the assessments InQuizitive replaced from previous semesters, meaning that InQuizitive grades pulled course averages up less than the replaced assessments in previous semesters.



Student Feedback

Thirty-five students completed an online survey about their experience with InQuizitive. Students mainly gave InQuizitive high marks.

SURVEY QUESTION	RESPONSES
Did InQuizitive help you review and better understand content for class?	91% said yes.
Would you recommend InQuizitive to other students (1-10 scale with 10 being extremely likely)?	79% of students answered with a 7 or higher.

Words like “fun” and “easy to use” were common themes in the responses:

Easy to Use:

“It is easy and helpful. InQuizitive gives you a chance to study while you are learning.”

“It made the homework seem like a game, which made it easier for me to make myself do it.”

Helpful:

“I love the confidence bar and the feedback for incorrect answers.”

“I for one have a hard time paying attention. The sound and interactive[ness] of the website kept me interested and focused on my tasks.”

Likely to Recommend InQuizitive to Other Students:

“It’s way more interactive than anything at MCC.”

“It is easy and helpful. InQuizitive gives you a chance to study while you are learning.”

Students who responded with negative feedback to the online survey and directly to instructors stated that the activities took too long to complete and were too challenging.

Instructor Feedback

Overall, students and instructors had a good experience with InQuizitive. The program was easy to use, easy to make changes, and the automatic grade transfer to Canvas was wonderful. The students who took the time to go through the InQuizitive material seemed more likely to interact and pay attention in class. Students who did few or none of the InQuizitive assignments had lower grades. Seeing the amount of time students spent in InQuizitive, it is apparent that students gave more effort to make good grades than they have in the past.

One particularly helpful feature of InQuizitive is how it allows students to answer questions incorrectly while still learning the material at the same. The repetition of the material and rich feedback allow students multiple opportunities to learn without feeling like they are spending so much time studying. For students who have limited time, like many community college students, InQuizitive seemed to be a great use of their time for review and reinforcement of material.

As one student said, “It is very easy, fun and helps you do better on your quizzes and exams.” What else could an instructor ask for?

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