

Revel educator study examines impact on student performance in Microeconomics at NC State

Key Findings

- Data indicate that average exam scores were seven percentage points higher for students earning Revel scores above average.
- Students earning final course grades of A/B/C, showing mastery of course content, completed four additional Revel assignments on average than students earning a D/F. as the final course grade.
- On an end-of-semester student survey, 88% of respondents agreed that the “read a little, do a little” interactive approach of Revel helped them learn and retain the material better than they would have with a traditional print textbook.
- While 67% of student survey respondents were initially apprehensive about using only Revel for reading assignments, as the semester progressed, 89% became comfortable using Revel for reading.

Study Specifics

School name: North Carolina State University, Raleigh, NC

Course name: Introduction to Agricultural and Resource Economics

Course format: Face to face

Course materials: Revel *InMicro* by Hubbard and O'Brien

Timeframe: Fall 2018

Educator: Melissa Hendrickson, Senior Lecturer

Results reported by: Candace Cooney, Pearson Results Manager

Setting

- Locale: large, suburban, four-year, research university in Raleigh, considered North Carolina’s research capital and the largest four-year school in the state
- Enrollment: more than 33,000 students
- Full-time retention rate: 93%
- Six-year graduation rate: 76%
- Ethnicity: 73% Caucasian, 6% African American, 5% Hispanic, 5% Asian, 11% Other

About the Course

Melissa Hendrickson has been teaching at NC State for 17 years. Introduction to Agricultural and Resource Economics is a one-semester, three-credit, entry-level course populated primarily by freshmen and sophomores. It is open to all majors that require a Microeconomics course as part of degree completion, such as agriculture, engineering, life sciences, and natural resources. The course provides an introduction to microeconomic principles, markets and market systems, supply and demand, elasticity, trade and interdependence, producer and consumer decisions, firm behavior, and other microeconomic topics.

Challenges and Goals

Hendrickson believes students should be responsible for their own learning, which includes being prepared for class by reading the textbook. She had been using a competitor’s digital homework product for about eight years when the program went through a challenging transition. Looking for a replacement, Revel™ offered her

students the opportunity to read, practice, and study in one continuous experience. She suspected that short readings and interactive media would encourage student engagement much more than a traditional print text. In Fall 2017, she adopted Revel as a textbook replacement for this course.

Implementation

As a fully-digital program, Revel presents an affordable option to print textbooks, although students always have the option to purchase a print book as a companion for the online learning experience in Revel. Initially, 67% (62 of 93 students) of respondents on an end-of-semester survey of Hendrickson's students were apprehensive about not having a print text and using only Revel for reading assignments. However, 89% (83 out of 93 students) of respondents became comfortable using Revel for reading as the semester progressed.

Students use Revel for reading, understanding content, and quizzing. On the student survey, 53% of respondents said they spent 2–3 hours per week working in Revel, while 34% spent more than three hours per week working in Revel. Hendrickson views the Revel assignments as formative — an opportunity to experiment and learn — so students have unlimited attempts at assignment completion. The goal is practice, not punitive assessment. Revel also offers a mobile app so students can read, practice, and study anytime and anywhere, allowing them to access course materials, including the full text, on their tablet or mobile phone, offline and online. While most students used a laptop for Revel, 16% of survey respondents reported using their tablet or mobile phone as well.

Revel integrates dynamic media like videos, animations, and interactive graphing throughout pre-built readings. Not only does the media offer an alternative way of learning, but it also encourages students to take an active role in their reading. One student on the survey shared, *"Revel videos are really helpful, I have used them to prepare myself for exams and review other conceptual material."*

The unique Revel approach of reading chapter content followed by immediate assessment was widely seen as beneficial by survey respondents:

- 88% agreed that the "read a little, do a little" interactive approach of Revel helped them learn and retain the material better than they would have with a traditional textbook.
- 87% said they preferred the interactivity of Revel to a traditional, print textbook.

Revel assignments consist of the following:

Practice quizzes: These six-question, pre-built quizzes are located after each section a student reads. Hendrickson requires completion of these quizzes so students can review concepts and quiz themselves, but they are not graded. On the student survey, one student shared, *"I have really enjoyed using Revel. If there were topics in class I did not understand, I could easily find the section and read more about it. The practice questions are also a huge help to me and my learning style."*

Concept Checks: These questions are embedded in the narrative of the chapter so students can confirm their understanding of the content before moving on to a new section or topic. These required assessments are comprised of multiple-choice and draw-graph exercises, and students have access to learning aids and feedback so they can validate their comprehension.

- 82% of respondents on the student survey agreed that Concept Checks at the end of each section allowed them to check their understanding of what they just read before moving on to the next section of the course content.

- Said one student, *“I loved the Concept Checks. They kept me focused on the readings and made it easy to pause and come back because I have a short attention span.”*

End-of-chapter homework: These assignments are pre-built and cover the entire chapter. Students have unlimited attempts at completion and they are due the day after lecture. The two lowest scores are dropped from the calculation of the final homework grade.

Three exams are comprised of approximately 25 multiple-choice, fill-in-the-blank, and short-answer questions, one for each learning objective per chapter. They are administered in class and students have 75 minutes for completion.

Assessments

- 60% Exams (3)
- 30% Revel homework assignments (17)
- 10% News analysis

Results and Data

Students were placed in two groups based on their total average Revel score. Data from figure 1 indicate that average exam scores were seven percentage points higher for students earning Revel scores above average.

For students, the formative Revel assignments are intended to help them identify where they may be in terms of successfully completing summative course exams. Data suggest that if students are not completing Revel assignments successfully, they may lack the requisite content knowledge necessary to effectively complete the course exams.

Average exam score based on Revel score

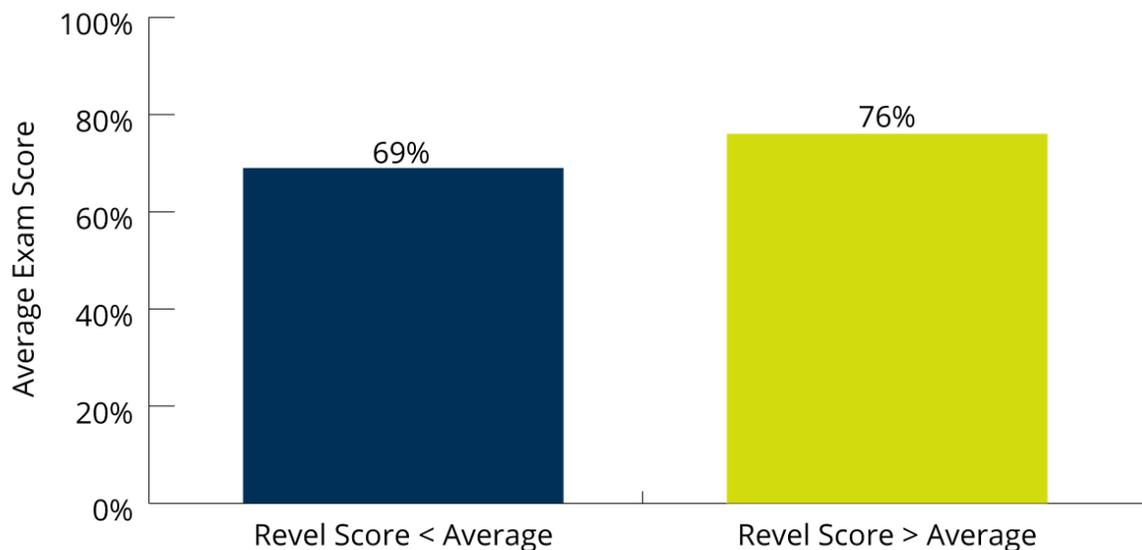


Figure 1. Average Exam Score Based on Revel Score Above or Below Average, Fall 2018 (n=87)

Revel assignment completion was measured by identifying the number of homework assignments a student completed out of the 17 total assigned (figure 2). An assignment score of 0 was used to indicate an assignment

that was skipped and not completed.

- Average # of Revel assignments completed by students earning a final course grade of A, B, or C: **16.7**
- Average # of Revel assignments completed by students earning a final course grade of D or F: **12.5**
- Average final course score: **82%**

Revel assignment completion and final course grades

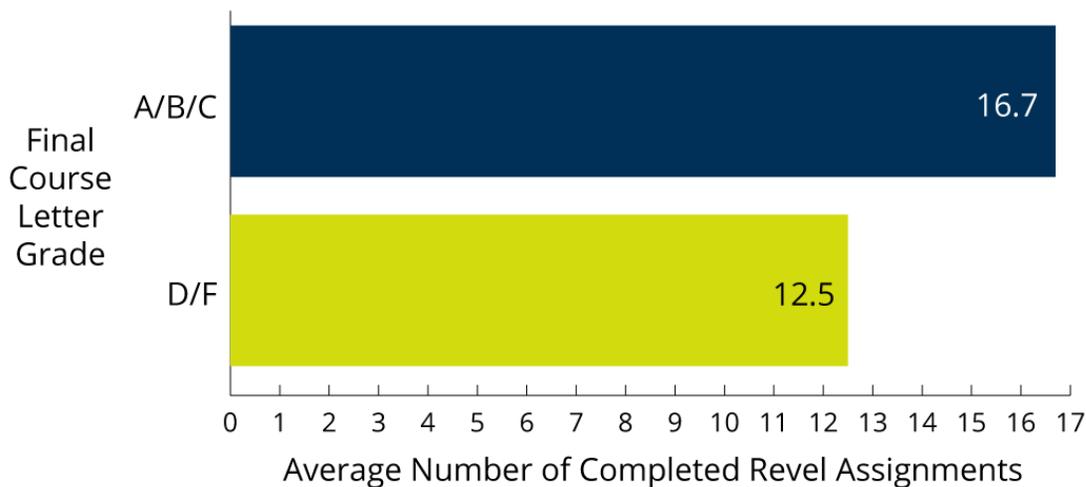


Figure 2. Relationship between Final Course Grades and Revel Assignment Completion, Fall 2018 (n=87)

The Student Experience

Responses from the Fall 2018 end-of-semester survey of Hendrickson’s students indicate that the majority of responding students recognize the value of Revel.

- 88% of respondents agreed that the “read a little, do a little” interactive approach of Revel helped them learn and retain the material better than they would have with a traditional textbook.
- 82% of respondents agreed that Revel practice quizzes at the end of each section allowed them to check their understanding of what they read before moving on to the next section.
- 87% of respondents said they preferred the interactivity of Revel to a regular print textbook.
- 84% of respondents said the resources provided in Revel made the program a good value for the course.
- 81% of respondents would recommend Revel to another student.

Student responses to the question, “What were the benefits of Revel?” included:

- *“With a regular textbook, I tend to skim over things and not truly understand the material, but with Revel I felt like I had a more comprehensive and thorough understanding of the readings!”*
- *“Revel helped me retain information better than with a traditional textbook.”*
- *“I liked how interactive it was and how, many times, there were detailed explanations many places in the book about a certain topic. I especially liked when I answered a question and there was an explanation tailored to my answer.”*
- *“The textbook was online so I didn’t have to carry a physical book, which I greatly appreciated. Also, Revel explained why you got a question wrong and gives you another chance to get it right.”*

Conclusion

Having used other digital homework programs in the past, Hendrickson implemented Revel to encourage students to read the text while having immediate access to assignments and assessments. On the end-of-semester survey, respondents overwhelmingly agreed that the “read a little, do a little” approach in Revel helped them learn and retain the information better than a traditional text, and the Concepts Checks provided clarity before moving on to the next section. In fact, data indicate that if students are not completing Revel assignments successfully, they may lack the requisite content knowledge necessary to effectively complete the summative course exams. Hendrickson plans to continue tracking student performance and will use Revel again in the upcoming semester.