SCHOOLCRAFT COLLEGE — Livonia, MI

Product Name MyMathLab

Course Name Intermediate Algebra

Course Format Face-to-face

Key Results After implementing Personalized Homework in MyMathLab in a face-to-face Intermediate Algebra course, final exam scores were an average of 7.6 percentage points over the institutional average in face-to-face Intermediate Algebra courses.

Submitted by
Brad Stetson, Assistant Professor

Course materials
MyMathLab and *Beginning & Intermediate Algebra,* Martin-Gay

Setting

Schoolcraft is a comprehensive, open door, community-based college focused on innovation and academic success. The mission of the College is "to provide a transformational learning experience designed to increase the capacity of individuals and groups to achieve intellectual, social, and economic goals."

According to the college's website, on average, over the past four years:

- Forty-three percent of Schoolcraft students transferred to another college within three years.
- Eighteen percent of Schoolcraft students graduated within three years.

Challenges and Goals

Brad Stetson, assistant professor and intermediate algebra instructor, noticed that he was spending a lot of class time reviewing homework problems and writing example problems on the board. As a result, he was unable to move through the topics as quickly as needed, and he felt that his students still did not understand the concepts as well as they should. Stetson hypothesized that adding personalized homework to his curriculum would have a positive impact on final exam scores.

Implementation

Stetson's Intermediate Algebra course meets two or four times per week, depending on the section, and includes students from almost all majors. During class meetings, Stetson lectures on the topic at hand and students work in groups of four to complete worksheets that cover the objectives that will be assessed on the exam. Stetson grades and returns these worksheets in class. Students then independently complete homework in MyMathLab outside of class.

Stetson strongly believes in "practice, practice, practice," so his MyMathLab course heavily focuses on mastery. On homework assignments in MyMathLab, Stetson allows students three attempts on a problem. They may then click "similar exercise" if they want to continue working on a particular type of question. At the end of each chapter, Stetson assigns a practice test in MyMathLab. Students are allowed unlimited attempts; then, when they finish, a personalized homework assignment populates based on their practice test results. Students can earn extra credit for the work they do in the personalized homework assignment.

To set up the practice test and subsequent personalized homework assignment, Stetson looks at the objectives he plans to cover on the exam and uses a pool of questions relating to those objectives. The personalized homework includes six questions pertaining to the objective or objectives the student didn't master.

Assessments

56.1 percent	Unit exams (six exams at 100 points each)
18.7 percent	Final exam (common departmental final)
14.0 percent	MyMathLab homework
11.2 percent	Group worksheets
≤ 4.5 percent	Extra credit MyMathLab personalized homework

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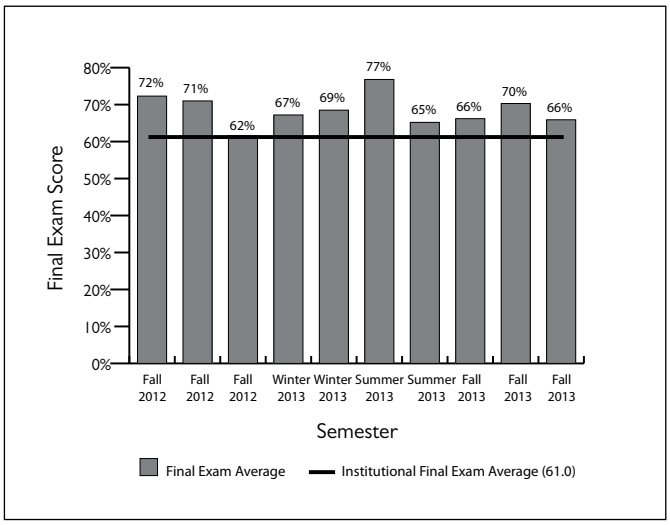

Figure 1. Comparison of Stetson's and Institutional Average Final Exam Scores, Fall 2012–Fall 2013 (Fall 2012, *n* = 39; Fall 2012, *n* = 41; Fall 2012, *n* = 120; Winter 2013, *n* = 25; Winter 2013, *n* = 27; Summer 2013, *n* = 11; Summer 2013, *n* = 13; Fall 2013, *n* = 39; Fall 2013, *n* = 40; Fall 2013, *n* = 112)

Results and Data

As indicated in Figure 1, the average scores on the common final exam for Stetson's classes, which had personalized homework assignments prior to exams, are significantly higher than the institutional average ($t(9) = 5.5$, $p < 001$). On average, Stetson's Intermediate Algebra classes outperformed the institutional average by 7.5 points on the common final exam. Further research is needed to investigate the relationship, if any, between the implementation of personalized homework and student performance.

The Student Experience

Stetson maintains that students appreciate the use of MyMathLab in the course. Stetson remembers passing back the sixth exam during the winter semester of 2013, when one of his students commented, "I've never gotten a single good grade on a math exam before this class, let alone an A on every test. I'm never taking another math class again unless it uses MyMathLab." His exam scores, according to Stetson, were: 94, 90, 97, 92, 99, and 100.

Conclusion

Because he doesn't have to cover as many minute details as he did prior to using MyMathLab, Stetson has more available class time, which he believes allows for more flexibility in his teaching. "I know and rest assured that if students don't understand a concept or a homework question, they can use the View an Example feature in MyMathLab." He also encourages students to utilize the Ask My Instructor feature so that he can answer homework questions on the go, rather than have students wait and use up valuable class time with questions about the homework. Stetson now uses that valuable class time to cover questions that multiple students had difficulties with; occasionally he even writes the solutions out ahead of time so that students can see them as soon as they come into class. "I get to work with students more and actually teach in class, rather than simply writing down problems and grading," says Stetson. "I even have time in class to do extra activities—imagine that!"

Implementation and results case studies share actual implementation practices and evaluate possible relationships between program implementation and student performance. The findings are not meant to imply causality or generalizability within or beyond these instances. Rather, they can begin to provide informed considerations for implementation and adaptation decisions in other user contexts. For this case study, mixed-methods designs were applied, and the data collected included qualitative data from interviews, quantitative program usage analytics, and performance data. Open-ended interviews were used to guide data collection.