

Product Name MyLabsPlus

Course Name Beginning Algebra

Course Format Hybrid: Scheduled meetings, open lab, fixed due dates

**Key Results** After requiring that poorly performing students complete personalized homework assignments between quiz attempts, instructors believe that students studied more effectively, and average pass rates increased nearly 20 percent.

#### Submitted by

Patty Bonesteel, Senior Lecturer

#### Course materials

MyLabsPlus and *Elementary Algebra: Concepts & Applications*, Bittinger

#### Setting

Wayne State University is a public research university serving nearly 32,000 graduate and undergraduate students. The school's Beginning Algebra course enrolls a wide spectrum of skill levels; many students do not have command of numerical and beginning algebra concepts and techniques.

#### Challenges and Goals

Patty Bonesteel, senior lecturer, reports that her biggest challenge is motivating students to prepare for assessments. In the past, students could finish one quiz attempt and immediately attempt another, without additional study or remediation. As a result, students were frustrated that they were not performing well on quizzes despite multiple attempts, and they then performed poorly on exams.

#### Implementation

Wayne State's math lab comprises both a classroom and an open lab, containing 75 computers each. Students meet in the classroom portion with an instructor two hours per week. The instructor lectures on difficult topics, and students begin their MyLabsPlus homework with personal attention and tutoring available from the instructor and an assistant. Supervised lab time is also used for proctored exams.

Students are also required to spend three additional hours per week, on their own, in the open lab. During this time, they complete MyLabsPlus homework and password-protected quizzes.

Students complete 38 graded MyLabsPlus homework assignments, one for each section of the textbook, by a designated due date. They have unlimited attempts, and three points are awarded for scores of 100 percent. Scores of less than 100 percent earn that percentage of two points. The three lowest homework scores are dropped.

Students complete 20 MyLabsPlus quizzes, one after (approximately) every two sections of the text. Quizzes must be completed in the math lab before a due date, and the lowest three are dropped. Students have two attempts at each quiz, excluding the syllabus quiz and the MyLab/Mastering quiz. Before retaking a quiz, students must score 100 percent on a personalized assignment. The highest grade is counted, and all quizzes must be taken in the open lab.

Each of the four tests and the final exam have a corresponding MyLabsPlus practice test that counts toward a student's grade. Students who earn less than 80 percent on a practice test are strongly encouraged to use the Study Plan and repeat the practice test before taking the actual test. Each practice test may be taken an unlimited number of times, and only the highest score is counted.

Students take four, 75-minute tests in MyLabsPlus. Tests are given during class time. At the end of the semester, the final exam score, if it is higher, replaces the lowest test score.

A comprehensive final exam is assigned the final week of class. It is taken in MyLabsPlus and is timed at 2.5 hours. Students must earn a minimum of 60 percent in order to pass the course, in addition to an overall score of 70 percent.

Students who wish to work ahead and/or complete the course early are encouraged to do so. Arrangements may be made with the instructor to take tests ahead of schedule. In order to be eligible for early testing, students must have: (1) completed all of the homework assignments and earned a score of 100 percent on each section, (2) completed all quizzes with a best attempt of at least 80 percent on each, (3) passed all prior tests, and (4) scored at least 80 percent on each practice test.

#### Assessments

37.9 percent	MyLabsPlus tests (four)
31.6 percent	MyLabsPlus final exam
10.8 percent	MyLabsPlus quizzes (best 17 of 20)
6.6 percent	MyLabsPlus homework (best 35 of 38)
3.2 percent	MyLabsPlus practice tests (five)
3.2 percent	Participation
2.7 percent	Lab attendance
2.0 percent	Class attendance
2.0 percent	Orientation

#### Results and Data

During each of the three semesters after required, personalized homework between quiz attempts was implemented, pass rates increased: by 8.5 percentage points in fall 2010, by 10 percentage points in the winter 2011, and by 7.1 percentage points in spring 2011 (Figure 1).

#### The Student Experience

Students were the impetus behind the implementation of personalized homework. Although instructors were aware that students weren't studying between quiz attempts, Bonesteel maintains that it was students' frustration with their poor exam performances that ultimately motivated the change.

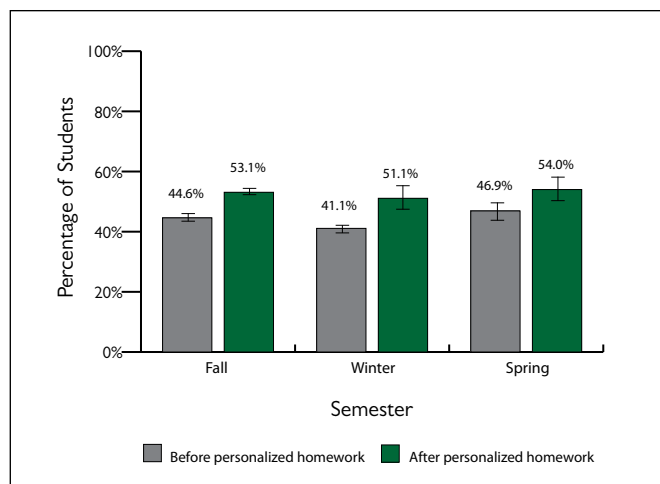


Figure 1. Average Pass Rates before and after Implementation of Required Personalized Homework, Fall 2000–Spring 2011 (Before includes 11 years of data: 11 fall semesters,  $n = 9,977$ ; 11 winter semesters,  $n = 7,466$ ; 11 spring semesters,  $n = 2,581$  / After includes 3 1/3 years of data: four fall semesters,  $n = 3,415$ ; three winter semesters,  $n = 1,697$ ; three spring semesters,  $n = 391$ )

Across the board, students are happier with the course now and are performing better. According to one student, “I really enjoyed this course. It was different than how I thought it would be. I liked that the homework had infinite tries, and that [MyLabsPlus] View An Example was there to help. I also liked that I could see my test and quiz scores, and that we were given a second chance on quizzes.”

#### Conclusion

Bonesteel believes that the personalized homework requirement between quizzes is the best change they have made as a department, and student performance data indicates she is correct. In addition, she says that moving to MyLabsPlus has made the first day of class much easier as students are automatically enrolled in the right course and do not have to worry about funding—materials are paid for via a course fee.

Future plans include the possibility of combining the Beginning and Intermediate Algebra classes into one Developmental Math course. Students in the combined course would be allowed to go as far in that course as possible during a semester and start again where they left off during the next one.

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.