

Product Name MyLabsPlus

Course Names Prealgebra, Elementary Algebra, Intermediate Algebra

Course Format Emporium

Key Results Redesigned developmental courses that included MyLabsPlus-supported emporium models resulted in both an 18.4 percent increase in pass rates and increases in learning gains.

Submitted by

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Course materials

MyLabsPlus and *Developmental Mathematics Series*, Martin-Gay

Setting

Wor-Wic Community College is a public, two-year college serving the residents of Worcester, Wicomico, and Somerset counties of Maryland. An open-enrollment institution, the fall 2013 student profile shows that most students (68 percent) enroll part-time.

Challenges and Goals

Historically, Wor-Wic Community College's developmental math pass rates averaged 84.7 percent, and the retention rate averaged 71.6 percent. Wor-Wic had been teaching traditional face-to-face courses with MyMathLab as a supplement that students used to do their homework. First, the school switched to a modified emporium model where students were in the classroom three hours per week with a mini lecture at the beginning of each class. Now, in the final iteration of their redesign, MyLabsPlus delivers the total course.

Implementation

Wor-Wic started its pilot, the modified emporium method, in fall 2012 and began full implementation in spring 2013. The redesigned course has deadlines but is structured so that students can make their own decisions throughout the course. Prealgebra and Elementary Algebra students begin each section by watching a slide show about the objective. They must then decide if they know the information well enough to take the pretest. If students take the pretest and score 100 percent, they are finished with the section and can move on to the next one. However, if they do not score 100 percent on the pretest, or choose not to take it because they aren't comfortable with the material, they must work through the content. This can include watching a video, reading the textbook, taking notes in their notebook (Table 1), and doing the section homework at a minimum of 85 percent. At that point, they can move on to the next section's slide show and do the cycle again. Once each section is completed, students take a test inside MyLabsPlus.

Wor-Wic also developed a flow chart to aid students in their decision-making and to help them know where to go next in the course. The chart suggests next steps based on the decisions they made prior.

Wor-Wic's Intermediate Algebra course is structured the same way, except that students do not take a pretest. Instead, they take a quiz after every three or four sections and a test at the end of the chapter. Students are allowed three attempts at the quiz without the help of learning aids.

Assessments

35 percent	MyLabsPlus tests (proctored)
35 percent	Homework (MyLabsPlus and student notebook)
20 percent	MyLabsPlus final exam (proctored)
10 percent	Progress/attendance (Students earn points for progress in the course, not just attendance; Table 2)

Points Possible	Guidelines for Notes	Guidelines for Practice Problems
4–5	Notes are complete	All work is shown
2–3	Notes are lacking information	Some work is shown
0–1	No notes	No work is shown

Table 1. Student Notebook Grading Guidelines

Points Possible	Guidelines
3–4	Meeting progress goals
1–2	Working toward progress goals
0	No progress toward goals

Table 2. Progress/Attendance Grading Guidelines

Results and Data

At the start of their redesign, Wor-Wic established the following objectives they needed to meet in order to consider the redesign a success: increase pass rates, increase retention rates, increase pass rates for first-time attempters, improve mastery of content, and increase final exam scores by various percentage points according to the course.

The redesigned courses realized gains in pass rates compared to the traditionally taught sections, which had averaged 84.7 percent (87.35 percent for Prealgebra, 83.35 percent for Elementary Algebra, and 83.2 percent for Intermediate Algebra; Figure 1). Pass rates climbed, for all developmental classes combined, from 77.3 percent in the fall 2012 traditional courses to 91.5 percent in spring 2013's fully implemented redesigned course, an 18.4 percent increase.

In addition, the retention rate averaged 71.6 percent across all developmental math courses (Prealgebra: 70.8, Elementary Algebra: 71.0, Intermediate Algebra: 73.1; Figure 2).

For their Prealgebra course, Wor-Wic met its goal by increasing pass rates by 7.8 percentage points and final exam pass rates by 10 percentage points, and they were just shy of meeting their learning gain goal with an increase of 6.2 percentage points (Figure 4).

In Elementary Algebra, Wor-Wic met its goal for four out of five success factors: increasing pass rates by 10 percentage points, first attempt pass rates by 5 percentage points, learning gains by 11 percentage points, and final exam pass rates by 15 percentage points (Figure 5).

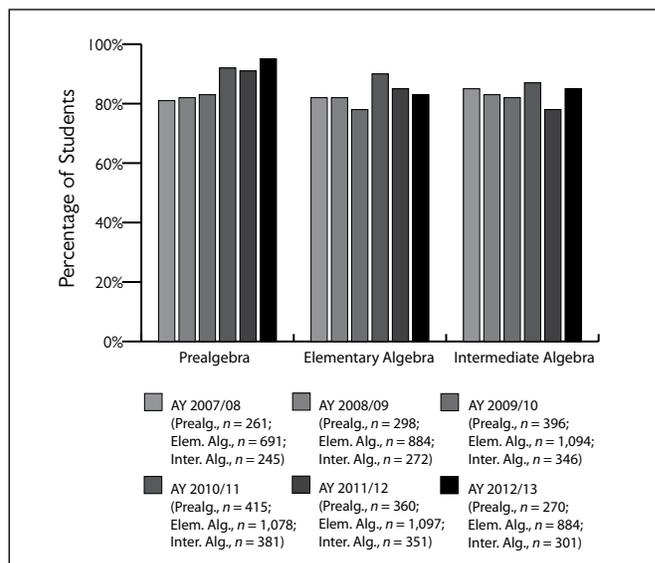


Figure 1. Developmental Math Pass Rates, Fall 2007–Spring 2013

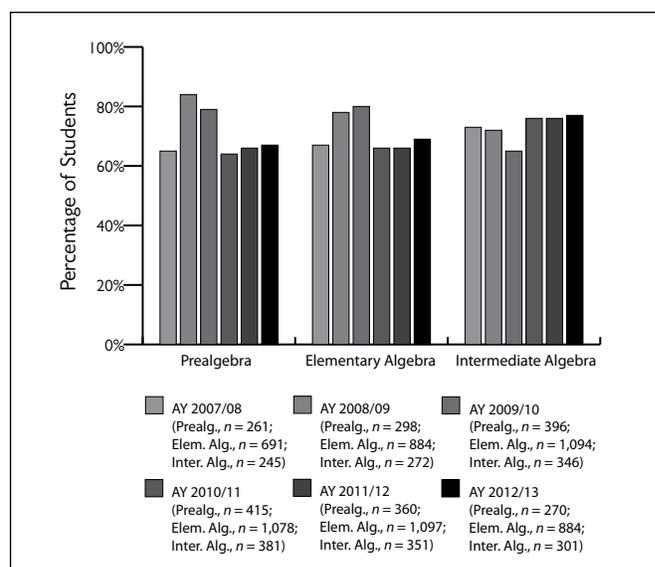


Figure 2. Developmental Math Retention Rates, Fall 2007–Spring 2013

In its Intermediate Algebra course, Wor-Wic saw an increase in pass rates of 3.3 points, grew retention rates by 4.1 percentage points, and increased and first attempt pass rates by nine percentage points; learning gain and final exam pass rate data was unavailable. (Figure 6). In addition, the average redesigned course pretest-to-posttest score increase was 57.4 percentage points—from 6.8 percent on the pretest to an impressive 64.2 on the posttest.

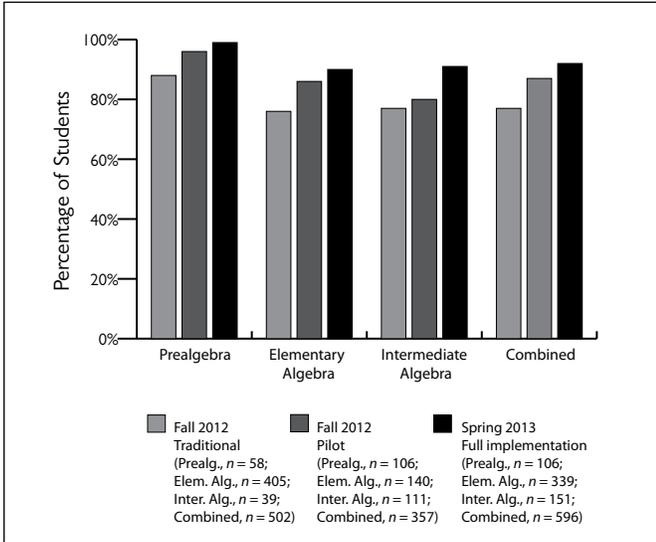


Figure 3. Developmental Math Pass Rates of Students Retained During Redesign, Fall 2012–Spring 2013

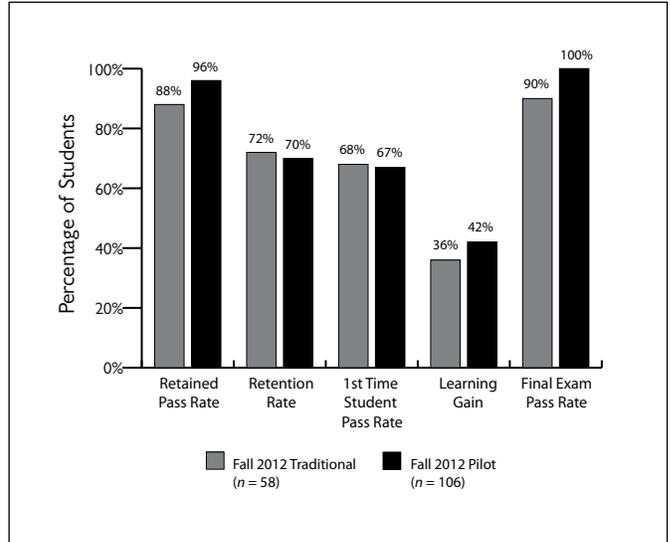


Figure 4. Prealgebra Redesign Success Factors, Fall 2012

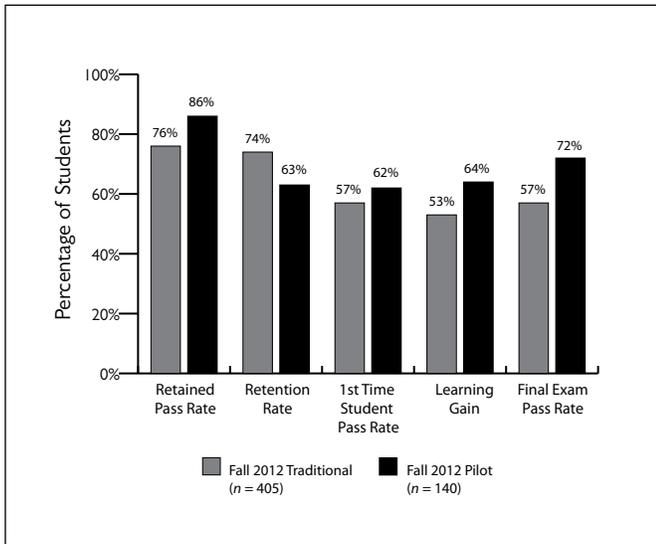


Figure 5. Elementary Algebra Redesign Success Factors, Fall 2012

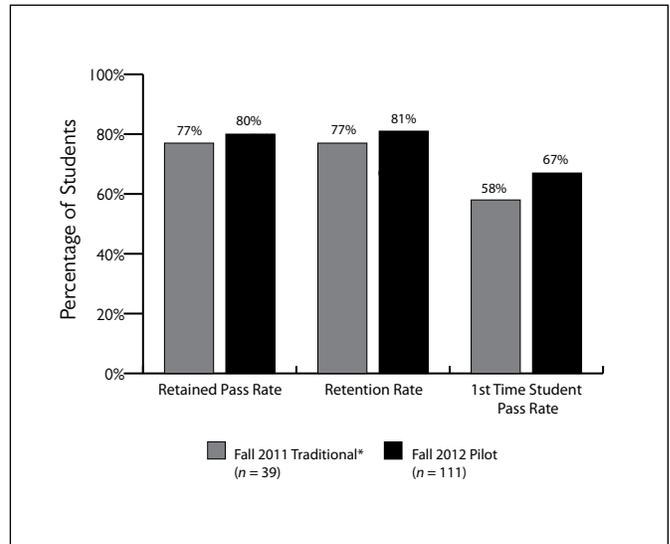


Figure 6. Intermediate Algebra Redesign Success Factors, Fall 2011 and Fall 2012
*Fall 2011 data was used because fall 2012 traditional classes were cancelled.

The Student Experience

According to Susan Twigg, developmental math coordinator, “Students’ attitudes about doing math is more positive since we began the redesign. They come to class early and begin completing their work right away. They are more excited about moving through the developmental series than I ever saw them in the traditional class because they know they can move quickly through the concepts they have mastered and slow down in their particular area of difficulty. MyLabsPlus is a large part of making this possible. The teaching aids in MyLabsPlus make

it possible for each student to work at a different place in the material.”

In a faculty-designed survey, students were asked which format they would prefer if given the choice between the new format and the traditional classroom lecture format. In her analysis of student responses, Twigg determined that most students chose the new format. Twigg highlighted the following two responses:

- “I would choose the new format because it’s easier to stay up to date with the class if you are a busy person.”

“Redesign has been a move in the right direction for our school. The students are happier and work better, and MyLabsPlus frees the teachers to work individually with the students.”

- “For this course...I would choose this new format because it allows you to work on the problems at your own speed, and if you need help understanding a concept, you still always have a teacher in the room to help you.”

In addition, Twigg’s findings included that the majority of students surveyed appreciated the fact that they could move at their own pace, yet still had an instructor who could help them if they got lost. Based on the experiences and data collected, Twigg believes that the flexibility built into the course, along with the comfort of having an instructor in the lab at all times, was a determining factor in student satisfaction with the course.

- “When I walked into the classroom and saw the computers, I was very intimidated. As an older student, I was not used to doing my math on the computer. Now, at the end of the class, I feel very comfortable with the format and loved the class. I would recommend it to others.”

Conclusion

While Wor-Wic Community College saw an increase in pass rates, first-attempter pass rates, learning gains, and final exam pass rates, they haven’t yet been able to consistently increase their retention rates. To help with this, coordinators are talking to instructors about being more of a mentor to students throughout the course. The school feels that if students receive more career advice, lines of communication are more open, and there is even more personal contact, the retention rates will rise.

To identify who needs intervention, instructors consult the MyLabsPlus gradebook for the amount of time spent on each section by each student. If a student has spent three or more hours on a section, the instructors reach out and suggest that the student go for tutoring in the math lab.

Perhaps more encouraging for Wor-Wic is the fact that they had good results and realized increases despite the fact that they found teachers had previously been choosing not to teach certain topics, such as word problems, and now, in the redesigned course, there is no flexibility in what to teach, so every student is being held accountable to the same standards.

In addition, the school has learned how important instructor training is. “We thought we had trained all our instructors, but we still get questions or see instructors doing things in an unusual way. We need to make sure we train all of our instructors thoroughly not only in MyLabsPlus but also in teaching in the redesigned classroom.”

Twigg is happy with the results: “Redesign has been a move in the right direction for our school. The students are happier and work better, and MyLabsPlus frees the teacher to work individually with each student. I feel like I have more one-on-one contact with my students and get to know them and their strengths and weaknesses more than in a traditional classroom. Redesign has revitalized my teaching and made me excited to go to class each day.”

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.