

Product Used **MyMathLab**
 Course Name **Elementary Algebra**
 Credit Hours **Three**



KEY TAKE-AWAY

By combining NCAT redesign, MyMathLab, and mastery learning, and focusing its Elementary Algebra course on competency completion, VSCC both increased final exam scores and pass rates, and helped enable students to move more quickly through the developmental math sequence.

Textbook in Use

Developmental Mathematics, 2e, Elayn Martin-Gay

Course Implementation

Course Design

In 2009, the Tennessee Board of Regents developed a curriculum designed to more effectively prepare students for success in their first college-level courses. To align with the statewide mandated curriculum, Volunteer State Community College (VSCC) redesigned its Elementary Algebra course using MyMathLab in the National Center for Academic Transformation's emporium model. The redesigned course shifts the focus of the course from course completion to mastery of five competencies:

- Real number sense and operations
- Operations with algebraic expressions
- Solving linear equations
- Analyzing graphs, equations of lines, introduction to polynomials
- Modeling and critical thinking

Spring 2011, VSCC piloted the redesigned MyMathLab course side-by-side with the traditionally delivered course. Pilot classes had an average of 40 students (compared to 25 in the traditional classes), were conducted entirely in the math emporium and online, and employed a fixed schedule of at least three

hours a week. All work was conducted using MyMathLab and required a score of at least 75 percent on each competency in order to progress to the next one.

Assessments

10 percent	Participation
10 percent	Homework <i>At least three assignments per week, completed in MyMathLab.</i>
10 percent	Quizzes <i>A total of 10 quizzes, completed in MyMathLab.</i>
70 percent	Tests <i>Five tests, completed in MyMathLab.</i>

Use of MyMathLab

The full depth and breadth of MyMathLab was used—from homework assignments to quizzes to tests, from videos and learning support features to the program's email, Gradebook, and coordinator course features.

Use of MyMathLab contributes 90 percent to a student's final course grade.

Results and Data

VSCC's redesigned Elementary Algebra course showed increased learning gains across a variety of metrics, including final exam score, pass rate, and competency completion.

The mean final exam score for the pilot students was 10 percent higher (approximately seven percentage points) than for the traditional students, and four percent higher

(approximately three percentage points) than those traditional students who earned at least 75 percent on tests 1, 2, and 3. See Figure 1.

The redesign pilot had a 14 percent higher (2.4 percentage points) pass rate than the traditional cohort and a 75 percent higher (8.3 percentage points) pass rate than the subset of

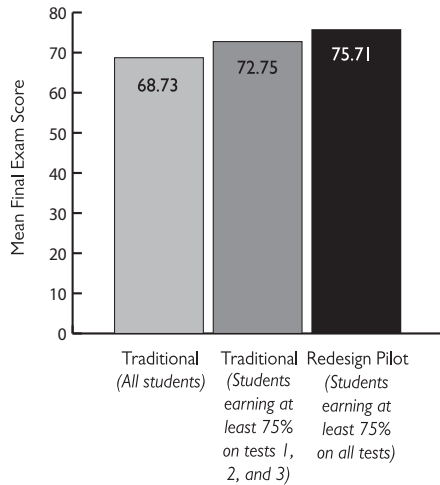


Figure 1. Comparison of Traditional and Pilot Mean Final Exam Scores, Spring 2011

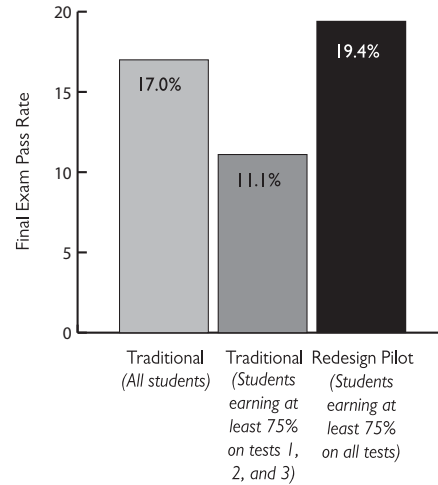


Figure 2. Comparison of Traditional and Pilot Pass Rates, Spring 2011

those students earning at least 75 percent on tests 1, 2, and 3. See Figure 2.

Nearly half (48.8 percent) of the pilot students achieved mastery through Competency 3, thereby earning successful completion of the three-hour course with a grade of A, B, or C. What's more, Sowell reports that in Spring 2011 one student completed all five competencies *and* the school's pre-college algebra course. See Table 1.

Competency	Number	Percentage
1	272	80.0%
2	198	58.2%
3	166	48.8%
4	122	35.9%
5	117	34.4%

Table 1. Redesign Pilot Competency Completion Rates, Spring 2011 ($n=340$)

The Student Experience

Students learn math by doing math. By implementing both MyMathLab and required mastery learning, Sowell successfully motivates her Elementary Algebra students to persevere when they may have previously given up. They participate more and gain confidence in themselves and their abilities—a gain that will benefit them throughout their college career and beyond.

“Because students ask questions via the computer, they are less inhibited and more likely to seek help,” says Sowell. “When they proceed to the next topic or even the next course, these students are confident that they’re ready to do so.”

Conclusions

In addition to meeting state mandated requirements, VSCC's MyMathLab-enabled redesign offers benefits to its students, faculty, and the college itself.

- Students who complete the redesigned course early may progress to the next required course. If two courses are completed in one semester, VSCC transcripts the course of highest completion.
- Despite having more students per section, the redesigned format enables instructors to spend more hands-on time with each student than does the traditional format.
- The redesign's decreased cost of instruction enables increased funding for other academic initiatives.

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