Accelerated Workshop Approach to Remedial Mathematics Using Problem-Solving

Principal Investigators:
- G. Michael Guy, Assistant Professor, Math and Computer Science, Queensborough Community College
- Jonathan Cornick, Assistant Professor, Math and Computer Science, Queensborough Community College
- Robert J. Holt, Associate Professor, Math and Computer Science, Queensborough Community College
- Andrew Russell, Instructor, Math and Computer Science, Queensborough Community College

Target Course: Arithmetic (MA005)

Intervention: Accelerated 4-week modular workshop

Abstract:
Anecdotal evidence suggests that many students who 'almost' pass COMPASS Arithmetic (S1) placement test fail or drop out of MA-005, a semester long remedial arithmetic course, because they are discouraged by a course which attempts to re-teach them material they have already seen for several years in high school. These students often do not reenroll in the following semester and fail to make progress towards a degree despite their initial desire to do so. To meet the needs of such students and prepare them for a credit bearing course, a new course, MA-005M (modular workshop), was developed in Summer 2009 and offered for the first time in the Fall 2009 semester. It is an accelerated 4-week, 20-hour workshop including 4 computer lab hours, in which the emphasis is on students engaging in problem solving to improve their arithmetic skills. Students were required to take the COMPASS Arithmetic test again following their coursework. If they score at least 30 on their second attempt, then their arithmetic remediation is complete, and they may register for a remedial algebra course in the following semester. The main goal of this project was a four semester (Fall 2009 - Spring 2011) statistical analysis and comparison of S1 exit scores for students taking MA-005M and MA-005, in order to identify subpopulations of students who can benefit from the workshop format, and who can thus sufficiently improve their skills and exit mathematics remediation more quickly. The course pass rate was 44% for the control group versus 73% for the experimental group, which showed a statistically significant difference. The within-semester retention rates were also significantly different between 65% for the control group and 84% for the experimental group. In addition, there was a statistically significant difference between 58% from the experimental group and 44% from the control group enrolled in the following remedial course. However, there was no statistically significant difference between approximately 15% for the control group and 19% for the experimental group passing the following remedial course.