

MULTIPLYING THE IMPACT OF MATHEMATICS TEACHING AND LEARNING

MATHEMATICS SCORES IN MILWAUKEE PUBLIC SCHOOLS (MPS) HAVE INCREASED DRAMATICALLY. Fall 2008 test scores, released in April 2009, showed the percentage of MPS students rated as proficient or better in mathematics increased on average by five percentage points across all grades tested, with students in grades four and eight making remarkable increases of nine and 10 points. Strong evidence links the improvement to a long-term UWM-led effort to improve the teaching and learning of mathematics in MPS.

DeAnn Huinker, UWM professor of mathematics education, and Kevin McLeod, associate professor of mathematics, lead the Milwaukee Mathematics Partnership (MMP), a collaborative effort including teachers, mathematicians and administrators from UWM, MPS and Milwaukee Area Technical College. “The fact that scores in the rest of the state increased by just under two percentage points is an indication that we are closing the gap,” says Huinker.

Much work remains to further decrease gaps between MPS students and others in the state, in addition to narrowing the achievement gap between students of color and majority students. Still, MMP is making a visible impact as schools move into the fourth and fifth stages of the long-term improvement process. The work started in 2003 with a \$20 million National Science Foundation grant, which UWM administers. Huinker is the principal investigator on the grant, the largest in the university’s history.

One key element of the work is a focus on a comprehensive understanding of mathematics. In addition to learning computation skills, students learn mathematical reasoning and problem solving, and are able to apply mathematical principles. The MMP has promoted this deeper student knowledge of mathematics, helped teachers develop and provide descriptive feedback to students and increased the teachers’ own content knowledge. The MMP has offered approximately 100 classes for teachers to help improve their understanding of mathematics content and develop tools for teaching the subject well. School-based mathematics teacher-leaders work with teachers in individual classrooms to support the efforts. These leaders are mentored by district mathematics specialists who support cohorts of schools.

An MMP analysis of changes in test results from 2005 to 2008 showed that schools with a high level of involvement with the partnership had the greatest growth in student mathematics proficiency. The research also showed that schools with higher MMP involvement also had greater overall proficiency. Now the challenge is to continue the improvements as NSF funding ends, says Huinker. Some changes have been embedded in the schools, but funding will be needed to continue other work. “If we have really done our work, we have established the foundation for continuous improvement and we have shown what it takes to help students learn mathematics.”



Test scores are rising. A five-year, UWM-led effort to improve the teaching and learning of mathematics in Milwaukee Public Schools is starting to close the achievement gap.

