PEER-LED TEAM LEARNING IMPLEMENTATION IN HIGH SCHOOLS

PEER-MEDIATED INSTRUCTION IN HIGH SCHOOL

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While educators have long been convinced of the benefits of peer-based learning experiences for all involved, its potential has remained unrealized in K-12 contexts. Logistical issues have dominated decision-making, forcing peer-mediated learning into supplemental contexts, utilized largely for remediation, and extraneous to the primary instructional experience. In contrast, the Math Science Partnership in New York City (MSPinNYC) has developed a model of mathematics and science instruction for the high school classroom that harnesses the power of peer-mediated learning on a daily basis as the primary learning modality. This model, which we call the Peer Enabled Restructured Classroom (PERC), has profoundly shifted the learning experience of students and teachers in these classrooms, produced dramatic increases in standardized test scores, and increased student motivation and skills applied across contexts. The name 'Peer Enabled Restructured Classroom' emphasizes the complete change in approach to learning and the central role of the peer-instructor, called the Teaching Assistant Scholar, in this process.

The PERC program is being implemented in Integrated Algebra and Living Environment (biology) classes in New York City high needs schools, both in summer school and academic year classrooms. The group activity is carefully planned by the teacher and implemented by the Teaching Assistant Scholars (TA Scholars), who provide feedback to the teacher about the instruction and students' progress. Group activities typically include tiered problem sets, simulations, literacy development, lab experiments, practicing Regents problems, etc. The TA Scholars are students who have passed the course and the associated Regents exam, but not at a very high level (average Regents score for 2008-2010 was 74), and are usually one to two years older than the students taking the class. Class begins with a "Do Now," a quick group-based activity that reviews the previous day's work or foreshadows the current lesson. The teacher then conducts approximately 10 minutes of whole class instruction, establishing the learning priorities and motivations for the day. The next 30 minutes involve peer-led group work with the teacher observing student interactions, supporting group functioning, and assessing student understanding. The class ends with a summary or assessment, either whole class or group-based.

During a focus group at the beginning of the 2009 summer program, experienced TA Scholars argued forcefully that the PERC classroom would function the same way if the teacher left the room but would be completely altered by the absence of the TA Scholars. While the TA Scholars may have a limited view of the entire classroom process, their perspective certainly suggests that the PERC model has altered the classroom from a teacher-centered to a student-centered learning environment. The TA Scholars take a daily course that prepares them for their work in the PERC class, teaching them pedagogy and advanced content, as well as working on college preparedness.

Our research about and evaluation of the PERC model have demonstrated substantial gains in students' content knowledge and attitudes about mathematics, science, and learning in general. In two years of field trials, pass rates for students taking Integrated Algebra or Living Environment for the first time in PERC classes were 20 percentage points higher than for students in comparison classes. When TA Scholars retake the Regents exam at the end of their year of facilitating PERC classes their average pass rates have increased by 8 points. Our use of validated surveys of students' perceptions of their experiences have shown significant improvements in 1) motivation towards math and science class work, 2) approach to learning math and science content, and 3) perceived satisfaction of basic psychological needs of competence, autonomy, and relatedness. Our research about impacts on TA Scholars indicates sharp increases in self-esteem, motivation to study science and mathematics, and interest in becoming educators.

In the next phase of our work, we will be expanding peer-mediated models into advanced high school math and science classes that will form a TA Scholar-to-College Pipeline. We also look forward to our TA Scholars becoming peer leaders in college PLTL programs. For more information about the PERC program and its outcomes, please visit our website at www.msinnyc.org.

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