

Promoting Rigorous Outcomes in Mathematics and Science Education

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Promoting Rigorous Outcomes in Mathematics and Science Education (PROM/SE), coordinated by Michigan State University and five partner organizations (listed below), is an innovative project that aims to improve student achievement dramatically in mathematics and science.

PROM/SE works with nearly 60 school districts across Michigan and Ohio, involving 7,000 K-12 teachers. Initiated in 2003, the five-year, \$35 million collaborative effort is funded by the National Science Foundation.

"Our aim is to create a powerful new approach to improving mathematics and science achievement for all students," says Joan Ferrini-Mundy, co-principal investigator for the project and Michigan State University professor. "All students should be exposed to, and master, higher levels of mathematics and science before they graduate from high school."

PROM/SE is working with districts to design custom professional development that addresses knowledge gaps and areas of low student achievement as revealed through the data. Teachers attending these sessions return to their districts with deeper content knowledge for teaching mathematics and science.

Mary Bouck, PROM/SE Director of Capacity Building, notes that PROM/SE professional development is different from what teachers often experience. "Teachers do not leave our sessions with activities to

do in the classroom. We focus on building a deeper level of understanding of how key mathematics and science concepts unfold for students within and across the grades."

Principal Elizabeth Turpin of Forest View Elementary, a participating PROM/SE school in Lansing, agrees that students need solid mathematics and science skills. As a participant, Forest View is on the frontline in the mission to prepare students for a bright future and instill the importance of mathematics and science.

"Mathematics and science are involved in everyday living, from balancing checking accounts to creating home budgets," she says.

Turpin emphasizes that students will need higher mathematics and science skills as they enter college or the work force, so they can become knowledgeable consumers and citizens. Data about competing in the 21st Century global economy emphasize a need for these higher skill levels.

Studies consistently have found that students in the United States fare poorly in mathematics and science as compared to their international counterparts. Student assessment data emerging from PROM/SE paint a similar picture of Michigan and Ohio students. In the first year, PROM/SE assessed nearly 200,000 children, grades 3-12, to determine student understanding of mathematics and science.

Researchers are working with school districts to collect other data about K-12 mathematics and science curriculum, student learning, teacher professional development, teacher preparedness, classroom

practices, and parent attitudes.

PROM/SE's data-driven methodology and these baseline data are shedding new light on how students fare compared to each district's curriculum and state standards, the amount of time spent on particular topics within the classroom, and how time allocation translates into student understanding. Data analysis is ongoing.

During the project's final year, the student assessment will be repeated. The project's results promise to have nationwide applications and be a significant contribution to K-12 education.

For more information, visit www.promse.msu.edu.

PROM/SE partners include:

- Calhoun Intermediate School District, Michigan.
- Ingham Intermediate School District, Michigan.
- Michigan State University.
- St. Clair County Regional Educational Service Agency, Michigan.
- High AIMS Consortium, Cincinnati, Ohio.
- SMART Consortium, Cleveland, Ohio.

