

# — SUMS —

## Seminar on Underrepresentation and the Mathematical Sciences

### HOW COMPUTERS CAN HELP CLOSE THE ACHIEVEMENT GAP IN MATHEMATICS

GEORGE KHACHATRYAN  
Reasoning Mind

#### Abstract

Curriculum reform and teacher professional development are among the least fashionable approaches to improving the quality of our school mathematics education. However, the research shows that it is precisely these levers that have the greatest impact on student achievement. In other words, if we are to close the achievement gap, the most important things we must do are (i) improve our nation's K-12 curricula and (ii) help teachers deepen their knowledge of math content and teaching methods.

Unfortunately, making these reforms with conventional methods - not to mention in a way that is scalable to the millions of students who need them - is prohibitively difficult.

Reasoning Mind is a non-profit organization that is using computers to achieve these goals. RM provides an online curriculum based on the Russian program, along with extensive professional development for teachers. Thus, the teaching expertise of Russia's best math teachers can be made available to all teachers and students. Already, over 20,000 students - most of them from economically disadvantaged communities - have taken RM's courses, and the results have been remarkable.

This talk will focus on the role of curriculum reform in closing the achievement gap, how computers can be used to bring it about, what the barriers to successful reform are, and how these barriers can be overcome.

Friday, February 19  
4:00 p.m., Sprague 3<sup>rd</sup> Floor