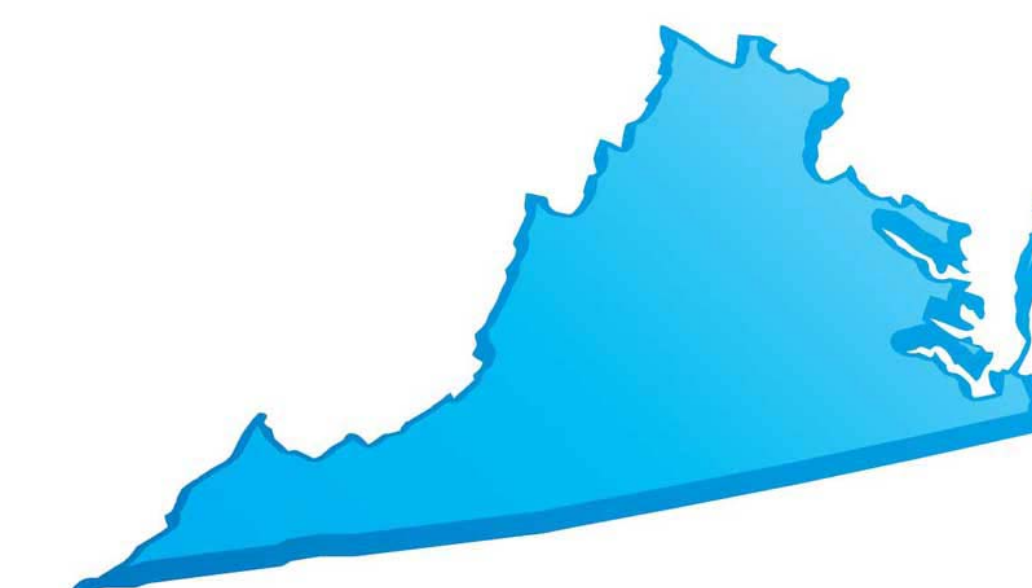




Mathematics Specialists who Coach Classroom Teachers and Support Effective and Coherent Mathematics Program

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NATIONAL SCIENCE FOUNDATION SUPPORT MAKES POSSIBLE

- ❖ Creation of Masters Degrees consisting of deep understanding of grade level content, instructional approaches and coaching skills.
- ❖ Development of program by university mathematicians, mathematics educators, school administrators and teachers.
- ❖ Program to be completed by 50 teachers who will serve as Specialists.
- ❖ Support for Principals in schools in which Specialists serve.
- ❖ Institutionalization of degree and support programs.
- ❖ Randomly selected treatment/control schools to measure impact of Specialists on student achievement and teacher beliefs.
- ❖ Case study research to understand how Specialists accomplish their goals.
- ❖ Publications and presentations including National Council of Teachers of Mathematics published Handbook for Mathematics Specialists.

This project is supported by National Science Foundation Grant DUE-0926537 "MSP Institute: Mathematics Specialists in Middle Schools"



PRIOR RESEARCH RESULTS (K-5)

The study involved 24 treatment schools and 24 control schools that were randomly selected.

There were major, statistically significant, differences in student performance on state standardized tests in each of grades 3, 4, and 5.

The difference in test scores between treatment and control schools increased each year the Specialist was in place with 10 to 20 point gains in scores in year two and greater gains in year three.

Working with well-prepared Specialists changes teacher beliefs about how students learn and appropriate assessment practices.

See www.vamsc.org for details.

KEY ELEMENTS OF EFFECTIVE INSTRUCTION

COHERENT SET OF STANDARDS AND CURRICULUM

Specialists conduct in-school team level training sessions to assure that all teachers are committed to standards and to a vertically aligned curriculum.

TEACHERS WITH HIGH CAPACITY TO TEACH IN DISCIPLINE

Specialists provide in-school professional development for teachers that is directly related to their STEM pedagogical content teaching. Research from randomized treatment/control pairs of schools has demonstrated that this training increases student achievement.

SUPPORTIVE SYSTEM OF ASSESSMENT AND ACCOUNTABILITY

The Mathematics Specialists support teacher practices that are inquiry based and problem-centered. Research shows that working with well-prepared Specialists changes teacher beliefs about how students learn and appropriate assessment practices.

ADEQUATE INSTRUCTIONAL TIME

Specialists support teachers in making optimum use of available time and integrating meaningful social science and science activities into mathematics instructional time.

EQUAL ACCESS TO HIGH-QUALITY STEM LEARNING

Specialists analyze student achievement on specific portions of the curriculum with sensitivity toward equal access and to the achievement of students from underrepresented groups.

VIRGINIA LEGISLATURE JOINT RESOLUTION

In February 2012 the Virginia legislature recognized NSF support for Mathematics Specialists, specifically including the MSP Institute project, and stated that the General Assembly commends and congratulates "Virginia school boards that employ elementary and middle school Mathematics Specialists in order to increase student achievement by increasing the quality of mathematics instruction."