

**VIRGINIA MATHEMATICS AND SCIENCE COALITION**

**SURVEY ON THE**

**DISCIPLINARY PREPARATION OF**

**VIRGINIA'S MIDDLE SCHOOL  
MATHEMATICS AND SCIENCE TEACHERS**

**MAY 1999**

# VIRGINIA MATHEMATICS AND SCIENCE COALITION

## SURVEY ON THE

### DISCIPLINARY PREPARATION OF

### VIRGINIA'S MIDDLE SCHOOL MATHEMATICS AND SCIENCE TEACHERS

The new state licensure requirements that have been approved by the Virginia Board of Education stipulate that to gain certification to teach at the middle school level, teachers must earn a 6 - 12 endorsement by majoring in the area that they will teach or gain a 6 - 8 endorsement that requires two areas of concentration. Each area of concentration typically includes at least 21 hours. The Virginia Mathematics and Science Coalition has strongly endorsed the new requirements and is concerned that Virginia's colleges and universities are not producing sufficient teachers to meet the new licensure requirements. The Coalition commissioned a survey to determine the backgrounds of current teachers.

#### Survey Methodology

The survey was conducted on behalf of the Virginia Mathematics and Science Coalition and the National Science Foundation-supported Virginia Collaborative for Excellence in the Preparation of Teachers by the Metropolitan Research Consortium (MERC). MERC randomly selected 65 schools and requested that all teachers in these schools be surveyed. Responses were received from 59 schools. A total of 382 middle school mathematics teachers and 324 science teachers completed a form developed by MERC. A copy of the survey instrument is attached.

#### Findings

According to the study approximately 50% of Virginia's middle school mathematics and science teachers are currently teaching out-of-field. In other words, they do not have the equivalent of a minor or a major in the area (mathematics or science) that they teach.

#### Initial College Preparation

Most of the teachers neither majored nor minored in mathematics/mathematics education or science/science education. The following information concerns the initial preparation of current middle school teachers.

subject taught	majored in subject matter taught	minored in subject matter taught	teaching out-of-field of initial preparation
science	31% (Major in science or science education)	13% (Minor in science or science education)	56%
mathematics	20% (Major in math or math education)	13% (Minor in math or math education)	67%

The teachers reported the following number of college credits completed in their current teaching field (initial preparation):

subject taught	0 - 6	7 - 12	13 - 18	19 - 24	25 - 30	more than 30
science	10%	26%	19%	11%	6%	28%
mathematics	19%	31%	15%	9%	10%	16%

### **Ongoing Preparation**

Many of the teachers completed course work and participated in continuing education workshops after they were assigned by their systems to teach out of their field. Seventy-five percent of the mathematics teachers reported that they had attended at least one workshop in their discipline and 44% reported that they had attended four or more such workshops. Seventy-seven percent of the science teachers reported that they had attended at least one workshop in their discipline and 45% reported that they had attended four or more such workshops.

In addition, 55% of the mathematics teachers reported that they had completed at least one credit course in mathematics after their initial certification. Similarly, 61% of the science teachers reported that they had completed at least one credit course in science after their initial certification.

The new state licensure requirements that have been approved by the Virginia Board of Education require that to gain certification to teach at the middle school level, teachers must major in their area of teaching or have a minor consisting of at least 21 hours. The completion of the additional course work after original certification results in a significant increase in the number of teachers who are teaching in their field, but approximately one half of the individuals currently teaching middle school do not meet the new licensure requirements.

Teaching Field	21 credit hours or more in teaching field (credit courses completed either before or after initial certification)	teaching out-of-field
science	51%	49%
mathematics	48%	52%