GENDER DIFFERENCES IN THE MISSOURI
ELEMENTARY MATH CONTEST

David Ashley and Lynda Plymate

1. Background and Introduction. The Missouri Council of Teachers of Mathematics (MCTM) has conducted an annual elementary mathematics contest for students in which school-selected participants compete on tests measuring mathematical concepts and problem solving. Each school or administrative unit is allowed to select its representatives to the contest based on whatever criteria it judges to be fair and professional. The maximum number of students a school may enter at each grade level depends on their enrollment at that grade level, from a minimum of 3 to a maximum of 6. Home-schooled students are also invited to participate as long as they represent a minimum of 10 home-schooled children at the same grade level in their region. The contest has grown significantly over its 16-year history, and it now involves approximately 3300 participants from 450 public and private elementary and middle schools in Missouri each year.

In 1993 the use of calculators and measuring instruments was encouraged for use on both the Concepts and Problem Solving events. This decision was prompted by a desire to have the contest questions more closely align with recommendations from the 1989 National Council of Teachers of Mathematics (NCTM) *Curriculum and Evaluation Standards for School Mathematics* [16]. At both the regional and state level, these two contest events involve 30-minute written exams. The Concepts test assesses knowledge of number and number sense, geometry, measurement, data analysis, probability, and statistics. The Problem Solving test assesses higher order thinking skills, and requires an application of mathematics utilizing both concepts and computation. Any student who places first, second, or third in a regional contest event is invited to enter the same event at the state contest.

Dr. Plymate served as statewide director of the MCTM contest from 1994 through 2000; Dr. Ashley joined the effort in 1999 and assumed the directorship in 2000. At the state finals competition we consistently observed a significant difference in the number of male winners compared to female; both in eligibility as regional winners and in the number of winners at the state level. We could not avoid being curious as to why males so consistently outperformed females on this contest. Are male students in Missouri actually learning more mathematics than females, or are the contest questions gender biased? Alternatively, are males spending more time preparing for the contest, or is the selection process at the local schools gender biased?