

1067-O1-439

**James H Fife\*** ([jfife@ets.org](mailto:jfife@ets.org)), Educational Testing Service, Princeton, NJ 08541. *Improving the performance of open-ended mathematics questions.*

Two of my colleagues and I conducted a research study in which selected poorly-performing open-ended mathematics questions were revised in various ways to see if the revisions could remove non-construct-related difficulty while preserving construct-related difficulty and preserving the skills and abilities that the questions were originally designed to measure. For some of the questions, we created parallel versions, carefully varying different aspects of the language. The questions were then piloted on a sample of about 500 middle-school students. We found some interesting differences in student performance among the various versions. For example, one question asked students to give both an equation and an explanation that describes the relationship between four proportional variables. In one version we asked the equation question first, and in the other version we asked the explanation question first. We found that, while the order in which the questions were asked made no difference in the proportion of students who answered the questions correctly, it could make some difference in the type of error a student who answered incorrectly might make. In this talk, I will discuss this and our other findings. (Received September 03, 2010)