

**Meeting:** 1003, Atlanta, Georgia, MAA CP G1, MAA Session on Drawing on Our Students' Thinking to Improve the Mathematical Education of Teachers

1003-G1-434      **Michael J. Gilbert\***, 216 Kingston Hall, Department of Mathematics, Eastern Washington University, Cheney, WA 99004-2418. *Multiple Solutions/Multiple Problems*.

The paper considers the mathematical rationale behind pursuing multiple solution approaches, and the case for having preservice teachers examine student work on mathematically parallel tasks. Preservice teachers need deep conceptual and pedagogical content understandings. This paper describes how the process was undertaken in a preservice class as well as in an inservice professional development setting. When preservice and inservice teachers examine student work on multiple versions of problems, they begin to investigate the connections between problems, as well as seeing different contexts for approaching solutions. Content knowledge is increased by examining different, yet related mathematical tasks. Detailed is a discussion involving the emphasis inservice teachers place on multiple solution strategies in their own teaching. Preservice and inservice teachers reported that the exercise gave them new insights into both teaching and mathematics. By closely examining the different ways learners approach mathematically similar tasks, teachers saw how the task terminology influences the representation. This paper adds insight to the ways preservice teacher educators can be informed of the thinking and understanding of prospective teachers. (Received September 14, 2004)