

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

1003-G1-1448      **Judith Lynn Gieger\*** ([lgieger@oglethorpe.edu](mailto:lgieger@oglethorpe.edu)), Division of Education, Oglethorpe University, 4484 Peachtree Road, N.E., Atlanta, GA 30319, **John C. Nardo** ([jnardo@oglethorpe.edu](mailto:jnardo@oglethorpe.edu)), Division of Mathematics & Computer Science, Oglethorpe University, 4484 Peachtree Road, N.E., Atlanta, GA 30319, and **Missy Bain** ([mr bain@earthlink.net](mailto:mr bain@earthlink.net)), 1210 Johnson Ferry Road, Marietta, GA 30068. *Promoting Conceptual Understanding of Fundamental Mathematics Among Preservice Elementary Teachers.*

This presentation will discuss the effects of changes in pedagogical and mathematical focus in a course offered for preservice elementary teachers. As a result of participation in the PMET grant program, the course shifted from a procedural to a conceptual approach, with an intensive focus on fundamental mathematical concepts present in the early grades. These changes and the accompanying course procedures and expectations significantly enhanced the students' understanding of the complex mathematical content that they are expected to teach. To support this claim, the researchers compared the results of student responses to the scenarios used by Liping Ma in her study of Chinese and U.S. teachers' understanding of fundamental mathematics. In Ma's study, only one of the twelve beginning U.S. teachers consistently attempted to provide a conceptual explanation for the scenarios. In contrast, all students in this course consistently attempted to provide conceptual explanations, with their rate of success increasing as the semester continued. To support this progress, all assessed items were graded on correctness, conceptualization, connectedness, and communication. The result was a classroom culture in which a conceptual understanding was both expected and valued. (Received October 05, 2004)