

1023-G1-1598

Tracie McLemore Salinas* (salinastm@appstate.edu), 233 Walker Hall, 121 Bodenheimer Drive, Boone, NC 28608, and **Mary Elizabeth Searcy** (searcyme@appstate.edu), 230 Walker Hall, 121 Bodenheimer Dr., Boone, NC 28608. *Aha! Now I Understand Why! - Creating Self-Reliance in Mathematical Content through a Problem-Centered Course Sequence*. Preliminary report.

In this talk, we will discuss a two-course sequence for pre-service middle grades teachers. The first course addresses all K-8 mathematics topics in some form; the second follows the MET report recommendations for developing algebraic thinking with patterns, modeling, and function investigations. Although content is important, it is the problem-centered instructional approach that sets these courses apart from others in our program. Students do not have a mathematics textbook. Content knowledge emerges from explorations of rich problems presented outside of topical context. Students use technology, manipulatives, and multiple representations to solve problems. Then they express their reasoning of how and why the solutions work in both written and oral formats. Individual work on problems is required before students are allowed to attempt them in small groups. When a group has difficulties with a problem, they discuss it with the other groups. If the entire class is at a standstill, leading questions from the instructor help students identify trouble spots and consider alternative problem-solving strategies. This teaching style serves to support the transfer of mathematical authority from instructor to student and steers students away from rote approaches to mathematics. (Received September 26, 2006)