ME.ET Project, Overall Results, January 2009

Department chairs are knowledgeable about the course and its instructors. They are supportive of the mission, and very concerned about success.

Number of math classes averages 2, but is increasing especially for middle school certification. (See CBMS report)

There are 14 textbooks in print. Use data is not available from the publishers. In our data, most frequently used is Billstein. Our data shows that using one of the textbooks is an important predictor of student achievement (as compared to using some other book or using self-created materials.) We did not have enough data to test specific textbooks, and our test of the three mention in the NCTQ report was not significant.

Instructors are committed, enthusiastic, but not necessarily knowledgeable about mathematics education.

All but one of the schools in our study separate mathematics courses from methods courses, and there is not much collaboration or coordination across the two at any of the institutions in our study.

78% of the instructors who responded to the survey use one of the primary textbooks. 64% of the instructors with student data use one of the primary textbooks.

Using LMT items, we see a significant average gain across students taking one of these courses, but there is huge variation across instructors. With a standardized average score od 50, and standard deviation of 10, the average gain in this one semester course is about 7 points. Putting predictor variables into the model, using one of the 14 textbooks adds on average 4.4 points; every unit of teaching methods accounts for 2.6 points, and every point change in students' ACT or SAT score accounts for about half a point of gain score. The test score (ACT or SAT which we label CACT when we put them on a common scale) correlates with student's attitude toward math ("I like math") and when both are in the model "Like math" is not significant. When "Like Math" is in the model without CACT, it is significant and the coefficient (change in gain score) is .99.

The methods variable is significant, statistically and practically. For this measure we asked the instructor a number of questions about how often students engaged in particular activities in the class. A higher score on this variable means more student involvement with mathematics, including *students* doing things like explaining why a solution works or making conjectures. A low score on this item means less time on those kinds of activities and more time listening to the *instructor* explain something. The average score, on a scale of 1-4, was 2.73. An increase of 1 point over this average increases the gain in the model by 2.6 points.

Total size of the data sets:

- 56 departments
- 79 instructors completing the survey (out of 147, participation rate: 53%)
- 2136 individual students taking one of our forms (including pilot data and data from Taiwan)
- 1701 individual students taking one of our final forms
- 1066 students with matched data (pre and post test)
- 41 instructors from whom we have student data, in 48 sections