

1035-L1-694

**Jerome Epstein\*** (jepstein@poly.edu), Dept. of Mathematics, Polytechnic University, 6  
Metrotech Center, Brooklyn, NY 11201. *An Integrated Math and Physical Science Laboratory  
Program for Cognitive Development.*

I report on a program developed over 25 years to actually deal with the severe deficiencies of students at both secondary and tertiary levels, and teachers at pre-secondary levels in extremely basic mathematics, including both cognition and skill. The program is entirely hands-on and contains no lectures. It requires extensive writing and speaking. It is all small group work, with extensive intra-group discussion and Socratic dialogue with the instructor. It takes students from concrete level to high abstract level typically in one year. We document considerable improvement in success in later courses. It has been extensively tested, with college students and elementary teachers. It is we believe of exceptional interest for the training of both pre-service and in-service teachers. (Received September 13, 2007)