Archived Information

TERC

Project: "**Bringing Out the Algebraic Character of Arithmetic**" a.k.a. the "Early Algebra, Early Arithmetic Project."

P.I.'s: David Carraher (TERC); Analucia Schliemann (Tufts University)

Goal area of the activity: Developing A Research Base

Summary: A longitudinal study of 70 children's mathematical understanding between grades 2 and 5, with an emphasis on the emergence of algebraic reasoning; children reside in an urban multiethnic neighborhood; school is a typical Boston public school.

Purpose: The research is helping clarify what young students (grades 2-6) are capable of learning when special mathematical topics and methods are introduced early, as an integral part of the existing curriculum. It will provide a research basis and illustrative activities for curriculum developers and teacher educators.

Some Results: The research shows (1) that young students can learn to treat arithmetical operations as functions from an early age; (2) it identifies the issues (for students as well as teachers) of mapping across diverse mathematical representations (e.g. between a movements along a number line and steps in a subtraction computation); (3) it strongly suggests that the well-known difficulties *adolescents* show with algebra are not due to developmental constraints (as many have argued).

Plans for the next 12 months: Our book manuscript, Bringing Out the Algebraic Character of Arithmetic: From Children's Ideas to Classroom Practice, (A.D. Schliemann, D.W.Carraher & B.M. Brizuela, Mahpaw: Erlbaum, 2003) will be in press in early March, 2003. Another book based on our early algebra work, Early Algebra, Early Arithmetic: New Paths for Early Mathematics Education, by D.W. Carraher, A.D. Schliemann, and B.M. Brizuela, will be published by Kluwer in 2004. Symposia (NCTM, AERA, PME), web site additions, and other work are underway.

Several of our project publications are available at:

http://www2.earlyalgebra.terc.edu/publications/