Longitudinal Evaluation of a Scale Up Model for Teaching Math with Trajectories and Technologies: Persistence of Effects in the Third Year

Douglas H. Clements & Julie Sarama, University at Buffalo, SUNY (Clements@buffalo.edu, JSarama@buffalo.edu)

Wah Mary Elaine Spiteri, Christopher B. Wolfe, & Alissa Lange

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Introduction
We used a cluster randomized trial to evaluate the effectiveness of a research-based model for scaling up an intervention based on the TRIAD (Technology-enhanced, Research-based, Instruction, Assessment, and professional Development) model.

Theoretical Framework
In the Network of Influences framework scale up is viewed as the effort to maintain the integrity of the vision and practices of an innovation through increasingly numerous and complex socially-mediated filters.

Research Questions
1. What are the effects of the Pre-K intervention, as implemented under diverse conditions, on achievement for diverse populations?
2. What is the persistence of the effects of the TRIAD intervention, with and without follow-through, on achievement at the end of K and 1st grade?
3. Are there significant moderators of these effects?
4. Do measures of the classroom environment mediate effects of different treatments on achievement?
5. Do the theoretical foundations hold up under a CRT?

Methods
• Two school districts agreed to participate in the study, Buffalo, NY, and Boston, MA—2 schools, 106 teachers and 1375 children—publicly, randomly assigned to one of three groups: TRIAD (TRIAD Technical, Research, Instructional, Assessment, Development) group, TRIAD Follow-Through (TRIAD-FT) (identical pre-K), or Control.
• Professional Development Curriculum, and Coaching—Pre-K: 8 full days Year 1, 5 in Year 2, on the Building Blocks curriculum and its learning trajectories.
• Kindg. and 1st grade: 7 half-days on learning trajectories for each grade.
• All demonstrations, practice, and feedback re: the Building Blocks curriculum; use of the Building Blocks Learning Trajectories (BBLT) Internet software application—invaluable access to the learning trajectories via descriptions, videos, linking 3 aspects of learning trajectories—goals, developmental progression and contextual instruction.
• Multiple videos of instructional tasks—linked to levels of thinking.
• Teachers were coached—TRIAD-trained coaches and peer coaches.

Findings—Pre-K
Fidelity
On the 1 (Strongly Agreed) to 3 (Strongly Disagree) Likert scales, the TRIAD group (technical at pre-K averaged “Agree”/4. or time, Full Stop). Fidelity did not mediate math outcomes, except in classrooms with the lowest entry math scores—there was significant.

COEMET
Groups differed significantly (p < .005). The TRIAD group had the higher scores. There were no effects or interactions for time (Full Stop—recall this was Year 2 of training). No interaction with % school SES or LEP.

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