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PUTTING EARLY MATH TEACHER PROFESSIONAL DEVELOPMENT INTO THE EQUATION



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In both the 2013 and 2014 State of the Union addresses, President Obama highlighted the importance of investing in our nation's youngest learners. Since then, there has been renewed attention to expanding early learning opportunities for children throughout the country, especially those from disadvantaged backgrounds. In particular, preschool education has become a key area of focus in light of scientific evidence showing that a high-quality preschool experience is associated with significant and lasting academic gains for children from low income families and can thus help reduce early opportunity gaps.¹ Along with the push to expand access to high-quality preschool education, there is a growing national trend promoting alignment across the preschool

and early elementary grades to ensure a continuous and coherent set of learning experiences from preschool (pre-K) to third grade.

In our work at the Gardner Center we have seen efforts first-hand to enhance the quality of education in the early years and promote instructional alignment between preschool and elementary school. Our recently concluded study of the Early Learning Mathematics Initiative (ELMI) examined a professional development series designed and delivered by the San Mateo County Office of Education² (SMCOE) to improve math teaching and learning in pre-K to 3rd grade throughout the county. ELMI engages preschool and early elementary teachers in working together to connect the Preschool Learning Foundations with the Common Core State Standards in Math.

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¹ Findings from the Gardner Center's evaluation of San Mateo County's *Preschool for All* demonstration project illustrate the importance of high quality preschool for later achievement among a sample of children from low-income families at-risk for negative academic outcomes.

² San Mateo, CA

Math instruction in students' early education is oftentimes crowded out by an emphasis on supporting children's socio-emotional development and acquisition of literacy skills. The comparatively limited attention paid to math may be short sighted. Research has shown that students' early ability *in math* best predicts *both reading and math skills* in later grades. Unfortunately, many teachers of young children are inadequately prepared to teach math effectively. This is especially true for preschool teachers, for whom pre-service training in math is limited and dedicated time for lesson planning and classroom preparation can be non-existent. ELMI provides much needed support on early math instruction by facilitating teachers' close examination of math standards and structuring activities for teachers to connect math concepts across grade levels from pre-K through 3rd grade. Our findings documented positive shifts in teachers' knowledge, skills, attitudes, and beliefs associated with their participation in ELMI as well as emergent changes in classroom instruction that, if sustained, have the potential to improve students' achievement outcomes. In addition, ELMI exhibited several promising practices for improving alignment and linkages between early childhood and elementary school settings that were outlined in the Gardner Center's 2013 report, "Early Childhood Community School Linkages: Advancing a Theory of Change."³ In particular, ELMI facilitates collaboration between early childhood and elementary teachers and provides structured opportunities for them to innovate and create instructional alignment across preschool and early elementary grades.

Oftentimes, early childhood and elementary settings are disconnected from one another. For example, while some elementary school sites include a preschool classroom, the preschool may be in an auxiliary building or physically separated from the elementary school by a fence or driveway. Preschools are also not typically thought of as part of the elementary school per se, as state funding for preschool is distinct from K-12 education funding. This setup can hinder coherent collaboration and interaction among elementary and preschool teachers. During the first year of implementation in the Redwood City School District, the ELMI professional development took place at two community schools with preschool on-site. One preschool teacher we spoke with during the study described her experience both before and after the ELMI trainings in a powerful way, saying:

The rest of the school, unfortunately, we were just completely disconnected. I think it wasn't for lack of interest. I just think we all have very different schedules. ...so we just didn't really cross paths very often...I think sometimes, when [elementary teachers] think of preschool, they think maybe it's just babysitting in here or daycare, and they don't

³ In collaboration with the Institute for Educational Leadership and the Coalition for Community Schools.

quite see us as actually teaching here and being part of the education continuum. So I was happy that [during ELMI] they got to see what we do and hear about what's going on in our classroom and hopefully, maybe feel a little more connected to us that way...Now we actually can say hello, instead of just walk by like we used to.

ELMI also provided preschool and elementary teachers the occasion to learn from their colleagues at a different school site. Teachers from the two community schools were able to collaborate with one another at all-participant trainings hosted at the San Mateo County Office of Education building and at periodic single-grade workshops or coaching sessions held at alternating school sites. These opportunities to interact with peers and discover, as one teacher put it, “someone else’s bag of tricks,” helped to expand teachers’ repertoire in math instruction, inventory of developmentally appropriate math activities, and their own attitudes and beliefs about mathematics.

These examples from the Early Learning Mathematics Initiative study illustrate what an aligned professional development program to support math instruction in the early grades can look like in practice. In addition to high quality math instruction, alignment across the preschool to third grade continuum is also instrumental for children’s success. The San Mateo County Office of Education, which implemented the ELMI program, has been showcased for their hard work in this area.⁴ These types of efforts provide an opportunity to promote coherence across the formative experiences in a child’s early schooling to smooth the transition between systems and settings and maximize learning.

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⁴ Sioson Hyman, Michelle. (2015). Building Bridges to Success. *Family Involvement Network of Educators (FINE) Newsletter*, 7(1). Retrieved from <http://www.hfrp.org/publications-resources/browse-our-publications/building-bridges-to-success>.