



Research Brief - October 2018

*Fostering Pre-K to Elementary Alignment and Continuity in Mathematics in Urban School Districts: Challenges and Possibilities*¹ analyzes the efforts of the San Francisco Unified School District (SFUSD)², to connect educational experiences from Pre-K through the early elementary grades. The study focuses on mathematics, however, the authors state that the findings are useful to other subject areas. The study specifically investigates strategies that facilitate **continuity**, defined as *the degree to which teaching and learning connect and are scaffolded across grade levels* (p. 2) and **alignment** defined as *the degree of connection among different elements of policy (e.g., the district’s curriculum, assessments, standards, professional development) at a given level of schooling (e.g., preschool or early elementary)* (p. 2).

The data for the study were collected during the 2016-17 school year and included: interviews with district leaders, district staff, school leaders, and Pre-K through grade 2 teachers in three schools; a Pre-K through grade 2 teacher survey; observations of district meetings and professional development events; and a review of district material such as the mathematics curriculum units, policy documents, and material from professional development activities.

Findings

Table 1: Pre-K to Early Elementary Alignment and Continuity in Mathematics

<i>Finding</i>	<i>SFUSD Strategy</i>
High-level continuity between the mathematics curriculum across the grades related to instructional strategy, content, and cognitive demand	Intense focus on mathematics teaching and learning: <ul style="list-style-type: none"> • District-developed Pre-K through high school mathematics curriculum, based on state CCSS-M and California Preschool Learning Foundation standards • Consistent <i>pedagogical strategies</i> focused on <i>eliciting student thinking via the use of rich mathematics tasks and student discourse</i> (p. 10) • Consistent cognitive demands, per the California Preschool Learning Foundations and CCSS-M, meaning <i>students experience activities at a range of cognitive demands--including those with high cognitive demand--in each grade level</i> (p. 21) • Teacher flexibility to adapt the curriculum to meet students’ needs
High-level alignment between the mathematics curriculum and teacher professional development High-level continuity in professional development content for Pre-K through elementary school teachers	Teacher professional development in both mathematics and early learning departments focused on high-leverage pedagogical practices used in the curriculum.
Moderate alignment between the curriculum and the interim assessment system	<ul style="list-style-type: none"> • Collaboration between the math department and the assessment office to develop an interim system to assess the curriculum and pedagogical strategies • Assessments did not cover all curriculum activities, concentrating on conceptual topics • Degree of alignment of assessments to conceptual topics varied by grade

¹ Coburn, C.E., McMahon, K., Borsato, G., Stein, A., Jou, N., Chong, S., LeMahieu, R., Ibarra, M., & Stipek, D. (2018). *Fostering Pre-K to Elementary Alignment and Continuity in Mathematics in Urban School Districts: Challenges and Possibilities*. Northwestern University, (Evanston, IL), Stanford University (Stanford CA), University of California, Berkeley (Berkeley, CA), University of California, Los Angeles. (Los Angeles, CA), Policy Analysis for California Education (PACE) (Stanford, CA).

² This study also investigated a second urban school district, not discussed in this research brief.

This research brief was prepared by Fran Kipnis and Cynthia E. Coburn, October 2018. This brief is a preview of findings to be reported in an upcoming PACE report. This study was funded by the Evelyn and Walter Haas, Jr. Fund.

<i>Finding</i>	<i>SFUSD Strategy</i>
Weak alignment between school-leader learning and the mathematics curriculum	<ul style="list-style-type: none"> ● Professional development support for school leaders focused on preschool operations, such as preschool licensing and special education regulations ● Lack of professional development focus on mathematics or early learning
Some system-wide efforts to support alignment and continuity in mathematics	<ul style="list-style-type: none"> ● Promotion of the director of early learning to cabinet-level position ● Principals' authority extended to include Pre-K and Transitional Kindergarten classrooms ● Existing planning and reporting tools extended to include Pre-K and/or Transitional Kindergarten
These system-wide efforts were insufficient	<ul style="list-style-type: none"> ● Interim assessments not used consistently across elementary schools or grade levels ● Joint vision of high-quality mathematics instruction shared by the mathematics and early education departments but not incorporated into the district's supervisory structure ● Student data to monitor progress not institutionalized but determined by teachers and school leaders

WHAT CAN SFUSD DO WITH THESE FINDINGS?

When thinking about resource allocation and determining the most promising strategies for supporting Pre-K to early elementary alignment and continuity, the authors recommend that SFUSD consider:

Focusing on connecting instructional leadership and a system of instructional support to aligned systems of mathematics curriculum and pedagogy (p. 38). SFUSD could incorporate the following system-wide approaches to connecting educational experiences from Pre-K through the elementary grades:

- A system of instructional support (e.g., clear vision of high-quality instruction, district-wide walkthrough structure, professional learning communities)
- Focused and district-wide professional development for principals in mathematics and instruction in early learning

Bridging the silos by creating opportunities for district leaders in different departments to work and learn together (p. 37). It is important for school leaders, leaders from curriculum and instruction, early learning department leaders, and all levels of professional district office staff to participate in efforts to connect educational experiences from Pre-K to the early elementary grades.

Providing ongoing learning opportunities to school leaders who explicitly focus on early learning and instruction (p. 38). Elementary school principals are often unfamiliar with the operational rules, regulations, and policies related to Pre-K. Administrators feel pressure to learn and address these issues. However, SFUSD could include principal learning opportunities focused on early learning instruction, as this is an area that school leaders also frequently lack experience and expertise.

Continuing explicit efforts to include mathematics instruction in initiatives designed to promote Pre-K to elementary alignment and continuity (p. 38). Literacy is often the focus of both early education instruction and professional development. It is important that SFUSD explicitly focus on, and support, efforts promoting alignment and continuity in mathematics.