

# Fostering Pre-K to Elementary Alignment and Continuity in Mathematics in Urban School Districts: Challenges and Possibilities

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In recent years, California has invested in improving early childhood education programs. Research shows the importance of high-quality early childhood education, but the disconnect from K–12 education threatens its long-term benefits. If the early grades do not build on the gains made in preschool, they likely will be lost. This brief, based on a longer technical report, describes the challenges facing pre-K–3 alignment and offers promising practices and policy recommendations.



California's new accountability and continuous improvement framework relies on district and school leaders using multiple measures of school performance to identify where change is needed, and to monitor carefully the development, testing, and evaluation of improvement strategies over time. This process of continuous improvement requires that local leaders have access to research-based evidence and strategies that they can implement in their schools and opportunities to learn from one another about what works, under which conditions, and for which students. PACE's series of Continuous Improvement Briefs aims to support education leaders at all levels in learning how to improve the performance of their schools and students.



## Introduction

California has recently made efforts to align pre-K standards to K–12 standards and allocated over \$2 billion to early childhood education programs in preschool and transitional kindergartens in 2017–18. The California Preschool Learning Foundations establish the knowledge and skills a child should develop before entering kindergarten. These standards encompass social-emotional development, language and literacy, English language development, and mathematics, in addition to visual and performing arts, physical development, health, history, and science. Many districts have also endeavored to create stronger connections between preschool and the early elementary grades.

Curriculum, pedagogy, and assessments in pre-K and K–12 need to be both *continuous* across grade levels and *aligned* within each grade level. Both dimensions are separate but crucial to achieving connections between early childhood and elementary education. Achieving both alignment and continuity between pre-K with the K–12 system is particularly challenging, given separate parallel funding sources, standards, assessments, credentialing requirements, and regulations. District and school leaders also often have less preparation for overseeing early childhood classrooms, particularly in mathematics. Despite these recent funding and efforts, little is known about which district strategies are effective and what issues arise during implementation.

This brief is based on a study that analyzes two large urban California districts attempting to connect pre-K and K–3 learning. The report focuses specifically on math, but the issue raised can apply to any subject. The authors collected data during the 2016–17 school year in two school districts. Almond Valley<sup>iii</sup> is a large urban district serving over 70,000 children. Over 70 percent of the district's students are Latinx and 90 percent qualify for free or reduced price lunch. Cypress Unified serves a diverse population of 50,000 students, and 50 percent of students qualify for free or reduced price lunch. The largest ethnic group in Cypress Unified is Chinese Americans, and 44 languages are spoken in the district. In each district, researchers worked with three schools that had district-managed pre-K classrooms on site, served low-income students, and were trying to improve alignment and continuity at the school site.

The goal of the project was to examine the strategies the districts were using to increase alignment between pre-K and elementary education. The researchers specifically asked:

1. What strategies are the two districts using to foster pre-K to elementary alignment and continuity in mathematics teaching and learning?
2. To what degree have the districts achieved alignment and continuity in their pre-K and elementary policy in mathematics?
3. How have school leaders and teachers experienced districts' strategies?
4. What continuing challenges do district leaders face in their efforts to foster alignment and continuity in mathematics?

The authors surveyed teachers and conducted interviews with district leaders, school leaders, and teachers. Their observations covered district meetings and professional development sessions. In addition, they analyzed policy documents, professional development agendas and materials, scope and sequence documents, and walkthrough tools.

## District Strategies


The two districts in this study both had a similar goal in aligning early and elementary education but chose different strategies to achieve the goal. Overall, Almond Valley focused on implementing a system-wide approach that had a clear district vision, emphasized leadership, aligned instructional tools, and developed district-wide systems for instructional improvement. In contrast, Cypress Unified primarily focused on mathematics teaching and learning, which had fewer district-wide instructional supports and was less connected to leadership.

### A System of Instructional Supports

The cornerstone of Almond Valley's instructional support was the Instructional Practice Guide (IPG), which is a developmental rubric measuring teaching on five dimensions: classroom culture, lesson content, student engagement, the degree to which instruction is aligned to standards, and monitoring of student progress. The IPG was used to guide instructional walkthroughs by district leaders, district staff and school leaders. In contrast, Cypress was developing only a walkthrough structure. They involved fewer people, were not as regular, and were not guided by a shared instructional framework.

### Teacher Professional Development

The two districts used different approaches to link professional development in mathematics in pre-K and elementary grades. In Almond Valley, the district used the same professional development structures. They had teacher leaders who facilitated professional learning communities in all grades. They provided



workshops followed by small groups of teachers observing each other teaching in the classroom. After the observations, a structured debrief helped teachers identify ways to improve. However, professional development in pre-K did not always focus on the same content and pedagogical approaches as those in elementary. In Cypress Unified, the district had different professional development structures for pre-K teachers and elementary. Pre-K teachers had one-on-one coaching sessions, and teachers were also able to self-select into professional learning communities. The district used school-based professional development for groups of teachers in elementary. However, the professional development in Cypress was focused on the same set of high-leverage pedagogical practices in mathematics across both pre-K and elementary.

### **Professional Learning for School Leaders**

Almond Valley incorporated professional development as part of an ongoing district-wide system for improving instruction and focused on principal learning, primarily through instructional walkthroughs. School leaders visited classrooms with rubrics based on the IPG to observe and evaluate instruction and school-wide conditions. The results from these evaluations were used in discussions with teachers to ascertain how to improve teaching. Almond Valley also engaged school leaders in focused professional development on high-quality instruction in early childhood classrooms, designed to enable school leaders to more effectively supervise, evaluate, and support instructional improvement in the pre-K and TK classrooms on their campuses. Cypress' professional development for school leaders was largely based on principal choice. Principals opted into groups with other school leaders on a particular topic (literacy, dual language learning, etc.) and discussed the issues they were facing in their schools. Few school leaders chose to focus on mathematics and even fewer focused on early childhood education. The early childhood department did offer support for school leaders with pre-K classrooms on their campuses, but, per principal preference, they focused on operational rather than instructional issues.

### **Curriculum, Instruction, and Assessment**

Almond Valley used three different commercially available curricula in mathematics: one each for pre-K, TK, and elementary. They developed pacing guides to help teachers choose activities that aligned to Common Core State Standards in mathematics and the California Learning Foundations. In contrast, Cypress Unified developed its own curriculum from pre-K all the way through high school. They linked this curriculum with assessment and teacher professional development on a small number of high-level pedagogical practices, with

the goal of achieving greater levels of alignment in instruction.

Both districts used interim assessments in pre-K classrooms, which were based on the Desired Results Development Profile that assesses math progress and seven other dimensions of learning. Both districts also had interim assessments in mathematics, starting in kindergarten. In Cypress Valley, these assessments were embedded in their curriculum. Cypress Unified also created an integrated data system that tracked students from pre-K through elementary grades, and teachers were able to access these data through a dashboard.

### **Structural Changes**

Both districts already had pre-K facilities on elementary school campuses but also chose to enact single-site leadership in which the principal was responsible for both the pre-K education and the K–5 or K–8 elementary school. In addition, both districts elevated the director of Early Learning to a higher level position on par with other directors. Almond Valley also moved kindergarten from elementary into early education to increase the continuity between the two segments. These structural changes highlighted the importance of early education as a district priority.

### **Impacts**

By studying two districts with similar goals but different strategies, the authors are able to examine differential impacts on continuity, alignment, and teacher and leader experiences.

### **Continuity and Alignment**

At Almond Valley, the different elements of the instructional support system and professional development for school leaders were exceptionally well aligned with one another and with standards. As a consequence, districts leaders, including principals, reported that they were well supported and felt well prepared to support preschool. Perhaps because of the challenges of aligning commercial curricula and assessments, there was low continuity between early education and elementary levels in math curriculum and instruction, and uneven alignment between curriculum and interim assessments for some grade levels, with stronger alignment between kindergarten instruction and assessments compared to Grade 1.

In contrast, Cypress Unified's deep focus on math curriculum and instruction and its aligned assessments and teacher professional development led to a high degree of continuity between early education and elementary education. There was also high alignment between teacher professional development and

curriculum. But professional development for school leaders was largely disconnected from the work in mathematics. Other systems for instructional improvement that might reinforce the work in mathematics—such as instructional walkthroughs or use of interim assessment data—were emergent in this district.

### **Experiences of Teachers and School Leaders**

To ascertain how school leaders and teachers perceived and experienced the district's strategies, the authors conducted interviews with principals, coaches, and teachers at three schools in each district, in addition to administering a teacher survey.

In spite of the researchers' assessment that there was poor continuity between the mathematics curriculum and mixed alignment with assessments, teachers in Almond Valley reported that they perceived the math curriculum and instruction to be both aligned and continuous. However, while Almond Valley school leaders and teachers had a shared focus on following the curriculum and teaching to standards, they did not have a shared understanding of pedagogical practices that could help students achieve the standards. Further, teachers were only able to talk about the pedagogical strategies they were implementing in mathematics in general terms. The district's investment in aligned instructional systems such as the IPG, walkthroughs, and professional learning communities has helped teachers and school leaders develop a sense of the district's key instructional priorities related to following the curriculum and linking instruction to the standards, fostering the perception of alignment and continuity across grades. But their efforts did not reach the level of pedagogical practices in mathematics that teachers should use as they implemented the curriculum.

By contrast, even though the researchers' district-level findings uncovered high levels of alignment and continuity in curriculum and instruction in Cypress Unified, the majority of the teachers perceived a lack of alignment and continuity. Nevertheless, both teachers and school leaders were able to articulate a set of targeted pedagogical practices that the district was promoting to support students in meeting the standards. Teachers' skepticism about alignment and continuity may be due to the lack of support they feel from school leaders. It may also be due to the absence of reinforcing instructional systems related to mathematics in Cypress (such as the IPG, systematic walkthroughs, and professional learning communities in Almond Valley) that bring the main instructional ideas to the fore in multiple and reinforcing ways.

## **Continuing Challenges**

Despite strong efforts to foster pre-K to elementary alignment and continuity, both Almond Valley and Cypress Unified face continuing challenges.

### **Different Beliefs About Instruction for Young Children**

There can be fundamental differences in how district personnel in early childhood and elementary view instruction. Early childhood professionals often focus on the whole child and social-emotional development and emphasize play-based learning. Those involved in elementary education primarily focus on teaching academic subjects with teacher-initiated learning activities. At Almond Valley, these differences surfaced during walkthroughs, while they arose in discussions about the instructional focus of transitional kindergarten classrooms at Cypress Unified.

### **Lower Priority on Mathematics in Early Grades**

In general, early childhood and early elementary teachers tend to focus more on literacy than math, and this was true in both districts. Development of assessments and data systems at Cypress Unified and instructional walkthroughs at Almond Valley were all predominantly focused on literacy instead of mathematics. This undermines efforts to improve math curriculum and instruction in particular.

### **Siloed Departments**

Early childhood and K–12 education often function in separate spheres, with parallel enrollment, food programs, transportation, professional development, and supervision by school principals. There is often also a disconnect between the district curriculum/supervision department and the assistant superintendents who supervise school leaders. Cypress Unified's early learning department is located in a different area of the city and Almond Valley has a separate building. This structural divide further deepens the differences in beliefs about instruction and makes it difficult to implement instructional supports across departments.

### **Policy and Funding Differences**

Early childhood and elementary education face separate funding systems and regulations. Pre-K per pupil funding is significantly less than the Average Daily Attendance funding for TK–elementary students. Federal, state, and private funding also is usually for either early or elementary education, but not for both. Teacher credentialing also varies; TK and elementary teachers are required to earn a bachelor's degree and multiple subject teaching credentials, but pre-K





teachers need to earn only an early childhood education permit. Early and elementary teachers also have different work schedules, which make it hard to schedule joint professional development. Different state regulations for health, safety, transportation, and food safety resulted in parallel systems for early childhood and elementary classrooms. Finally, early childhood teachers don't face the same accountability pressures that elementary teachers face in preparing their students for the state's SBAC standardized assessment. All of these differences exacerbate the divide between pre-K and elementary divisions at the district office, and also create burdens for school leaders supervising pre-K classrooms at their school sites.

## Policy Implications and Recommendations

These results summarized in the research report have several implications for district leaders, funders, and policymakers.

### District Leaders

At the district level, leaders should:

#### *Bridge silos between departments*

Given the historical separation between early childhood and elementary education systems, districts need to create opportunities for different departments to work and learn together. This includes bringing the personnel from the district's curriculum and instruction, early childhood education, and school leader supervision together on issues of teaching and learning.

#### *Focus specifically on math*

Most pre-K and early elementary teachers feel more comfortable teaching literacy, and any content-neutral strategies tend to default to literacy. District leaders need to make an explicit effort to focus on mathematics curriculum and pedagogy, in addition to aligned approaches to instructional leadership and a system of instructional supports.

#### *Provide ongoing learning opportunities to school leaders*

District leaders should provide professional development and learning opportunities for school leaders to learn more about pre-K education. These opportunities should focus on instruction specifically in addition to operational issues. Walkthroughs and classroom observations can provide principals with the opportunity to observe pre-K and elementary teachers in the classroom and recognize the importance of integrating pre-K learning with elementary education.

### Funders

A significant amount of funding for pre-K to 3 alignment issues comes from private sources. Usually, the funds are located in early childhood departments. However, fostering pre-K to elementary alignment and continuity requires the efforts from multiple departments in the

district. Funders interested in improving pre-K to elementary alignment and continuity should:

#### *Encourage involvement of multiple stakeholders*

When funding early learning divisions, funders should encourage broader involvement, including those who supervise school leaders and set professional learning agendas. This may be an important strategy for helping to create better connections between those who supervise school principals and those who focus on curriculum and instruction for pre-K and elementary. When funding professional development, funders should ensure that funding goes to both early childhood and elementary grades. Otherwise, the funding may contribute to a disconnect between professional development approaches in the two divisions.

#### *Ensure funding agenda complements broader district efforts*

Initiatives to improve pre-K to elementary alignment often occur within larger district efforts to improve instruction. Funders should be aware of ways that their funding agenda interfaces with broader district efforts and avoid unnecessary constraints for district leaders.

### State Policymakers

At the state level, policymakers should:

#### *Streamline and align funding and policy for early childhood education*

Unlike elementary school funding, early childhood education programs are funded from a variety of federal, state, and local sources that can create complex hurdles for district and school leaders. State policymakers could streamline funding support for early childhood education.

#### *Better align teacher education*

Currently, pre-K and elementary teachers earn their credentials in separate programs, with most early childhood teachers earning education permits at the community college level while elementary teachers earn credentials at state universities.

## Conclusion

California has invested in aligning early and elementary education, but little is known about what strategies have been effective. This study shows that the strategies districts use to align pre-K and elementary education can have differential impacts. By providing support for teachers and leaders, districts can help create a more seamless educational system across early and elementary education to benefit student learning.

i The full report can be found at

<https://edpolicyinca.org/publications/fostering-pre-k-elementary-alignment>

ii Both district names used in this brief and the longer technical report are pseudonyms.

## Policy Analysis for California Education (PACE)

Policy Analysis for California Education (PACE) is an independent, non-partisan research center led by faculty directors at Stanford University, the University of Southern California, the University of California Davis, the University of California Los Angeles, and the University of California Berkeley. PACE seeks to define and sustain a long-term strategy for comprehensive policy reform and continuous improvement in performance at all levels of California's education system, from early childhood to postsecondary education and training. PACE bridges the gap between research and policy, working with scholars from California's leading universities and with state and local policymakers to increase the impact of academic research on educational policy in California.

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## Related Publications

Deborah Stipek. *Early Childhood Education in California*. 2018

Susan Moffitt, Matthew J. Lyddon, Michaela Krug O'Neill, Kelly B. Smith, Marie Schenk, Cadence Willse, David K. Cohen. *Frontlines Perspectives on Instructional Support in the Common Core Era*. 2018

Meredith Phillips, Sarah Reber, Jesse Rothstein. *Making California Data More Useful for Educational Improvement*. 2018

Rachel Valentino, Deborah J. Stipek. *Prek-3 Alignment in California's Education System: Obstacles and Opportunities*. 2016



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