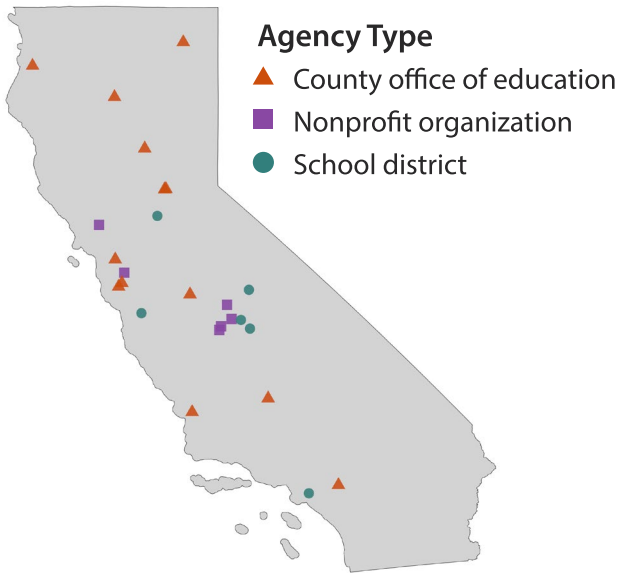
CPE Professional Learning and Coaching in Local Communities

The Count Play Explore (CPE) initiative strives to engage professional learning (PL) facilitators, early childhood educators, families, and children from birth to third grade in the joy and wonder of mathematics. The initiative provides funding, resources, and PL to support facilitators in implementing PL and coaching in early math for early childhood educators in their local communities. WestEd serves as the internal evaluator for the CPE initiative. This brief provides evaluation data summarizing the key characteristics and reach of local implementation across the state of California from June 2023 to June 2024.

Building early math teaching capacity requires educator preparation and PL that integrate math content, math pedagogy, and knowledge of child development with early math teaching practices (National Association for the Education of Young Children & National Council of Teachers of Mathematics, 2010). The math coursework required for a California teaching permit or credential alone is likely insufficient to prepare early educators to robustly support children's math development. CPE is one initiative that may bridge the gap between teacher preparation and classroom practice for early childhood education in math.

Exhibit 1. CPE Agencies Across California



The CPE initiative works to build positive math mindsets and integrate early math knowledge with joyful, developmentally appropriate teaching practices for children from birth to third grade. The initiative implemented a cascade model with 25 agencies across California, including county offices of education, school districts, and nonprofit organizations (see Exhibit 1).

In this cascade model, CPE partners engaged agency facilitators in PL and coaching (see Exhibit 2). Agency facilitators typically included trainers, coaches, or other administrators. The facilitators then provided PL and coaching to educators and families in their local communities. Educators and families applied their learning to support children's early math development.

Exhibit 2. The CPE Cascade Model

While CPE required agencies to provide a minimum of three PL sessions and three coaching sessions to educators, CPE encouraged facilitators to tailor PL and coaching to meet the strengths and needs of the educators in their local communities. As such, the frequency, duration, reach, and topics addressed in local implementation with educators varied.

This brief provides evaluation data related to this question:

- What are the key characteristics and reach of the CPE PL and coaching that agencies offered to educators in their local communities?

Method

To learn more about how agencies implemented early math PL and coaching in their local contexts, the evaluation team invited facilitators to complete electronic implementation logs after each PL or coaching session. Logs included questions about session length, modality, and language; who participated in training or coaching and what children they serve (learning setting, age, diverse populations); and session goals, content, and CPE resources used or shared.

Of the 25 agencies participating in CPE in 2023–24, 24 submitted PL session logs, and 18 submitted coaching logs. In agencies that provide a lot of coaching to a wide range of educators, CPE early math coaching was at times difficult to disentangle from their ongoing coaching efforts. Therefore, the data presented below may underestimate the actual amount of CPE-funded PL and coaching offered in local communities.

In addition to analyzing the implementation logs, we interviewed agency leaders and conducted focus groups with facilitators and educators at three case study sites. Some of these data are presented here to illustrate examples of local implementation. To read more about the case study methods and findings, see the *Count Play Explore Evaluation Brief: Case Studies of CPE Professional Learning and Coaching in Local Communities*.

Approximately how many early educators and children were reached through CPE local implementation?

Based on implementation log reports, agency facilitators reached more than 1,600 educators and almost 10 times as many children.

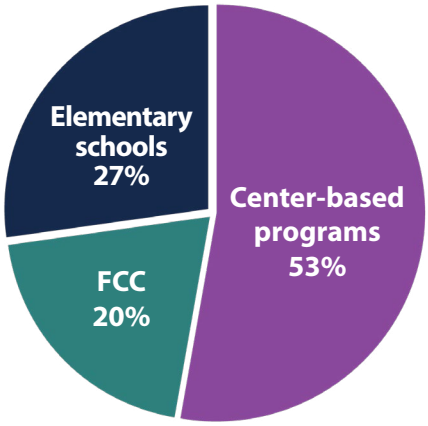
CPE local implementation reached approximately …

1,638 educators

10,517 children

Educators worked in various settings that serve families and children, with just over half of educators coming from center-based early childhood programs, just over a quarter from elementary schools, and the remainder from family child care (FCC) homes (see Exhibit 3). To support educator linguistic diversity, some PL (11% of sessions) and coaching (18% of sessions) took place in Spanish.

Exhibit 3. Educator Settings



Note. Percentages are educators (N = 1,638) working in each learning setting.

Facilitators reported engaging educators of children across the full birth to third grade range. Nearly all agencies served preschool-age children, and many (84%) served transitional kindergarten. About half served either younger (infants and toddlers) or older children (kindergarten or Grades 1–3; see Exhibit 4).

CPE's vision is to improve math outcomes for "every child from birth through third grade—of any background, race, culture, ethnicity, language, gender, ability, or socioeconomic status" (Count Play Explore, 2024). Implementation logs showed that most participating agencies served diverse populations, including children from low-income backgrounds, children with disabilities, and children who are multilingual learners. A smaller proportion served children from Tribal communities (see Exhibit 5).

Exhibit 4. Children Served, by Age Group

Age groups	% of agencies
Infant/toddler	56%
Preschool	92%
Transitional kindergarten	84%
Kindergarten	52%
Grades 1–3	52%

Note. The percentage of agencies reflects the percentage of agencies serving each group.

> "[Educators have] embraced the idea that all students are capable and have implemented practices to provide equitable access to rich tasks for all students."
>
> *—School District Facilitator, May 2024*

Exhibit 5. Children Served, by Diverse Population

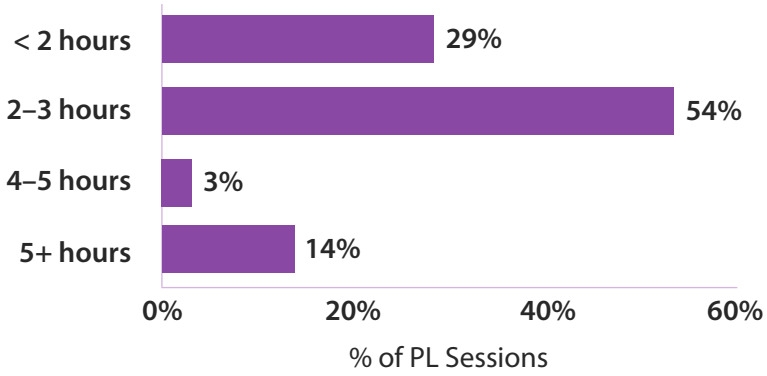
Diverse populations	% of agencies
Children from low-income backgrounds	92%
Children with disabilities	92%
Multilingual learners	92%
Tribal communities	40%

Note. The percentage of agencies reflects the percentage of agencies serving each age group.

Approximately how much CPE PL and coaching were offered in local communities across California?

Facilitators logged an average of 4 PL sessions per agency (range: 0–11 per agency). Most of these sessions were less than 2 hours long or 2–3 hours long, with the remainder being closer to a full day (see Exhibit 6). Coaching sessions varied widely, with agency facilitators logging an average of 16 sessions (range: 0–83 per agency).

Exhibit 6. Duration of PL Sessions (percent)



CPE funding and supports resulted in at least …

227 hours of PL through **103** sessions

445 hours of coaching across **407** sessions

Twenty-two agencies reported engaging the same educators more than once. As such, many educators experienced ongoing PL and coaching support, which research shows is important for making meaningful and sustained changes in teacher practices (e.g., Brunsek et al., 2020; Desimone & Garet, 2015).

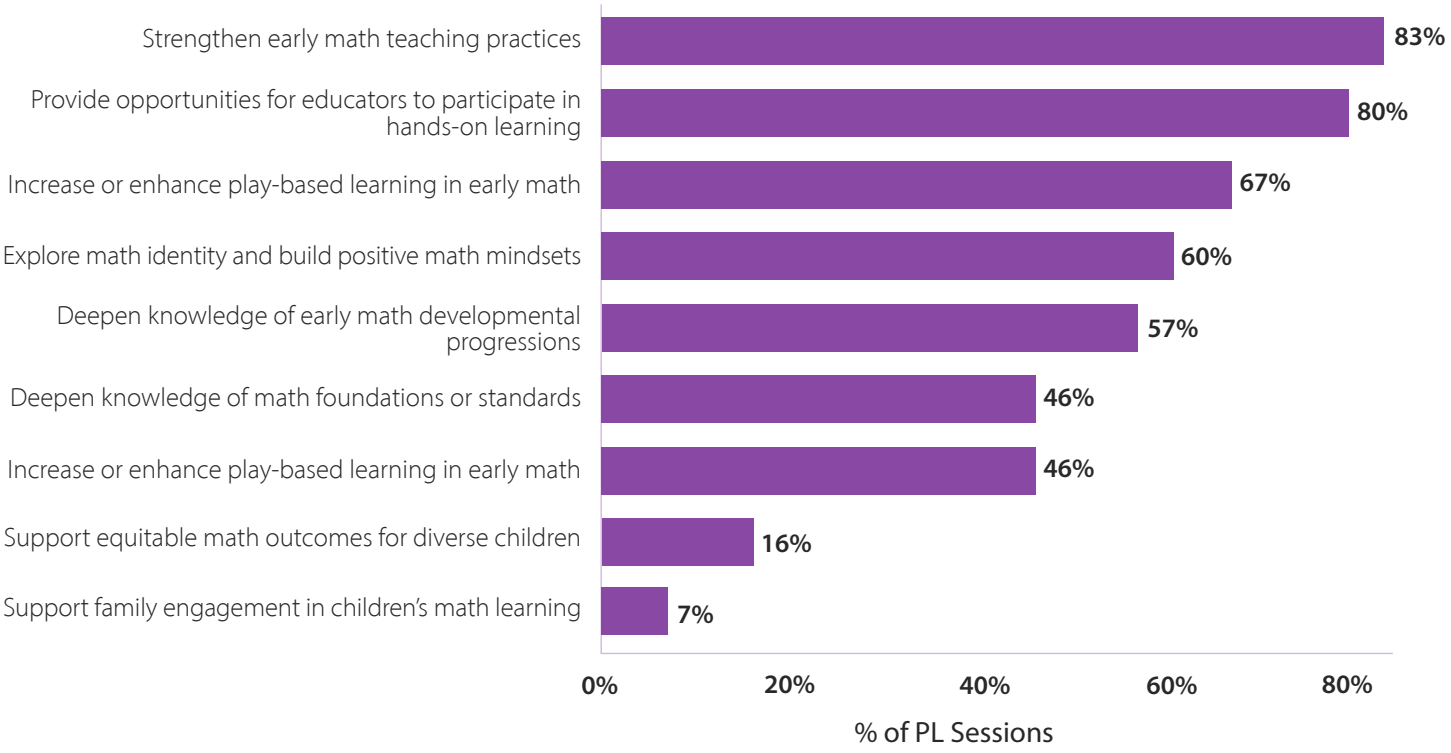
What content did the CPE local PL and coaching focus on?

Professional Learning

CPE local PL covered a wide range of topics in early math, largely in alignment with the California Infant/Toddler Learning and Development Foundations (ITLDF), California Preschool/Transitional Kindergarten Learning Foundations (PTKLF), and Common Core State Standards (CCSS). Facilitators reported that their sessions primarily emphasized number and counting (63%), geometry and spatial thinking (48%), and measurement and data (45%), while less often focusing on number and operations in base 10 (17%) and fractions (6%). Approximately a quarter of PL sessions focused on a different topic ("Other" answers included patterns, math in literacy, cause and effect, coding, and cognitive development for infants and toddlers).

Across math topics, the implementation logs demonstrated that facilitators designed PL sessions with a range of goals in mind (see Exhibit 7). Facilitators overwhelmingly reported emphasizing strengthening teaching practices related to early math and providing educators with opportunities to participate in hands-on learning activities, a core aspect of the CPE approach.

Exhibit 7. PL Session Goals (percent)



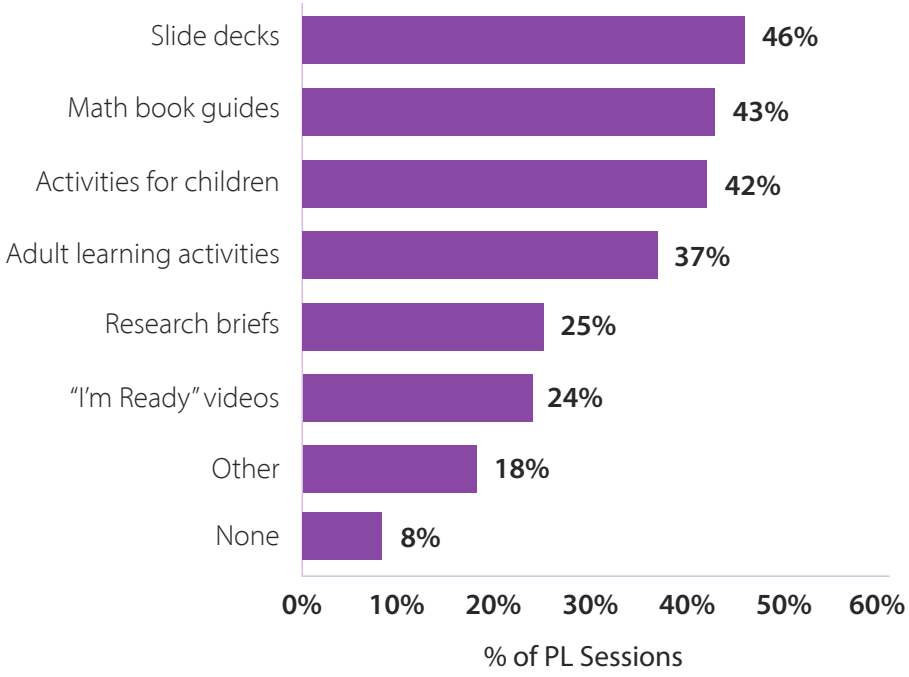
Note. "Other" responses included effective questioning, identification of opportunities for math learning in daily routines, and protoscientific inquiry.

> "Most who attended reported that their knowledge around early mathematics increased. Most reported that they feel encouraged to try out new math activities that are hands-on with children in their programs. Many feel confident in exploring the websites, such as CPE and the Early Math Project resources."
>
> *—County Office of Education Facilitator, March 2024*

Use of CPE Resources

The CPE initiative creates resources for facilitators, educators, and families to support early math. Logs showed that facilitators used many CPE resources in PL with educators, especially slide decks, *Discovering the Math: Book Guides*, and activities for children and adults (see Exhibit 8).

Exhibit 8. CPE Resources Used in PLs (percent)



Note. "Other" responses featured use of content and resources from the current phase of CPE (e.g., M[5] early math approach handouts, interactive exhibit guides) or from the earlier phase of the California Statewide Early Math Initiative (e.g., professional noticing, Froebel's Gifts, hexbugs).

For more information about CPE resources, see the following:

- CPE Professional Learning Resources
- Discovering the Math: Book Guides
- Research Briefs
- "I'm Ready" Videos

Coaching

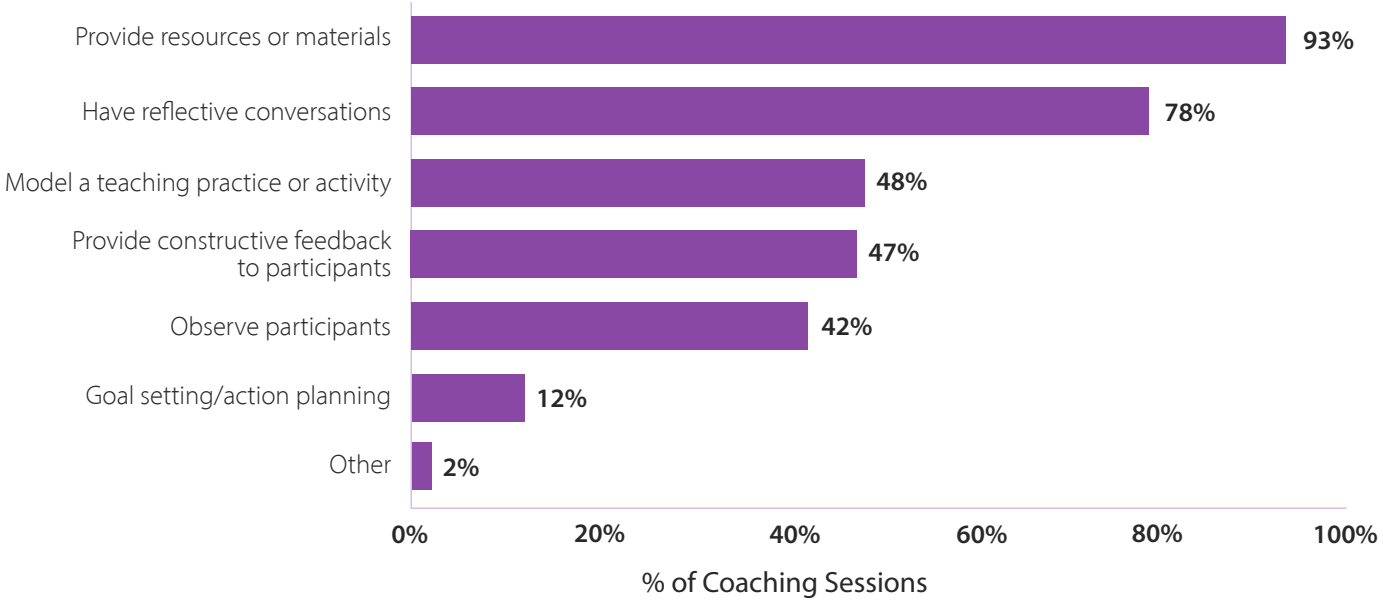
Research shows that coaching can support educators' successful implementation of new teaching practices and have measurable impact on children's outcomes (Egert et al., 2018). Agency facilitators provided coaching, in one-on-one or small group settings, to support educators in integrating CPE content and skills as part of their practice. Facilitators reported that their coaching sessions typically helped educators implement and reflect on specific teaching practices in a math content

area, provided activity ideas, and supported curricula or lesson planning that addresses children's development in the foundations or standards (see Exhibit 9).

Exhibit 9. Coaching Session Learning Goals (percent)

Relatedly, in most coaching sessions, facilitators provided resources or materials as a primary coaching strategy, and many modeled a teaching practice or activity. Facilitators also commonly reported reflection on math teaching practices as a coaching goal in most sessions, supported by reflective conversations as a common coaching strategy (see Exhibit 10).

Exhibit 10. Coaching Strategies (percent)



Taken together, what do individual agencies' local implementation look like in practice?

The following table (Exhibit 11) describes implementation of PL and coaching at three case studies, including a school district, a county office of education, and a nonprofit. The table shows the reach, content, and focus of implementation in individual agencies.

Exhibit 11. Local Implementation of CPE PL and Coaching at Three Case Study Sites

Implementation characteristics	Case Study 1: School district	Case Study 2: County office of education	Case Study 3: Nonprofit organization
Participants	 Facilitators: 2 district coaches, 2 external consultant-coaches  Educators: 7 TK teachers, 68 K–3 teachers, 23 TK/K instructional assistants  Children: 1,750 children (4–8 years)	 Facilitators: 2 early learning program managers, 1 TK–5 math program manager  Educators: 8 PreK teachers, 8 TK teachers, 20 K–3 teachers  Children: 666 children (3–8 years)	 Facilitators: 5 ECE specialists, 1 CE site supervisor  Educators: 48 FCC providers, 16 center-based teachers  Children: 528 children (Birth–8 years)
PL sessions	13 sessions that were • Facilitated in person • Conducted in English • Lasted 2–7 hours • Split by grade level (TK/K, 1st, 2nd, 3rd, TK/K instructional assistants)	3 sessions that were • Facilitated in person • Conducted in English • Lasted 2.5 hours	6 sessions that were • Facilitated in person (4 sessions) and virtually (2 sessions) • Conducted in English and Spanish • Lasted 2–5 hours
PL content	Operations, counting, base 10	Counting, measurement, geometry, base 10, P–3 alignment	Counting, measurement, geometry, operations, base 10, math mindsets
Teaching practices highlighted in PL	Asking open-ended questions, using math language, inviting children to create math stories	Using M[5] math teaching practices,* learning through play, professional noticing	Learning through play, integrating math into everyday routines and with other content areas
CPE content and resources used in PL	Professional noticing strategies	Adult learning activities, CPE website, Early Math Project website, M[5] practices handout, slide decks	Activities for children, adult learning activities, CPE website, Early Math Project website, "I'm Ready" videos, slide decks
Coaching sessions	• 56 sessions • 100% were in English • 100% were in person • 39% were 1:1 • Average duration: 70 minutes	• 83 sessions • 99% were in English • 45% in person • 77% were 1:1 • Average duration: 60 minutes	• 81 sessions • In both English (48%) & Spanish (72%) • 60% were in person • 53% were 1:1 • Average duration: 66 minutes
Coaching strategies**	Reflective conversations (95% of sessions), modeling teaching practices (88%), constructive feedback (52%)	Provision of resources/materials (100% of sessions), reflective conversations (83%), goal setting/action planning (57%)	Provision of resources/materials (100% of sessions), modeling teaching practices (84%), goal setting/action planning (56%)

* M[5] refers to a set of early math teaching practices promoted by CPE (mutual learning, meaningful investigations, materials and learning environment, math vocabulary and discourse, and multiple representations). ** These reflect the three most common strategies each agency reported using.

As depicted in Exhibit 11, the case study sites tailored implementation to their local contexts. While some aspects of local implementation varied greatly across sites (e.g., number and length of PL sessions), other aspects were more consistent from site to site (e.g., PL content and teaching practices, coaching session frequency, length, strategies).

Key Takeaways and Implications

CASCADE MODEL REACHED A LARGE NUMBER OF EDUCATORS AND CHILDREN ACROSS THE STATE

The implementation log data confirmed the intended reach of CPE's cascade model from a smaller number of agency facilitators (n = 100) to a larger number of educators (n = 1,638) and an even larger number of children (n = 10,517), from June 2023 to June 2024. Although CPE's reach was wide, implementation logs do not report on educator demographics, years of experience, or role; future evaluation should gather more data on who participates in CPE local PL and coaching to ensure all groups are represented. For more about how this local PL and coaching impacted educators, see *Count Play Explore Evaluation Brief: Building Educator Capacity to Promote Children's Early Math Development*.

VARIED IMPLEMENTATION WITH SOME COMMON PATTERNS

Implementation of PL and coaching varied by agency based on their local priorities. The case study examples presented in Exhibit 11 illustrated how each of three agencies implemented early math PL and coaching in ways tailored to their local context. For example, one agency focused on FCC and center-based providers, while the other two agencies focused on Pre-K, TK, and K–3 educators. To meet the needs of local participants, facilitators in one of the three agencies engaged educators in both English and Spanish.

While most agencies focused on number and counting, implementation logs show that agencies also focused on a variety of other math areas, such as geometry and spatial thinking and measurement and data. Even with some variation in math topics across agencies, facilitators reported several common goals for PL sessions, such as strengthening teaching practices related to early math, providing opportunities for educators to participate in hands-on learning activities, and increasing educators' ability to use play-based learning in early math.

Coaching was an opportunity for facilitators to individualize their support for educators. As with PL, implementation logs showed that facilitators approached coaching sessions with common goals and strategies. Coaching sessions often focused on supporting educators with implementing specific math teaching practices, providing activity ideas and CPE resources, modeling practices, and facilitating reflective conversations.

Despite the evidence in implementation logs and case studies that agencies tailored their approach to their local contexts, we know less about how agencies determined the strengths and needs of the educators they served. Future evaluation capturing the process by which agencies make that determination and how they subsequently tailor their approach would strengthen our understanding of how CPE helps agencies and facilitators uplift the strengths and meet the needs of their local communities.

LOCAL IMPLEMENTATION ALIGNED WITH CPE VISION AND CORE PRINCIPLES

In line with CPE's vision, implementation data showed that facilitators engaged educators and children from diverse backgrounds. Agencies recruited educators from California's mixed delivery system, including those from FCC, school-based, and other center-based settings that serve children across CPE's focal range of birth to third grade. Agencies also reported serving the diversity of California's children, including children from low-income backgrounds, children with disabilities, children who are multilingual learners, and children from Tribal communities. CPE principles center playful, hands-on learning and positive math mindsets. Implementation logs show how facilitators emphasized these approaches in PL offered in their local communities. At the same time, despite reporting CPE resource use in implementation logs, actual evidence of resource use was somewhat lower. In the future, CPE may consider how to best feature CPE resources to enhance their dissemination and use.

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