

Washington State Early Math Strategies

Improving Outcomes for Children through Cross-Agency Strategy and Collaboration

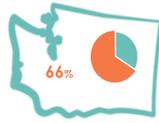
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WASHINGTON'S EARLY MATH COALITION THEORY OF CHANGE

Early math achievement is one of the strongest predictors of later school and life success. Yet only 66% of children in Washington State arrive in kindergarten with the mathematics skills to start school ready.*

As local and state partners, we came together in August 2017 to learn together and collaborate to positively impact children's early math development. The following is our key focus together as a state and the highlighted strategies were the focus of this research.

*as measured by the WaKIDS assessment—a subset of Teaching Strategies GOLD



STRATEGIES

- Promote public awareness and initiatives that build everyone's confidence and enjoyment of math
- Maximize family activities that promote early math
- Strengthen professional practice in early math
- Increase organizational and system capacity for early math learning

LONG-TERM OUTCOMES

- Adults see themselves and children as mathematical thinkers and are confident in and enjoy math
- Family experiences form a strong and expanding foundation for children's experience of math
- Professionals provide appropriate, responsive skill development in math
- Systems provide equitable opportunities responsive to diverse needs for early math learning that all can access

GOAL

All children experience enjoyment, confidence, and success in their development of math ability from prenatal through 3rd grade and race and income are no longer predictors of early math success



Background

Washington State Kindergarten entry and students who arrive with expected skills for math:

- 33.0% of migrant children
- 50.2% of children living in poverty
- 47.0% of Hispanic/Latinx children

Compared to:

- 72.7% of White children
- 80.9% of Asian-American children

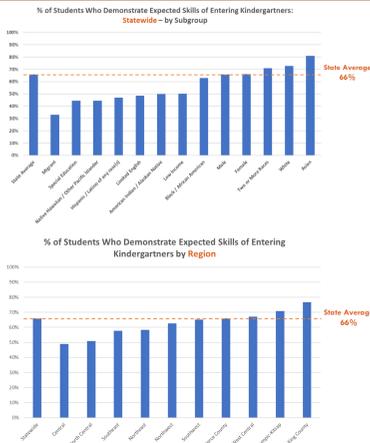
Students who lack the skills expected of a 5 year-old in math at kindergarten are 33.9% less likely to meet the standard on 3rd grade Math SBA results.

And when it comes to trainers and professional learning in Washington, despite many training partners, math-related training is limited—particularly for diverse providers. Trainers are less diverse than providers, who are less diverse than children and families in Washington. Over 50% of trainers are white and speak English.

Purpose

As an activity in practice with the Early Math Coalition, Department of Children, Youth, and Families sought to:

- Review and expand on existing data sources to analyze the landscape for early learning educator professional learning related to early math.
- Provide options to strengthen the professional development system to build capacity and increase availability of high-quality math content and professional learning and support opportunities.



Methods

Explore ideas for how professional learning could support child outcomes. This was done through:

- Internal data analyses based on workforce registry data.
- STEM training data.
- Previous coalition asset mapping and kindergarten entry data analyses.
- Interviews with 9 early learning PD system leaders.
- Focus groups with 63 educators, coaches/trainers, and PD leaders.

Findings

Educators Have Many Competing Priorities

- QRIS and new licensing requirements are a central focus for providers.
- Going to training costs money and creates a need for substitutes.
- Children have many and diverse learning and behavioral needs.
- Family and business responsibilities are important too.

Use of language about math can get in the way

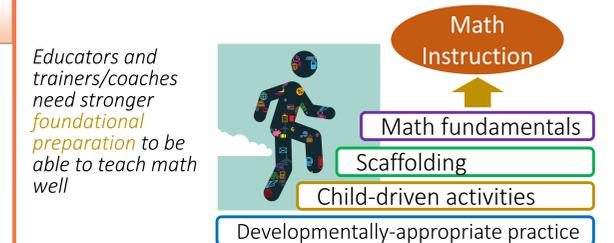
- Numeracy and early math are often used interchangeably—though their meaning differs.
- Educators and trainers are doing lots of math—but many don't know and label it—and many focus on naming counting only.
- Math terms used in introductory math trainings are complex for many educators.
- Negative past experiences cause many educators and trainers to not see themselves as mathematical thinkers.

"When educators have the time and opportunity to see their children as individuals, sense makers, and mathematical thinkers, they realize that they underestimated what they can do. It is a generative moment. It increases curiosity and exploration. The teacher becomes a facilitator of experiences rather than an imparter of wisdom."
~Trainer

The Needs of Families and Educators Overlap

- Some educators have their own young children – making it hard to seek additional training.
- Families say they appreciate math activities and tools that educators provide.
- Educators want to align what they do and what families do.
- Educators want help engaging families in math.

Educators and Coaches Need a Stronger Foundation



Educators and trainers/coaches need stronger foundational preparation to be able to teach math well

Systems are not consistent with supporting access

- Children and educators are faced with negative mindset about math.
- Foundational ECE coursework does not currently prioritize math enough or courses that do are limited and vary in availability.
- Data systems may not align or have missing data.
- Coaches and trainers may need support first.
- Promising approaches don't have strong on ramps to reach more educators.



Other Key Considerations:

- Educators are isolated and often disconnected from supports—particularly those who speak languages other than English.
- There are many ways to incentivize professional learning and remove barriers.

Results

There are Useful Ideas about how to Increase Support:

- Peer learning cohorts to enhance professional learning.
- Increase access to professional learning—help to pay, substitutes, and compensation during.
- Access to activities and materials—incentives to participate, linked to coaching and specific tools.
- Additional supports in the classroom – such as on-site math specialists to help implement math instruction.
- Implement specialized coaching—particularly with video reflection opportunities.
- Integrate math activities with existing efforts and frameworks.

Intersect family and professional supports – connect supports for families and professionals through promotion of mathematics learning, messages, and activities that both families and professionals can engage in.

Expand access, opportunities and resources – strengthen foundational competencies; address educator's math anxiety; expand and strengthen access to professional learning, tools, and resources; further develop math pedagogy opportunities and include coaches and instructional leaders; expand on the benefit of peer support and learning with learning communities; increase incentives to support cost and time away from programs or family; make options available and accessible and varied dates and times.

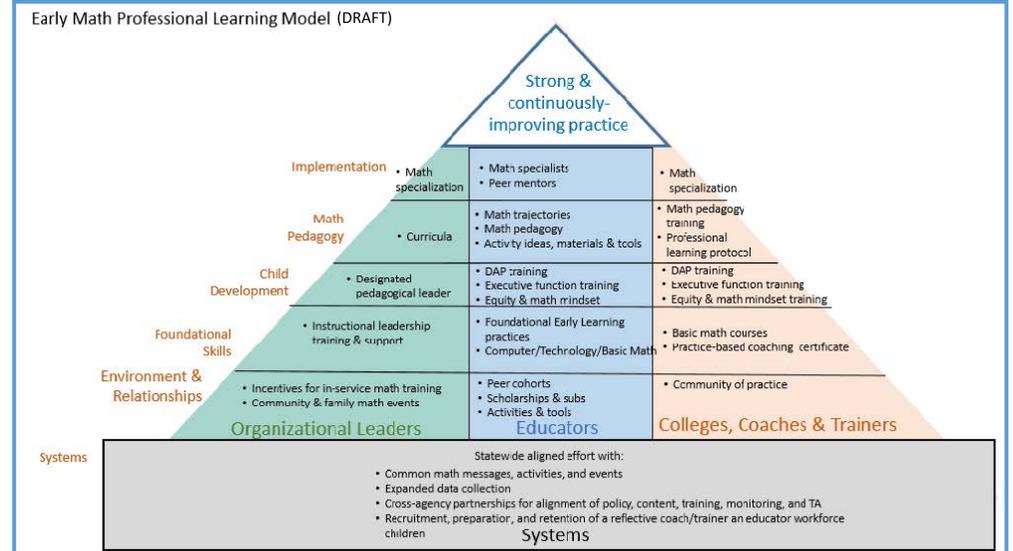
Strengthen cross-system – cross-agency coordination; shared learning; improved data collection and analysis, aligned messaging for educator's ease in navigation; focused development on cultural responsiveness/anti-bias approach and seeking family and community wisdom.

Other Key Insights

- There is value to draw on the deep wisdom and insights of educators and creators from diverse backgrounds and roles – this facilitates cultural competence and builds on the varied ways math is taught.
- It is important that in addition to educator supports, we facilitate and strengthen pedagogical and instructional leadership.
- Providers want supports and have barriers to accessing. And they want advanced training in learning trajectories and opportunities to integrate whole-child learning with literacy, math, and social-emotional learning. They are interested in the learning cycle of content and theory to practice and reflection.
- Build on what's working—expand pilots and learning across the state—particularly those that address math attitudes and mindset
- System structure needs to consider racial equity and strategize removing barriers and building holistic supports with organizational leaders as well as professional learning.



Conclusion



The draft model above considers:

- Our system** – consideration for how cross-agency system coordination can improve opportunities for educators.
- Educators** – the supports, learning, and opportunities educators need to provide quality experiences for children—including the strong components surrounding them.
- Early learning organization administrators** – program leaders have a unique position that requires support – so they can provide the support and access to opportunities their educators need.
- Coaches, trainers, and colleges** – those who equip educators need the resources, tools, and knowledge to provide high quality professional learning opportunities.

In this model, the educator remains the central role, while other key supports provide a comprehensive professional development system.

The recommendations and professional development model can be used to guide decisions for how to best focus efforts in Washington's early learning professional development system related to mathematics for children birth to eight and to inform priorities and strategies for action.

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<https://dcyf.wa.gov/services/earlylearning-profdev/workforce-development/initiatives>