

Early Math:

Findings and Considerations from a Decade of Investment

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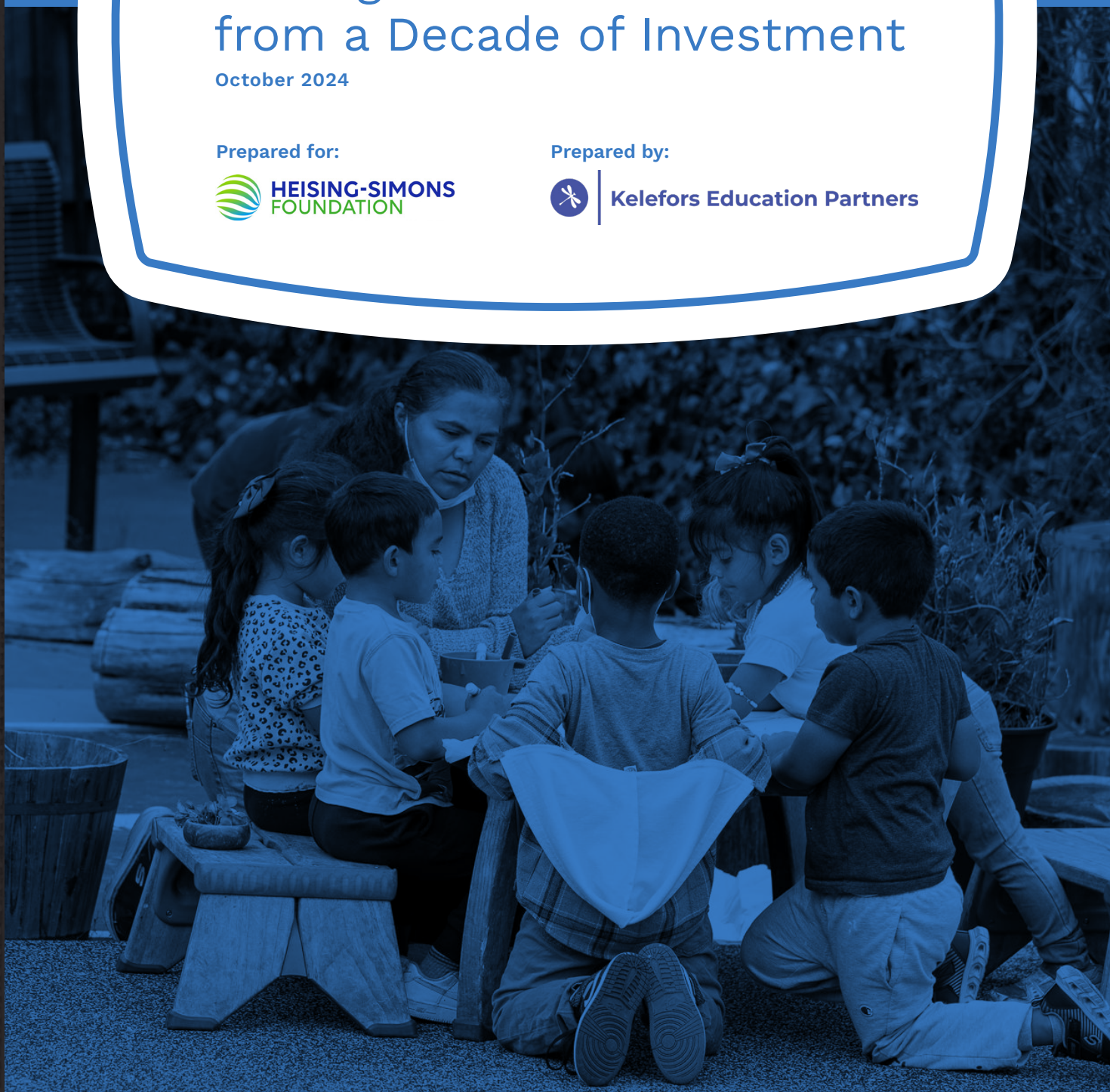
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Since 2011, the Heising-Simons Foundation has invested in advancing the learning of math by children from birth through age eight, both in and out of school. Compelled by research linking early math knowledge and skills to successful achievement later in elementary school,¹ The Foundation set out to support efforts designed to make it more likely that children experience high quality math learning in early learning settings and in their communities, so that they develop foundational math knowledge and skills that contribute to individuals' personal and academic development.



Between 2011 and 2023, the Foundation invested \$107 million (an average of \$8.2 million per year) in three overlapping ideas. First, it invested in strengthening the field of research on early math, both in and out of school. Then, with more focused attention on California, it invested in efforts to encourage and support early learning institutions (*i.e.*, *child-care organizations, pre-schools, and elementary schools*) to adopt research-based practices and policies, as well as in efforts to increase the awareness of families about strategies they can employ to help their children learn math. Finally, the Foundation made more explicit its intent to address racial equity in both formal and informal early math learning settings.

¹ Duncan, G.J., Dowsett, C.J., Claessens, A., Magnuson, K., Huston, A.C. et al. (2007). School readiness and later achievement. *Developmental Psychology*, 43(6), 1428-1446).

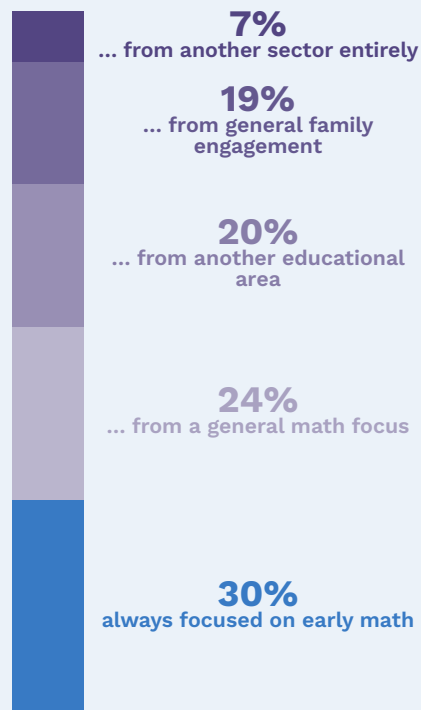
Findings: Building a Field

Between 2001 and 2023, the “field” of early math grew in important ways and can clearly be described as an emerging field today. Scholars of field-building characterize emerging fields as demonstrating pockets of impact, with small aspects of the core problems effectively managed and much more work needed to be done to bring innovations to scale across populations.



Source: The Bridgespan Group

70% of surveyed grantees JOINED the field of early math...



Key developments in field of early math include:

- Substantial growth in the knowledge base, including a nearly six-fold increase in the number of articles focused on early math in prominent early childhood education journals.
- Observable increases in the types of organizations engaged in early math, with 70% of surveyed grantees indicating they came to early math from other fields in the time period under study.
- The creation of tight networks of organizations (especially within the research community), with 43 organizations identified by at least seven grantees as collaboration partners.

There is no doubt that the Heising-Simons Foundation has been a catalyst for these developments. The Foundation has been an anchor funder in early math, and is consistently noted by experts in the field as a convener and connector of people and organizations committed to bringing more attention to early math.

Key challenges to consistent implementation of strong early math engagement practices:

- Math remains less of a priority in public discourse and public policy than early literacy learning and the socio-emotional development of young children, with literacy taking center stage in state-level policy and discourse.
- Many families and teachers have negative experiences with math and anxiety about it.
- The infrastructure needed to translate research findings into practice has substantial gaps, especially in terms of a supportive policy environment, and a teaching force positioned to implement best instructional practices.

Governors Identifying Reading/Literacy and Mathematics as Priorities in State-of-the-State Addresses²



² FutureEd, a project of the Georgetown University McCourt School of Public Policy. <https://www.future-ed.org/education-in-governors-2024-state-of-the-state-addresses/>

*“Although there has been more attention to early math over the last decade, I do not believe that **the field has yet had its ‘awakening’** in the broader public sense that literacy had decades ago when national ‘read to your child’ public campaigns were being held.”*

Grantee Perceptions of Changes From a Decade Ago to Now	Positive	Neutral or Negative
Math programs and resources are more racially, culturally, and linguistically inclusive.	83%	17%
Early math is a higher priority in educational research.	82%	18%
Children are more likely to experience meaningful math in early learning settings.	69%	31%
The public is more aware of the importance of learning math early.	62%	38%
Teacher preparation and professional learning programs are more focused on early math.	62%	38%
Policy makers are prioritizing early math more.	59%	41%
Children are more likely to experience meaningful math in primary school grades.	58%	42%
Children are more likely to experience meaningful math outside of school.	57%	43%

The field’s understanding of math proficiency for young learners at scale is limited. The National Assessment of Educational Progress (NAEP) fourth grade math scores were flat overall from 2011 to 2019, and then saw a sharp decline from 2019 to 2022 (undoubtedly impacted by COVID-19, but with declines for the lowest performing students showing up earlier). However, this lagging indicator misses much of what experts see as relevant for measuring early math learning and other measures have not yet scaled to fill that gap.

Considerations: Catalyzing Impact

During the period under study, the Heising-Simons Foundation played a pivotal and central role in the observed impacts and changes in the field of early math learning. Two things stand out:

1. The Foundation has been an [anchor funder for early math learning](#), both in California and across the country. It has seeded major network-based strategies — most notably through the DREME network and the Family Math Network — that are viewed as important and as unlikely to have occurred without the Foundation's involvement.
2. The Foundation has, through its investment decisions, [shaped the field of early math](#). It has attracted organizations and individuals from other domains into early math, and has supported them to collaborate and connect with one another.

As the Foundation contemplates how to sustain the gains made and to build on its impact, it might ask: What types of investments would most likely catalyze growth in the field and lead toward more consistent impacts on student learning? Three ideas emerged from the findings and from dialogue with our advisors.

- 1. Building Demand Among Families and Communities:** We are likely to see a stepwise change in attention to math in early education settings if and only if families and communities demand it. Building that demand can come in a number of ways, including:
 - Expanding current investments to build public awareness about the importance of early math, and to develop culturally appropriate resources for family/community math;
 - Exploring networks outside of education (e.g., pediatric associations) to more rapidly scale family math resources; and
 - Growing more robust coalitions of researchers, practitioners, and organizations, linking up what are still fragmented segments of the early math field.
- 2. Creating Common Measures of Math Proficiency:** The field's most-cited measures of math proficiency may come too late in the game to accurately measure progress of the youngest learners. The Foundation might consider how to coalesce the field around a small number of measures related to 4 to 5 year olds' conceptual understanding of math, including:
 - Raising the profile of work underway to deploy valid measures of early math learning;
 - Leveraging the Foundation's very notable role as a convener and connector to foster a conversation about what success looks like for young learners; and
 - Working strategically to highlight research findings for policy makers about the contours of effective early math approaches, especially given interest in some pockets in more back-to-basics approaches.
- 3. Doubling Down on System Coherence:** Increased public policy focus on early childhood education in general creates new opportunities and challenges for coherence from early learning through elementary school. Among many potential areas of investment, the Foundation might especially consider how to significantly shift teacher attitudes about and capacity to effectively engage young children with compelling learning in mathematics.

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