Graphic recording of a Zeno Family Discussion Group with African American mothers and grandmothers. The group discussed the value of early math in their community and shared ideas for engaging children with math in the home.

Artist credit: Lorra Jackson
VISION

A world where everyone knows they can do math.

MISSION

Zeno builds young children’s early math skills by equipping families with fun and engaging tools to create the math foundation for a future of limitless opportunity. We focus on serving families of color in low-income communities through partnerships with community-based organizations and early learning programs.

RACIAL EQUITY + EARLY MATH SUCCESS

While systemic and institutional inequity persist at all levels of our society, race plays an especially significant factor in the daily lives of the families we engage. For Zeno to create programming that is effective and valued by communities of color, all aspects of our organization must address racial equity: policies, practices, programs, staffing, and governance. Our work is to reduce and erase racial opportunity gaps in early math by increasing access to early math resources and bringing families of color into the early math conversation.
Studies have shown that early learning math skills are “more predictive of general scholastic achievement than language, attention span, or social skills”, and that when children start behind in math they tend to stay behind. In the fall of 2017, only 66% of Washington state children arriving to kindergarten had the math skills expected of their age. A deeper dive into the data shows that a larger percentage of children of color are entering kindergarten without the necessary skills to engage in math than their white peers. In 2017, WaKIDS data shows that 73% of white children arrived to kindergarten prepared in math, compared to only 47% of Latino, 50% of Native American, and 63% of African-American children. Though Zeno focuses on early learning, we recognize that the downstream negative impact of an inadequate math foundation can be seen in 4th Grade math scores.

While 62% of white 4th graders were meeting SBA standards in math, the disparities for Latino students [37%] Black students [34%], and American Indian/Alaskan Natives [27%] are troubling. It is important to note that the level of data disaggregation highlights high levels of achievement for Asians [77%], yet there are multiple layers of disaggregation necessary to highlight substantial subgroups of the racial category, that are not meeting standards, as well.

Starting behind in math not only prevents academic success at higher levels, it closes doors to students from communities who are already underrepresented in higher education, STEM careers, and economic and political leadership. Despite Washington’s role as a key player in the world-wide STEM economy, only 31% of high school graduates in Washington state pursue the post-secondary education necessary to participate in the local tech sector. As a result of the cycle of intergenerational poverty and its intersectionality with race, people of color represent less than 25% of STEM professionals. This lack of representation limits access to economic and political power, and prevents mobility for many communities, perpetuating a dynamic of systemic inequities.

**Washington State Math Indicators**

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Math-Ready Kindergarten Students (WAKiDS)</th>
<th>4th Graders Meeting SBA Math Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>66%</td>
<td>54%</td>
</tr>
<tr>
<td>Asian</td>
<td>80%</td>
<td>77%</td>
</tr>
<tr>
<td>White</td>
<td>73%</td>
<td>62%</td>
</tr>
<tr>
<td>Black/African American</td>
<td>63%</td>
<td>34%</td>
</tr>
<tr>
<td>American Indian/ Alaskan Native</td>
<td>50%</td>
<td>27%</td>
</tr>
<tr>
<td>Latino</td>
<td>47%</td>
<td>37%</td>
</tr>
<tr>
<td>Low-Income (FRL)</td>
<td>50%</td>
<td>38%</td>
</tr>
</tbody>
</table>
For families of color in low-income communities, the challenges of building early math foundations may extend beyond the math phobia that many adults experience across socioeconomic backgrounds. Despite the ample systemic obstacles to adequate math preparation, our communities are overwhelmingly capable of navigating hurdles when they are engaged with targeted resources and tools.

To address the racial and economic gaps in kindergarten readiness, Zeno partners with community-based preschools, home visit programs and other organizations who have trusting relationships with families, so we can meet our communities where they are with tailored supports to their unique contexts.

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4 IBID

5 IBID

6 SBA Scores, Office of Superintendent of Public Instruction [2017]

7 IBID


9 2007 US Census Data
Zeno was founded in 2003 as Explorations in Math, when a group of parents and a teacher at Wilder Elementary School in Woodinville, Washington observed the impact that a positive math culture had on students’ success. Zeno’s Early Learning efforts were launched in 2015 and accelerated via a key partnership with the Chinese Information and Service Center (CISC) that explored preschool, drop-in, and home visit settings. Atlantic Street Center soon followed, affording significant sharing and learning opportunities. We’re grateful for these initial supporters in sharing fun, early math resources with families. We quickly moved from a handful of classrooms and fewer than 100 families served in 2015 to over 70 classrooms, home visit agencies, and drop-in sites, and over 1,500 families served in spring of 2018.

As we strive to meet the demands of families, we intend to retain our foundational approach - facilitating positive, fun, and engaging experiences with math. We will continue to monitor and improve our programming and work to reach those with the greatest need, all while expanding across Washington State and beyond. To that end, our explicit focus on families of color living in low-income communities will be the cornerstone of our strategy and activities moving forward.

<table>
<thead>
<tr>
<th>2014</th>
<th>2016</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Elementary programs adopted in 40+ schools</td>
<td>• Early Learning Program added additional partners, including Parent Child Home Program at Atlantic Street Center</td>
<td>• Early Learning program became Family MathWays, Zeno’s primary program and key focus</td>
</tr>
<tr>
<td>• Explorations in Math became Zeno</td>
<td>• Stronger programmatic and resource focus placed on early learning</td>
<td>• Over 1,500 preschool-aged children took home monthly math game kits to their families through Zeno partners</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2003</th>
<th>2015</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Founded as Explorations in Math</td>
<td>• Mission refined to serve only low-income communities.</td>
<td>• Family Discussion Group model established to seek out and include input from communities</td>
<td></td>
</tr>
<tr>
<td>• Initial partnership with low-income elementary school in Seattle</td>
<td>• Early Learning pilot launched with initial partners, including Chinese Information and Service Center</td>
<td>• Inaugural Summer Institute to train educator-partners</td>
<td></td>
</tr>
<tr>
<td>• Family Math Game Nights, school-wide math puzzles and in-class teacher mentoring</td>
<td>• Preschool math game kits developed</td>
<td>• 10th Annual Seattle MathFest held at Seattle’s Rainier Community Center</td>
<td></td>
</tr>
</tbody>
</table>
STRATEGIC FOCUS

Over the last three years we have experienced strong demand from families and partners, established key programmatic elements, and have identified significant potential for scale and growth of our early math work. The following key areas will frame our efforts for the next three years:

**Infuse Racial Equity**

Racial equity is a foundation of our relationships with community partners and program participants, informing how we engage, communicate, and partner in communities of color. Racial equity also serves as the cornerstone of how Zeno evaluates and adapts its programming, practices, marketing and communications activities. We will:

- Practice communications and measurement activities that support and highlight the strengths and assets of families and communities of color regarding early math education in the home
- Develop community selection criteria that prioritizes Native American and families of color
- Adopt talent development and leadership model centered on racial equity and coaching. Attract, develop, and retain diverse staff who best connect with our target communities

**Invest in Scalable Growth**

Build our organizational infrastructure for expansion – investing in operations, finance, board development, governance, and staffing that sustains growth. Ensure racial equity is a foundational element of our programming, partnering and collaborative efforts. We will:

- Continue to increase the diversity of Zeno’s board: recruit directors with skills and experience in early learning, racial equity, organizational growth and partnering
- Invest in staffing for growth
- Test and implement technology tools for communication and training
- Strengthen, codify, and adapt program implementation processes for growth in different geographies and across communities
- Measure usage and adapt program elements to ensure best adoption by families across racial and cultural backgrounds

We know that through structured math play kids learn. By 2021 Zeno aims to engage 21,000 families in early math play.
Continue to Incorporate Voice of the Family

Strengthen tools and processes for seeking out and incorporating input from families of color and community leaders into our programs and products. Build Zeno’s knowledge of how to best connect with cultural traditions or customs of specific people and communities. We will:

- Strengthen understanding of the various goals, habits, and desires of families of color (African-American, Tribal, Latino, Asian and immigrant communities) through Voice of the Family Sessions, surveys and staff participation in community events
- Develop Voice of the Family strategies that scale with fidelity and integrity
- Co-create programming with Tribal communities and families of color, utilizing family and community discussion groups, play testing and culture-specific game creation process development

Obtain Funding for Growth

With the significant demand for our program, we will seek to strengthen existing relationships with donors, develop a sustainable community of individual funders, and increase our focus on corporations. We see strong alignment between Corporate Social Responsibility goals around racial equity, workforce development, education, and Zeno’s mission. We will:

- Increase the number of corporate donors and maintain corporations as largest source of funding
- Clarify and streamline our communications and messaging efforts to donors and volunteers, particularly around voice of the family, social justice, racial equity and the economics of poverty
- Strengthen corporate volunteer program and relationships
- Increase the number of individual donors
- Explore and pilot cost-sharing revenue strategies

Expand Strategically to New Geographies

Our goal is to have the ability to serve any Washington State low-income community by the end of this strategic plan. We will also launch pilot projects outside of Washington state, with a high priority on communities of color, to guide national expansion in subsequent years. We will:

- Test theories of growth via pilots outside the Puget Sound Region. Intentionally select communities and partners that support the evolution of our program within Tribal and low-income communities of color
- Seek out families outside of formal early learning systems. We will explore partnerships with home-based family childcare, parent leadership programs, housing authorities, and community-based programs
- Conduct pilot programs outside of Washington to test and learn about remote partnership models
Zeno’s Approach

Zeno layers math onto existing programs that primarily serve families of young children in low-income communities of color. We provide fun, playful activities that build foundational early math concepts, shape mindsets, and put learning resources in the homes of children. We incorporate the Voice of the Family in our work, to co-create in a way that develops programming most likely to be used and adopted by families.

Our Theory of Change reflects that through recurring acts of guided, resourced, and meaningful play, families build a positive math culture in their daily lives.

“A Positive Math Culture”

“Play is often talked about as if it were a relief from serious learning. But for children, play is serious learning. Play is really the work of childhood.”

—Fred Rogers

Children develop a stronger math identity and arrive math-ready to kindergarten and are successful throughout their K-12 schooling.

Parents/Caregivers reinforce their role as their child’s most important teacher, bring more intentionality to developing their child’s math foundation, deliver positive early math messages at home, and become lifelong advocates for students’ educational opportunities.

Zeno Partners become effective conduits for Zeno early math games and promote a learning mindset in students, families, and caregivers.

For children, play contributes to their cognitive, physical, social and emotional well-being. We know games are engaging ways for children to build mathematical habits of mind and help prepare them for school.

Ultimately, we believe that with support of Zeno programming, children will develop the strong math foundation needed for a future of limitless opportunity.

August 2018

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FAMILY MATHWAYS PROGRAM

Families and caregivers are a central leverage point in the learning trajectory of children. We hold them as one of the most crucial components of lifelong learning for students, as well as one of the most knowledgeable teachers a child has. We center on play, racial equity, and facilitate environments that support positive parent-child interactions. Our program builds children’s early math foundation by providing educational math activities and games that go home on a regular basis to families. We leverage the family environment as our primary means of program impact.

THE PROGRAM INCLUDES 3 KEY COMPONENTS

Zeno Math Game Kits
Game Kits include fun, playful educational materials (math toys) and instructions for families. The full suite of games covers a two-year period and were initially developed by Zeno staff based on principles from the Erikson Institute and other leading researchers. Each game aligns to a set of established learning goals and are regularly updated based on input from families. Games are distributed by partner organizations to families on a regular basis, for them to keep and explore at no cost.

Trusted Community-Based Partners
We partner with organizations that hold trusted relationships with families, leveraging the cultural knowledge of community contexts and continuous interactions as a foundation for learning. We train partners on delivery of Math Game Kits to families and provide professional development on early math concepts. Partners distribute Zeno Math Game Kits to families, encourage positive math mindsets, and support family math talk and activities.

Community Events
Zeno works with partners to host lively family gatherings, such as Family Math Parties and MathFests, that build a positive math culture within a community, engaging families in fun math play.

"We’re intentional, we’re counting. ‘I want you to take four steps behind me. Four steps ahead of me.’ Kind of things that are every day. Just making sure that I’m giving her that culture of learning and being intentional about doing so."

— Mom, Zeno Family Discussion Group

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MEASURING IMPACT

While there is adequate research in controlled environments that makes the case for our work and supports the theory behind our activities, Zeno is one of the first organizations to put early math research into practice. This means that currently, there are limitations to assessing early math learning for a program like ours. Our measurement strategy centers on the adults in kids’ lives.

Over the next three years, we will take an asset-based approach to evaluation as a strategy to center our work on the positive actions and approaches of communities of color that are often overlooked by traditional evaluation measures. We will work with trusted thought partners from communities, research, and philanthropy to develop measures that responsibly reflect impact. Zeno is positioned to play a significant role in influencing and accelerating this work at a national level.

CURRENT EVALUATION TOOLS

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre- and Post- Program Surveys</td>
<td>Evaluate shifts in attitudes and beliefs around math for educators and parents/caregivers. Adapted from Erikson Institutes’s ABC-EM tool. Our surveys are provided in the families’ home languages.</td>
</tr>
<tr>
<td>Play Logs</td>
<td>Assess the frequency of game play by families</td>
</tr>
<tr>
<td>Family Discussion Groups</td>
<td>Collect qualitative feedback from families around math attitudes and beliefs, as well as their experience with MathWays programming</td>
</tr>
<tr>
<td>Teaching Strategies Gold pre-K assessment tool</td>
<td>Analyze TS Gold pre-K assessment scores provided by partners already using TS Gold as a classroom requirement (Head Start, etc)</td>
</tr>
</tbody>
</table>

MEASUREMENT TOOL DEVELOPMENT

We will build upon and improve the above measurements by focusing on the following:

- Qualitative and observed family/caregiver feedback. Include observations of children and family play.
- Survey instruments to better measure improvements in attitudes, beliefs, and mindsets around math for the adults in children’s lives, and whether positive math mindsets are maintained over time.
- Metric development to ensure Zeno families consist primarily of families of color from low-income communities.
- Take a leadership role in national efforts to develop and adopt family-centered tools and measurements to assess math programs. Collaborate with early learning organizations, academic researchers, and funding partners to define and implement a generally accepted set of early math outcomes and indicators.

JOIN THE FAMILY MATH MOVEMENT!

Visit: zenomath.org    Email: info@zenomath.org    Call: (206) 325-0774

August 2018