

The Critical Role of Professional Development in Creating High-Quality Early Learning Environments

November 15, 2022



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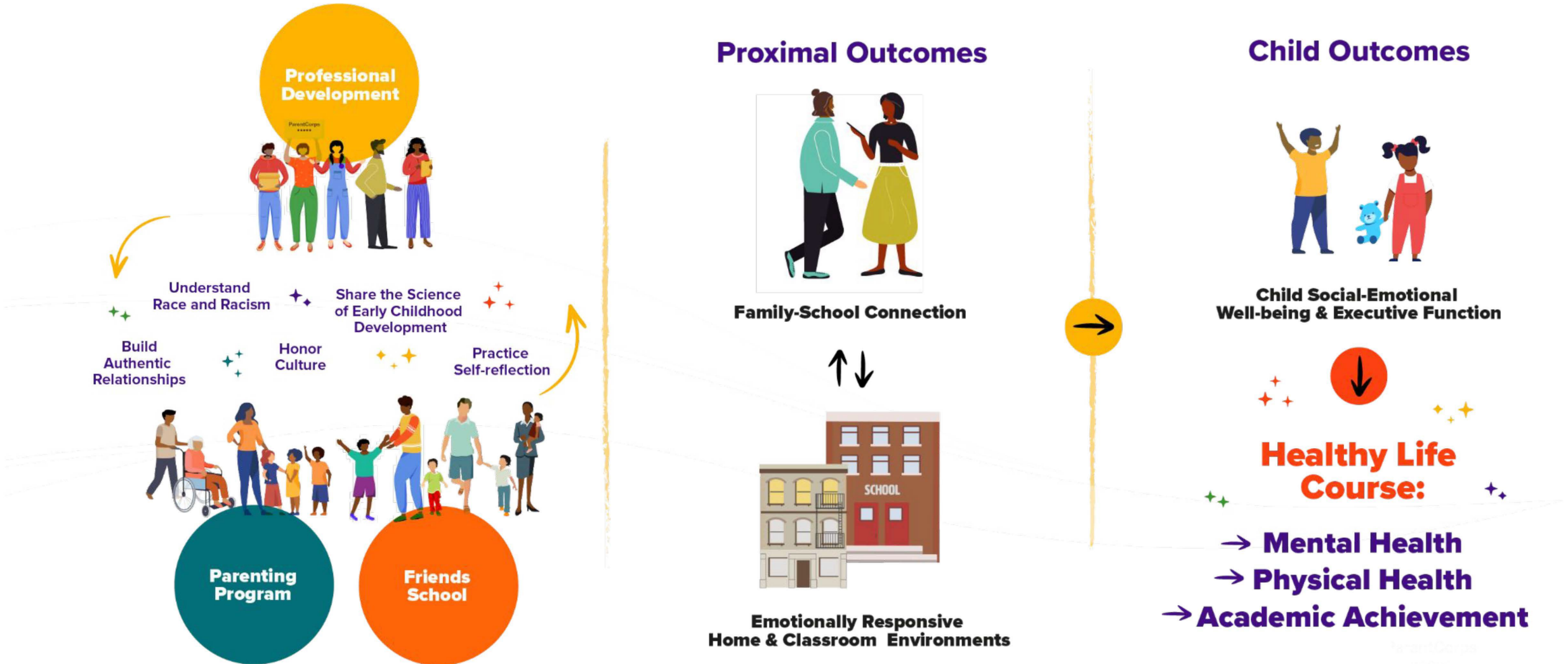


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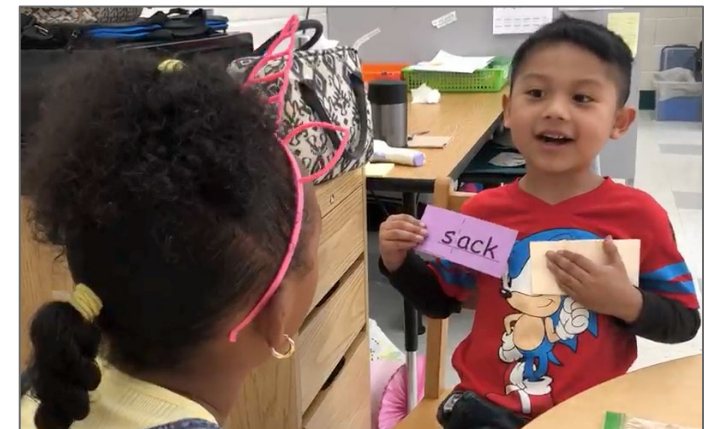
Theory of action



What is Tools of the Mind?

A PreK and K program that combines a comprehensive curriculum with robust professional development

- Develops self-regulated learners (Executive Functions and academic skills)
- Scaffolds based on individual child development
- Children learn to play and play to learn
- Builds an inclusive **community of learners**
- Teaches children *how* to learn
- Combines the Science of Reading and Math with the Science of Learning and Development for strong child outcomes
- Serving over 40K children a year with a 90% program retention rate



Cutting-edge Neuroscience + Whole Child Development + Coherent Set of Theoretical Principles



EDUCATIONFORUM

THE EARLY YEARS

Preschool Program Improves Cognitive Control

Adele Diamond,^{1*} W. Steven Barnett,² Jessica Thomas,² Sarah Munro¹

Executive functions (EFs), also called cognitive control, are critical for success in school and life. Although EF skills are rarely taught, they can be. The Tools of the Mind (Tools) curriculum improves EFs in preschoolers in regular classrooms with regular teachers at minimal expense. Core EF skills are (i) inhibitory control (resisting habits, temptations, or distractions), (ii) working memory (mentally holding and using information), and (iii) cognitive flexibility (adjusting to change) (1, 2).

Significance

EFs are more strongly associated with school readiness than are intelligence quotient (IQ) or entry-level reading or math skills (3, 4). Kindergarten teachers rank skills like self-discipline and attentional control as more critical for school readiness than content knowledge (5). EFs are important for academic achievement throughout the school years. Working memory and inhibition independently predict math and reading scores in preschool through high school (e.g., 3, 6, 7).

Many children begin school lacking skills (5). Teachers receive little in how to improve EF and have high attrition rates (8, 9). Previous programs to improve children's EF have often had limited success (10–12). Problems associated with such programs include teacher burnout, student dropout and crime (2). Young lower-income children have disproportionately poor EF. They fall progressively farther behind each year (13).

The Study

The opportunity to evaluate Tools of the Mind (Tools) and another curriculum in a low-income, urban school

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EDUCATIONFORUM

Cognitive control skills important for success in school and life are amenable to improvement in at-risk preschoolers without costly interventions.

agreed to randomly assign teachers and children to these two curricula. Our study included 18 classrooms initially and added 3 more per condition the next year. Quality standards were set by the state. All classrooms received exactly the same resources and the same amounts of teacher training and support (2). Stratified random assignment

their second year of preschool (average age: 5.1 years in both) who received dBL or Tools for 1 or 2 years. Those who entered in year 2 had attended other preschools for a year. All came from the same neighborhood and were randomly assigned to Tools or dBL with no self-selection into either curriculum. All came from low-income families; 78% with yearly income <\$25,000 (2).

After year 1, so convinced were educators in one school that Tools children were doing substantially better than dBL children that they halted the experiment in their school, reducing our sample of dBL children.

Measures of EF. Outcome measures (the Dots task and a Flanker task) were quite different from what any child had



Randomized control trial of *Tools of the Mind*: Marked benefits to kindergarten children and their teachers

Adele Diamond, Chris Lee, Peter Senften, Andrea Lam, David Abbott

Published: September 17, 2019 • <https://doi.org/10.1371/journal.pone.0222447>

Abstract

The kindergarten program, *Tools of the Mind* (Tools), has been shown to improve executive functions (as assessed by laboratory measures) and academic performance. The objective here was to see if Tools can improve executive functions in the real world (in the classroom), academic outcomes not previously investigated, reduce bullying and peer ostracism, and increase teachers' and students' joy in being in the classroom. This first randomized controlled trial of Tools in Canada included 351 kindergarten children (mean age 5.2 years at entry; 51% female) in 18 public schools. Stratified randomization resulted in teachers and students in both groups being closely matched. Teachers in both groups received the same number of training hours and same funds for new materials. Outcome measures were pre and post standardized academic skill assessments and teacher online survey responses. This study replicated that Tools improves reading and shows for the first time that it improves writing (far exceeding levels the school districts had seen before), self-control and attention-regulation in the real world (e.g., time on task without supervision), reduces teacher burnout and children being ostracized or excluded, and increases the joy students and teachers experience in school. By Spring, Tools teachers were still enthusiastic about teaching; control teachers were exhausted. These results were not only better than the control group but also better than Tools teachers experienced the year before Tools. Thus, children in a kindergarten curriculum that emphasized play, improving self-regulation, working together and helping one another, and hands-on learning performed better academically, showed less bullying and peer ostracism and more kindness and helping behavior than students in more traditional classes, and teacher enthusiasm for teaching soared. Tools reduced initial disparities separating children, schools, and teachers.

Citation: Diamond A, Lee C, Senften P, Lam A, Abbott D (2019) Randomized control trial of *Tools of the Mind*: Marked benefits to kindergarten children and their teachers. PLoS ONE 14(9): e0222447. <https://doi.org/10.1371/journal.pone.0222447>

Closing the Achievement Gap through Modification of Neurocognitive and Neuroendocrine Function: Results from a Cluster Randomized Controlled Trial of an Innovative Approach to the Education of Children in Kindergarten

Clancy Blair, C. Cybele Raver

Published: November 12, 2014 • <https://doi.org/10.1371/journal.pone.0112393>

Article	Authors	Metrics	Comments	Media Coverage
▼				

Abstract Abstract

mic achievement and positive life outcomes, neuroscience suggest that a focus on self-engagement in learning and establish beneficial grades. Here, we experimentally evaluate an n in kindergarten that embeds support for self-literacy, mathematics, and science learning controlled trial involving 29 schools, 79 e effects on executive functions, reasoning linary cortisol and alpha amylase. Results also ulary, and mathematics at the end of . A number of effects were specific to high-executive functions and associated aspects of self-promise for closing the achievement gap.



SEEDS

QUALITY INTERACTIONS

SELF IMAGE: CHILD FEELS RESPECTED, LOVABLE, AND CAPABLE

SENSITIVITY

STRIVE FOR 5
WAIT, WATCH, & LISTEN
READ YOUR CHILD'S SIGNALS
RESPOND QUICKLY
ACKNOWLEDGE
ASK QUESTIONS
COMMENT
REPAIR & RENEW

ENCOURAGEMENT

SUPPORT EQUILIBRIUM
USE AFFIRMATIONS
CELEBRATE EFFORT
USE POSITIVE VERBAL &
NON-VERBAL MESSAGES

- GET TO EYE-LEVEL
- MAKE EYE CONTACT
 - CARING VOICE
 - CARING TOUCH
- POSITIVE GESTURES

PROMOTE INDEPENDENCE
& CHOICE

EDUCATION

WITH EVIDENCE
PROMOTE BIG 5
DEVELOPMENTAL AREAS

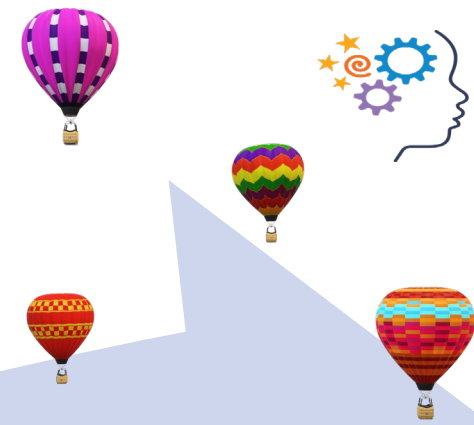
- MOTOR SKILLS
- SOCIAL-EMOTIONAL
- ORAL LANGUAGE
 - VOCABULARY
- LITERACY & NUMERACY

SCAFFOLD LEARNING

DEVELOPMENT

ALLOW CHILD TO LEAD
TALK, SING, & THINK
OUT LOUD
READ ALOUD
PLAY WITH PLAY-DOH
CRAYONS, BLOCKS, & SAND
RUN, JUMP, CLIMB,
BANG, & CLAP
USE SENSES TO EXPLORE
TASTE & SMELL FLOWERS,
SPICES, & FOOD

Components of a high quality early learning environment



Comprehensive curriculum with a cohesive pedagogy

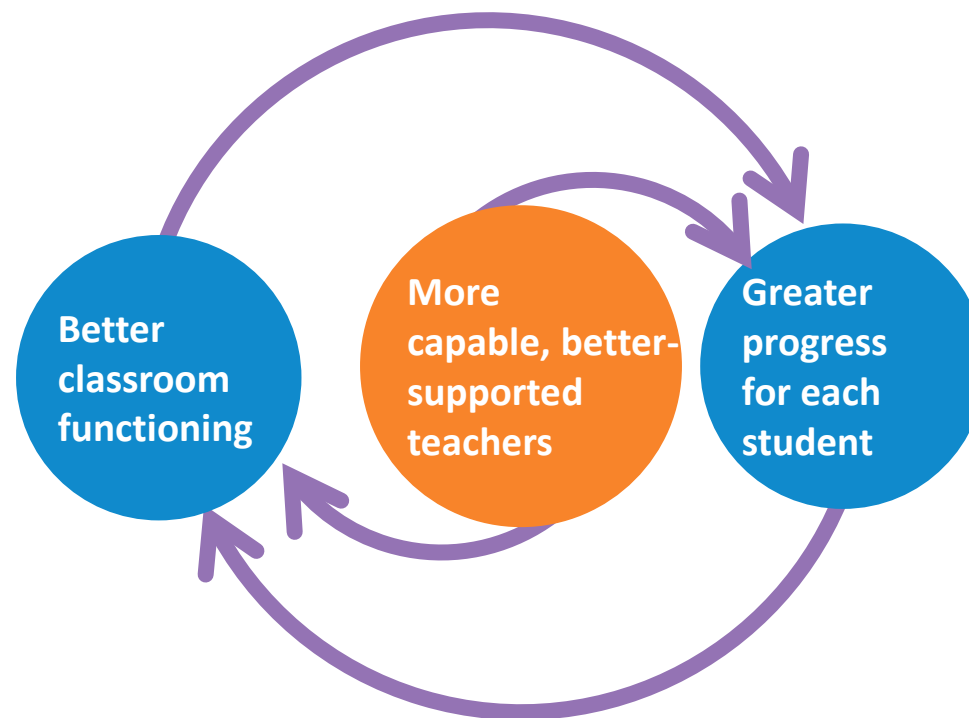
Robust professional development that is responsive and individualized

Empowered early childhood educators who have the tools they need to transform child outcomes and close the achievement gap, enabling every child to reach their full potential.

Empowering Teachers to Catalyze a Virtuous Cycle

Addressing teacher retention by restoring the joy of teaching

- Better classroom management
- Reduced behavioral challenges
- More time to tune into each child
- More satisfying teaching experience



- Better assessment of 'zone of proximal development' and scaffolding needs
- Support for peer interaction, cooperation and intentional play (enacting roles and stories)
- Better execution in providing appropriate scaffolding
- More engaged students
- Fewer children beyond teacher's capability to help
- Development of learning skills and executive functions leading to positive achievement gains and **joyful learning**

Embedded individualized PD developed in partnership with the program:



TREE- Teachers Reaching Educational Excellence

Measuring teacher development

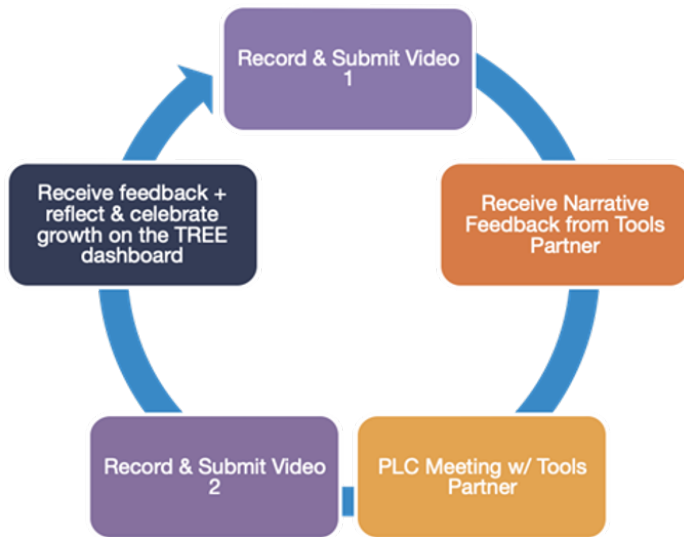
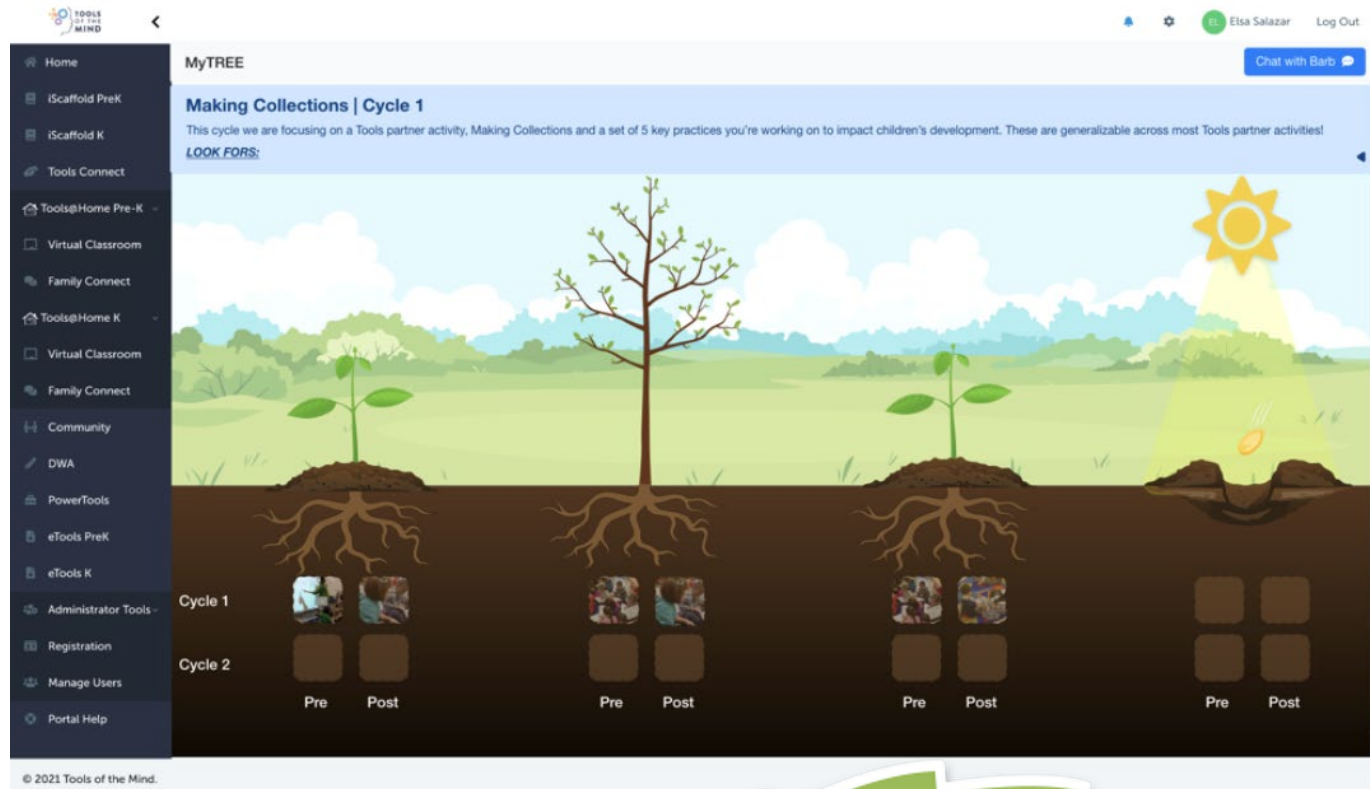


Figure 1



“I learned a lot through this experience and began looking forward to seeing someone else’s perspective on my teaching and knowing that we were a team trying to get me to be the best teacher I could be for my scholars.”



Hilary Koltes

“Tree has been an invaluable tool to me and ultimately, my students. It is easy to use and barely takes any additional time or effort. You won’t regret it!”



Michelle Gilbert

The FluentSeeds Approach: A Formula for Proven Results

TRAINING



+

COACHING



+

DATA



=

RESULTS



Training
9 sessions
(27 hours)

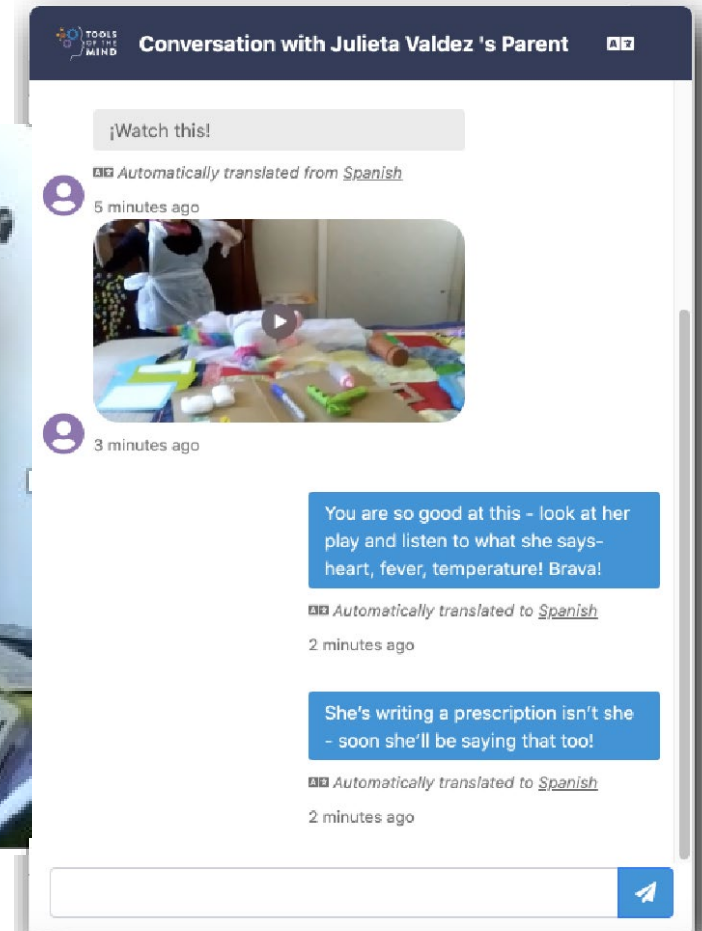
2x monthly
individual
coaching sessions

Data informs
decision making

Philanthropic Funding Development of Technology to Support Families



Parent



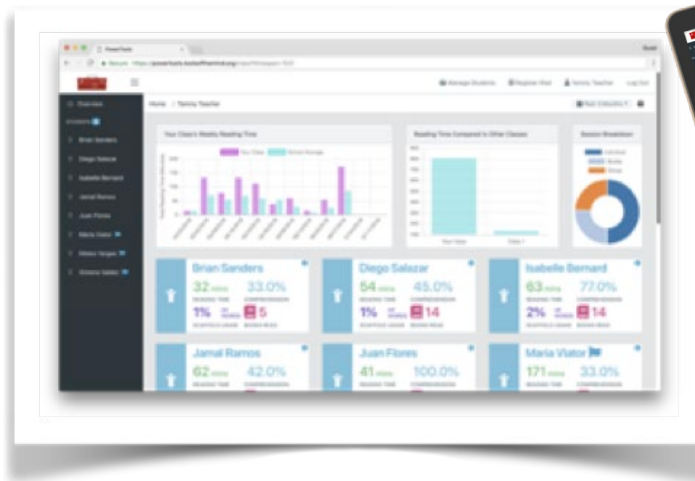
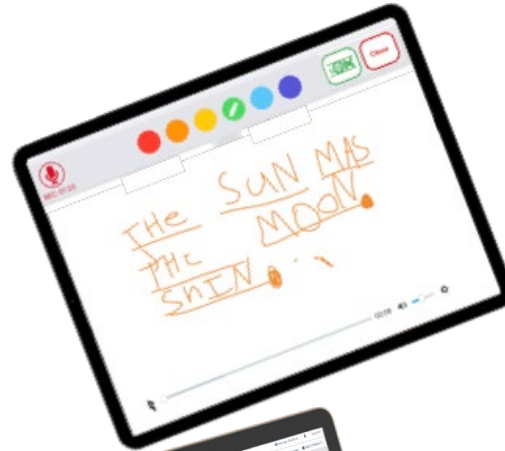
Teacher
Via Tools portal

Philanthropic funding

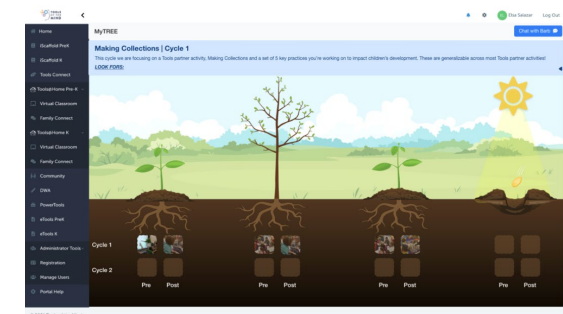
Development of Technology to Support Teachers

Embedded formative assessments in reading and writing activities with real-time monitoring of child progress

Technology supported PD
iScaffold—a coach in your pocket



Virtual Coaching



Philanthropic Funding

Helping Tools grow in scale and impact

- Development of a strategic plan that has provided a blueprint for our development and the continuous improvement cycle we use
- Enabled us to invest in our organizational capacity so we could serve more schools
- Sponsored partnerships with researchers in neuroscience, social-emotional development, literacy and math development, and computer science
- Provided ways to link to other programs that we could learn from

Next 5 Years.....

- Continue closing the achievement gap: Disrupt structural inequities in education beginning in early childhood
- Impact larger cultural, and societal perspectives on early childhood education and contribute to the field
- Expand to serve more schools and teachers, reaching more children
- Develop an approach to assessment and sharing child development data that empowers teachers and families as partners
- Continue the development of activity-embedded formative assessment
- Continue on our trajectory of continuous improvement
- Continue our work with administrators who need support in their work with teachers and families



Challenges and Opportunities: The Field

Challenges

- “Push down” curriculum—continued use of developmentally inappropriate content, goals, and teaching methods from 1st Grade
- A narrow interpretation of Science of Reading
- Continued high levels of teacher and student stress as a lingering result of the pandemic
- Focus on learning loss at the expense of whole child development
- Continued staffing issues and salary gaps

Opportunities

- Continued expansion of Universal PreK and funding for professional development
- Expanded funding for full-day K
- Increased parent involvement and interest in education because of the pandemic
- Continued interest in SEL and the mental health of children and teachers

Challenges and Opportunities: Tools

Challenges—Keeping our focus on:

- **How we teach is as important as what we teach**
- **Self-regulation matters**—the development of Executive Functions has long-term implications for learning and mental health
- **Reducing stress and increasing the joy of learning.** Stress affects learning and social functioning in a deep way and there is more stress now than there was pre-pandemic

Opportunities to support our work

- Supporting our continuous improvement efforts driven by focus on empowering teachers and improving teacher practice to achieve superior outcomes
- Supporting our successful scaling
- Supporting the development of embedded assessments and their evolution into measures that can be used across the field of early childhood

Questions & Discussion

Upcoming GLR Learning Tuesdays Webinars:

LEARNING LOSS RECOVERY CHALLENGE

Safety and Belonging First: Advancing Well-Being for Learning Recovery
Tuesday, November 15, 3:00-4:30 p.m. ET/12-1:30 p.m. PT

PARTNERS WEBINAR

Co-sponsored by EdWeek
How School Districts Can Benefit from Public Housing Partnerships
Tuesday, November 22, 3:00-4:30 p.m. ET/12-1:30 p.m. PT

LEARNING LOSS RECOVERY CHALLENGE

Co-sponsored by New America
Play + Academics + Relationships: Teaching in Ways Kindergartners Learn Best
Tuesday, November 29, 3-4:30 p.m. ET/12-1:30 p.m. PT

Join us!

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