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The future is upon us. As technology and globalization accelerate the pace of change and our level of interdependence, it is difficult to predict what the future of work, future of learning, and future of society will look like. For example, it is estimated that 65 percent of children entering kindergarten today will ultimately end up working in new job types that do not exist yet. While we can’t predict what specific skills and competencies will be required in 2030 and beyond, one thing is certain: The ability for children to thrive is closely linked to their early learning experience. This is especially true for complex, advanced skills and competencies that are social, emotional, creative, and cognitive in nature.

Meanwhile, America is rapidly changing. This year’s entering kindergartners—the class of 2030—are minority/majority, are increasingly consuming digital media, are raised by digital-native Gen Y and Gen Z parents and educators, and are predominantly living in urban centers. Additionally, nearly one out of two children has experienced at least one adverse childhood experience.

Notable progress in developing new practices and policy models in early childhood development has been undertaken over the past decades. Major innovations such as Head Start, Sesame Workshop, and Mister Rogers’ Neighborhood, all three introduced in the 1960s, have reached millions of children and families. Scalable, evidence-based models like Early Head Start, home visitation programs, Educare, and other system interventions such as professional learning standards, state-based pre-K, and quality rating systems—to name a few—are now broadly influencing early childhood opportunities for young children and their families.

However, there is a lot more to be done for our young children, and the early years remain massively under-
invested. Per the Human Capital Index recently released by the World Bank, the US education system is estimated to only deliver 76 percent of human potential—on par with Serbia. When raised in a lower economic community, one child out of two starts kindergarten not fully prepared.¹ A child who enters kindergarten unprepared is 25 percent more likely not to finish high school and 60 percent more likely to skip college. On the positive side, when given the opportunities to develop this critical foundation in their early years, children can establish the skill sets for the future of work and learning, and perhaps most importantly can develop the capacities to be better family members, friends, neighbors, and engaged citizens, setting us all up for greater potential to live in a society defined by universal flourishing and greater equity.

The powerful work done by so many, coupled with the realities of our new America, lays the groundwork for new solutions. A burgeoning new wave of innovation in early learning has the potential to benefit new generations of little learners and their families, as well as our overall education system and society as a whole.

At Omidyar Network, we have the privilege to connect with many innovators and help them grow their ideas. In 2018 alone, we met with more than 300 early childhood entrepreneurs and supported a dozen organizations in early childhood (some featured in this report). In the following pages we seek to capture the megatrends that have brought us to the present and share some signals we see for what future early childhood learning trends could look like.

In the absence of fully knowing what the future holds for our young children, we also focus on the people they are today, ensuring that those little learners have the best possible experiences in their early years.

As with all innovation shifts, we need to remain hyperaware of the risks that come with a new paradigm. Who is this cutting-edge innovation reaching and who is it leaving out? What are the repercussions for increasing usage of technology—especially with young children and on quality relationships and care? In this regard, we are hopeful this report will be a conversation starter. We would welcome any reflections, thoughts, or questions it might spark for you.

Please reach out at:
bigideaslittlelearners@omidyar.com

¹ Kindergarten readiness is generally defined as a combination of socioemotional/executive function skills (e.g., children being able to communicate their needs, wants, and thoughts verbally, and to be enthusiastic and curious about approaching new activities) and cognitive/physical and health attributes (e.g., developing language and literacy skills, and basic math, social, and motor skills). For more information, please read ‘Healthy and Ready to Learn’ by ChildTrends at https://www.childtrends.org/project/kindergarten-readiness-national-outcome-measure.
MEGATREND 1

The Time Is Now: Early Childhood’s Tipping Point

The world is experiencing change at an accelerated pace. This pace is propelling a rise in discussion about building resilient, curious, and creative minds who can thrive in an ever-changing world. In parallel, there has been meaningful progress across brain science and research establishing why the early years matter, coupled with the acceptance of the economic case of investing in our youngest children as yielding one of the highest societal returns. Early Childhood Development is now part of the Sustainable Development Goals globally.

As a result, parents, at least those with financial resources to do so, are investing more and earlier in their children. And, while still insufficient, federal, state, and city governments have increased their investments in early childhood, and governors and state legislatures are adding it to their agendas.
More Proof: Investing in early childhood matters

The case on why to invest in early childhood is clear: It is critical for future individual and societal flourishing and delivers one of the greatest societal ROI.

**NEURAL CONNECTIONS FORMED**
More than 1 MILLION new neural connections formed per second in early childhood

**RETURN ON INVESTMENT PROVED**
Investing in early childhood has one of the highest societal returns at 13% ROI

- Individuals: increased earnings and educational outcomes
- Society: reduced special education, welfare, and crime costs, and increased tax revenues

**VOCABULARY DISPARITY INCREASED**
18 months is the age at which disparities in vocabulary begin to appear

**COGNITIVE OUTCOMES ACHIEVED**
Three-quarters of children with preschool education scored higher on IQ and achievement tests than children who did not attend preschool. Quality, intensity, and duration of preschool experience have a positive relationship on cognitive development

76% of children who attended preschool achieve higher IQ scores than their counterparts who did not

78% of children who attended preschool achieve higher academic achievement than their counterparts who did not

**DEVELOPMENTAL DELAYS EXPERIENCED**
90-100% chance of developmental delays when children experience 6 - 7 risk factors

DID YOU KNOW?
More than 50% of low-income children in the US are not prepared for kindergarten when they enter. And, there is a “word wealth” difference between lower and higher income children by age three.

2. Adverse Children Experiences (ACE) are stressful or traumatic events, including abuse and neglect. ACEs include: physical abuse, sexual abuse, emotional abuse, physical neglect, emotional neglect, intimate partner violence, mother treated violently, substance misuse within household, household mental illness, parental separation or divorce, incarcerated household member.
More Awareness: The public now recognizes early childhood benefits

Governments, parents, and employers are investing increasing resources in early childhood.

PUBLIC FUNDING +17% SINCE 2016
- 2018 witnessed the largest increase in federal child care subsidies
- 89% of voters rate making early education and child care more affordable for working families as important

DID YOU KNOW?
16% OF 3-YEAR-OLDS AND 43% OF 4-YEAR-OLDS ARE ENROLLED IN PRE-K, HEAD START, OR SPECIAL EDUCATION PROGRAMS, RANKING THE UNITED STATES AS ONE OF THE LOWEST COUNTRIES WITHIN THE ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD).

PRIVATE FUNDING BY FAMILIES
1 in 3 families spends 20% or more in child care (guideline is 7% maximum) and this has been increasing

DID YOU KNOW?
The amount spent by the top 10% income families on child care and education vs. the bottom 10% has risen from 2.5x in 1970-1980 to 4.4x in 2010-2015.

20% OF LARGE EMPLOYERS NOW PROVIDE CHILD CARE
- Employers are starting to innovate on child care options, with 20% of large employers and 7% of all employers providing some child care on campus
- 7 in 10 working parents say providing parents with access to quality and affordable child care would have a positive effect on jobs and the economy

DID YOU KNOW?
In October 2018, Starbucks announced it will provide 10 subsidized backup child care days for employee parents at a $5 a day out-of-pocket cost for daycare and $1 an hour for in-home care providers.
More Research: We understand how children learn and develop with increasing precision

Research is continuing to make meaningful advances on understanding brain development, including responses to stress, and quality of interactions.

**NEW BRAIN IMAGING TECHNOLOGY**

New technology of brain imaging seeks to better understand neural pathways and assess adult-child interactions. Advanced research is being led by the Institute for Learning & Brain Sciences (I-LABS) at the University of Washington.

**BIOMARKERS**

A new battery of bio-behavioral measures is being piloted in pediatric practices to analyze stress effects and resilience at the molecular, cellular, and behavioral levels to understand more precisely how young children respond to adversity. This work is being conducted by a distinguished group of scientists, pediatric clinicians, and community leaders, led by the JPB Research Network on Toxic Stress and the Center on the Developing Child at Harvard University.

**NEUROSEQUENTIAL MODEL OF THERAPEUTICS**

New modes of therapy are emerging for children who have experienced trauma, anchored in a child’s history and current functioning, for greater precision of treatment.

**DID YOU KNOW?**

Almost half of the nation’s children have experienced one or more types of serious adversity in childhood.
MEGATREND 2

The Demand Is Here: America’s Shifting Family Demographics

Demographic shifts in the US are leading to new gaps and opportunities for early childhood solutions that match the new picture of American families today.

Evolving family structures, with more single-parent households and two-working-parent families, are fueling an increasing demand for affordable quality child care. New parents are now more than 80 percent Gen Y (millennials)—and increasingly Gen Z—with new expectations from digital natives regarding modern parental resources, digital tools and services, and quality early childhood solutions. Additionally, migrations and birth trends have led to a new minority/majority in the US. Census data shows there are now more “minority” children under five than white children. These new demographics mean a rise of diverse language and cultural needs serving parents, child care, and preschools.
A New America: New family dynamics create demands for early child care

American families have changed dramatically over the past 50 years, while evolutions in child care access and quality have not kept up. Furthermore, there has been a significant decline in fertility in recent years with 500,000 fewer babies in 2017 than in 2007, including cities like San Francisco where families struggle to raise children.

AMERICA’S WORKING PARENTS
- Two-thirds of children under five now live in homes where both parents work, compared with fewer than one in 10 in 1940
- Women are nearly half of the American workforce, and mothers are 40% of primary breadwinners

AMERICA’S STUDENT PARENTS
- 4.8 million or 26% of all 2-year and 4-year college students have a dependent child
- 53% of student parents have left college without obtaining a degree

AMERICA’S CHILD CARE PRICE TAG
- The average cost of full-time center-based care is about $10,000 a year higher than the average cost of in-state college tuition in 33 states
- A family earning the median household income would spend 18% of it on child care. For an individual earning minimum wage, care costs about two-thirds (64%) of their earnings

AMERICA’S CHILD CARE OPTIONS
- Only 10% of early childhood providers across the US are considered high-quality
- Half of Americans live in areas that have an undersupply of licensed care options

DID YOU KNOW?
Among nonworking poor with young children (11.4% of nonworking poor), a full 70% cite ‘taking care of home/family’ as the reason they’re not in the workforce.
A New Generation: Gen Y and Z parents are hyperconnected, informed, and social

Gen Y witnessed the introduction and rise of social media, instant messaging, smartphones, search engines, and mobile, while ubiquitous connectivity, curated global information, on-demand video are native to Gen Z. As parents, Gen Y and Gen Z expect on-demand information and services, as well as social media interactions.

### Megatrend 2

#### Gen Y (Born in 1980-1994) vs. Gen Z (Born in 1995-2012)

<table>
<thead>
<tr>
<th>Comparison</th>
<th>GEN Y</th>
<th>GEN Z</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How old are they today?</strong></td>
<td>25-39</td>
<td>7-24</td>
</tr>
<tr>
<td><strong>Percentage of today’s workforce</strong></td>
<td>35%</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Percentage of today’s new moms</strong></td>
<td>82%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Values advice from parenting blogs, websites, and social media</strong></td>
<td>71%</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Attention span</strong></td>
<td>12 seconds</td>
<td>8 seconds</td>
</tr>
<tr>
<td><strong>Purchase made on mobile in past 6 months</strong></td>
<td>36%</td>
<td>53%</td>
</tr>
<tr>
<td><strong>Primary technology concern</strong></td>
<td>Choice overload</td>
<td>Phone separation anxiety</td>
</tr>
<tr>
<td><strong>Favorite website</strong></td>
<td>Amazon</td>
<td>YouTube</td>
</tr>
<tr>
<td><strong>Email as preferred means to be reached</strong></td>
<td>43%</td>
<td>33%</td>
</tr>
<tr>
<td><strong>Social media as preferred means to be reached</strong></td>
<td>29%</td>
<td>34%</td>
</tr>
<tr>
<td><strong>Online ads as preferred means to be reached</strong></td>
<td>16%</td>
<td>28%</td>
</tr>
<tr>
<td><strong>‘Working Wi-Fi’ more important than ‘working bathroom’</strong></td>
<td>N/A</td>
<td>40%</td>
</tr>
<tr>
<td><strong>Comfort sharing personal information</strong></td>
<td>N/A</td>
<td>70%</td>
</tr>
</tbody>
</table>
**A New Learner:**

The new “majority minority”

Shifting demographics bring a new diversity to America’s early learners that requires embracing cultural, racial, language, and other differences, and a focus on equity. In 24 US states, 50 percent or more of babies are now born on Medicaid.

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**DID YOU KNOW?**

MORE THAN 16% OF KINDERGARTNERS IN PUBLIC SCHOOLS WERE ENGLISH LANGUAGE LEARNERS IN 2014-15, AND THIS IS GROWING.
MEGATREND 3

Supply Is On the Rise: New Early Childhood Learning Opportunities Unleashed

Nonprofit and for-profit entrepreneurship is on the rise in early childhood, and encouragingly is seeing founders who are more representative of the communities they are serving. Funding activity is also increasing across government, philanthropy, impact investing, and venture capital, supporting these innovators. With this shift, we are seeing new solutions emerge that build on these critical interventions, while attracting new talent with the potential to reach our most vulnerable children.

With new supply comes greater responsibilities to ensure innovation delivers on outcomes for all children. In addition, there is an increasing need for responsible tech, especially for young children.

3 Omidyar Network has supported the Center on the Developing Child at Harvard University since 2015 and considers them a notable partner in this work.
4 A pioneer and landmark organization in responsible tech for children and families is Common Sense Media, supported by Omidyar Network from 2006 until 2013.
New Talent: Entrepreneurs are on a mission to address early childhood development gaps

Entrepreneurship in early childhood is on the rise, often taken on by parents, educators, and researchers who are on a mission to solve big problems and see fragmentation in early childhood as an opportunity.

DID YOU KNOW?

OUT OF 158 APPLICANTS FOR EARLY FUTURES, A 2018 CONVENING ON EARLY CHILDHOOD INNOVATION, 64% OF ALL APPLICANTS WERE FEMALE AND 27% WERE PERSONS OF COLOR.

MEGATREND 3

INNOVATION FUNDING ON THE RISE IN EARLY CHILDHOOD

2016-2018 GROWTH: +12%

NEW FACE OF EARLY CHILDHOOD ENTREPRENEURS

ILLUSTRATIVE ENTREPRENEURS SELECTED FROM ORGANIZATIONS FEATURED IN THE NEXT SECTION.

CHRIS BENNETT, CEO/CO-FOUNDER
WONDERSCHOOL

JIN LEE, CEO/FOUNDER
BABYNOGGIN

BETHANY ROBERTSON, CO-FOUNDER & CO-DIRECTOR
PARENTSTOGETHER

ANA ROCA CASTRO, CEO/FOUNDER
GENIUS PLAZA

YET, MAJOR GAP REMAINS RELATIVE TO LATER AGE GROUPS

8X GAP BETWEEN COMPANIES STARTED IN EARLY CHILDHOOD VS. K-12

# COMPANIES STARTED, 2010-2017

ECE/PRE-K (GLOBAL)

K-12 (GLOBAL)

HIGHER ED (GLOBAL)
New Funding: Philanthropy, impact investing, and venture capital are fueling new ideas in early childhood

New pools of funding are coming into early childhood—across philanthropy, impact investing, and venture capital. All agree there are opportunities to address these big social needs.

**PHILANTHROPY**
Big bets have been made in pediatrics, early childhood workforce, and child care by top philanthropic funders in early childhood
Newer philanthropic players such as the Chan Zuckerberg Initiative with The Primary School, serving 250 children and families in East Palo Alto, CA this school year, and Bezos Day One Fund ($1Bn commitment announced) are starting to fund early childhood learning. Local philanthropy is playing an increasingly prevalent role in early childhood

**IMPACT INVESTING**
New commitments in early childhood by impact and edtech investors
- Collab + Sesame Workshop
- Gary Community Investments
- Learn Capital
- Omidyar Network
- Owl Ventures
- Reach Capital
- Rethink Education
- Valhalla Charitable Foundation

**VENTURE CAPITAL**
Examples of leading venture funds and private equity firms investing in early childhood in 2018
- Andreessen Horowitz (Wonderschool)
- Bessemer Venture Partners (Brightwheel)
- Summit Partners (Teaching Strategies)
- Warburg Pincus (Procare)

**INNOVATION PRIZES**
Gary Community Investments partnered with OpenIDEO on the Early Childhood Innovation Prize, which leveraged open innovation to bring together hundreds of innovators and experts from across the globe to collaboratively solve the biggest challenges facing young children during their first three years of life.

Newschools Venture Fund selected a cohort of 15 organizations as part of the NewSchools Ignite Early Learning (Pre-K-2nd Grade) Challenge in 2017

**DID YOU KNOW?**
PROMISE VENTURE STUDIO, LAUNCHED IN 2018, HELPS ACCELERATE NONPROFIT AND FOR-PROFIT ENTREPRENEURIAL-LED INNOVATION IN EARLY CHILDHOOD. THEY PARTICULARLY FOCUS ON LOW INCOME CHILDREN IN PARTNERSHIP WITH THE CENTER ON THE DEVELOPING CHILD AT HARVARD UNIVERSITY AND THE NATIONAL HEAD START ASSOCIATION.
New Responsibilities: Tech’s intersection with children requires new thinking

There is growing dissatisfaction with technology: lack of accountability, user transparency, monopolies of platforms and ecosystems, and the addiction economy. Tech’s intersection with children is also coming under scrutiny, but has the potential to create space for more responsible, ethical, thoughtful, transparent tech created by designers with the child and family’s well-being in mind.

DID YOU KNOW?
A 0-8-YEAR-OLD CHILD FROM A LOWER INCOME BACKGROUND SPENDS 73 MIN USING MOBILE MEDIA VS. 37 MIN FOR A HIGHER INCOME PEER. 67% OF LOWER (AND HIGHER) INCOME PARENTS HAVE DOWNLOADED APPS FOR THEIR CHILD TO USE IN 2017 VS. 14% IN 2011.

DIGITAL DEVICE PENETRATION NOW UBQUITOUS AND MOBILE MEDIA USAGE RISING

Mobile is universal

Among 0-to-8-year-olds, % of homes with a mobile device

- 2011: 52%
- 2013: 75%
- 2017: 98%

Mobile media time has tripled—again

Among 0-to-8-year-olds, average amount of time spent on mobile devices per day

- 2011: 5 minutes
- 2013: 15 minutes
- 2017: 48 minutes

QUANTITY: SCREEN GUIDELINES

<table>
<thead>
<tr>
<th>AGE</th>
<th>AMERICAN ACADEMY OF PEDIATRICS: RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18 MONTHS</td>
<td>Avoid use of screen media other than video-chatting</td>
</tr>
<tr>
<td>18-24 MONTHS</td>
<td>Parents who want to introduce digital media should choose high-quality programming, and watch it with their children to help them understand what they’re seeing</td>
</tr>
<tr>
<td>2-5 YEARS</td>
<td>Limit screen use to 1 hour per day of high-quality programs; parents should co-view media with children to help them understand what they are seeing and apply it to the world around them</td>
</tr>
</tbody>
</table>

QUALITY: RESPONSIBLE TECH

There are now over 500,000 apps marketed as educational in the app store. Out of the >1,200 apps for 2-5-year-olds rated by Common Sense Media, only 10% receive top rating 4 or 5. Based on science of learning, there are four principles that need to be embedded in design of tech for kids, also referred as “EAiMS.”

ENGAGED
Children learn best when they are engaged with the material and undistracted by features that are unrelated to the main content

ACTIVELY INVOLVED
Learning is supported when children are actively involved in the educational content

MEANINGFUL
The educational content is learned best when embedded in meaningful experiences and settings that children can relate to

SOCIAL
Children learn best when the learning is social; this can take many forms, including media content that mimics social interactions between children and other people in their own environment
The Future Never Stops: Innovation Trends Reach Early Childhood
As technology advances in all other aspects of our lives, its benefits are being translated into innovations in early childhood. Mirroring the trends we outlined previously, innovations are already reaching our new little learners, our new generation of Gen Y and Gen Z parents, educators, and policymakers, and more broadly our new America.

Some innovations are deeply connected to technology. In particular, the increasing capacity of artificial intelligence (AI) to process data and make recommendations for a path forward is starting to penetrate early childhood. From wearables, assessment, nudges, and learning pathways, AI will likely power the future of early childhood as much as it will power all other aspects of our lives.

However, innovations are not all technology-based. There are exciting innovations in distribution and platform models, in new workforce and parental engagement, in new ways to foster adult-child interactions, in new policies, and in new modes of collaboration.

We have highlighted a few innovations happening—for children, parents, educators, policymakers, and beyond, illustrative of the burgeoning innovation across the country and globally. While this list is in no way complete, and we highlight many of our own investments, we hope it is a starting place of much more to come.
Innovations that reach each and every child

Various innovations are emerging to increase access to quality solutions to each and every child—English language learners, children with special needs, refugees, or children in rural areas. While these efforts are nascent, we are excited about the potential this trend holds.

**DUAL LANGUAGE LEARNERS**

Genius Plaza is a multicultural education platform built for diverse communities that provides an engaging, practical, and research-based curriculum in which students are the protagonists of their learning.

**LEARNERS WITH SPECIAL NEEDS**

Opya helps with detection and care of autism and other special needs through a combination of technology and access to treatment and research.

**LEARNERS IN RURAL AREAS**

UPSTART is an in-home, technology-based program that gives preschool-aged children individualized reading, math, and science instruction. This evidence-based program is particularly effective in rural areas with lower population density.

**REFUGEE CHILDREN**

With funding from the John D. and Catherine T. MacArthur Foundation and the LEGO Foundation, Sesame Workshop is partnering with the International Rescue Committee and BRAC to deliver quality early learning to children affected by the Syrian and Rohingya refugee crises.

**DID YOU KNOW?**

Children who don’t attend preschool are developmentally behind by almost a year or more by the time they enter kindergarten. 60% of four-year-olds are not enrolled in publicly funded preschool programs.
Innovations that individualize learning

Adaptive technologies and artificial intelligence are increasingly responding to where children are in their development. This includes helping them grow at their own pace and across multiple environments such as at home or in early learning centers.

DID YOU KNOW?
INCREASING NUMBERS OF YOUNG CHILDREN WITH DIAGNOSED DISABILITIES AND UNIQUE LEARNING NEEDS ARE ENROLLED IN EARLY CHILDHOOD PROGRAMS. INDIVIDUALIZING LEARNING CAN HELP INSTRUCTION AT DIFFERENT LEVELS IN A CLASSROOM ENVIRONMENT.

ADAPTIVE LEARNING
Khan Academy Kids is a platform for children 2-5 that supports personalized learning through individual paths that dynamically adapt. Each child is presented with activities, books, educational videos, and creative lessons that allow them to learn at their own pace, creating a unique experience for every learner.

ARTIFICIAL INTELLIGENCE
IBM and Sesame Workshop are collaborating to combine Watson’s cognitive computing with Sesame’s early childhood expertise. The first cognitive vocabulary app built on the IBM and Sesame intelligent play and learning platform has helped the teachers at Georgia’s Gwinnett County Public Schools level the playing field for children through a fun and personalized environment.

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Innovations that inspire creativity and play

Early social-emotional skills are linked with a wide array of positive adult outcomes, including positive mental health, interpersonal relationships, educational attainment, civic engagement, productive employment, and physical health in later life.

DID YOU KNOW?
98% of kindergartners score as creative geniuses, while only 3% of people remain in that category by age 25. K-12 students have significantly decreased in their Torrance creativity scores since 1990, with scores decreasing the most among kids in kindergarten to third grade.

AT SCHOOL
Operation Breakthrough’s MakerSpace in Kansas (70% of families make less than $12,000/year) promotes creativity through the use of real materials to tinker, problem solve, collaborate, and create. The six zones include textiles, construction/toy hacking, studio arts, chef’s corner, the green screen, and code world/robotics. These areas provide a creative outlet as well as opportunities to practice problem-solving.

OUTSIDE OF SCHOOL
Tinkergarten offers play-based classes outdoors in parks through a distributed network of leaders and has reached over 150,000 children across every US state.
Innovations that support acquisition of future skills, competencies, and mindset

With more emphasis on the four Cs of learning—critical thinking, creativity, collaboration, and communication—innovations are emerging across the online and offline worlds to engage our youngest children and develop future skills, competencies, and mindsets.

**COMPUTATIONAL THINKING**

**Osmo**

Osmo is a playful learning company creating a new mode of interaction between the physical and digital worlds. The technology enables physical objects to interact with the digital device coupling the best of hands-on learning with the adaptive power of a device across a spectrum of early skills, including computational thinking.

**LANGUAGE ACQUISITION**

In cooperation with a consortium of European universities and companies, researchers at Tilburg University are developing a social robot that is designed to interact naturally with young children to help them learn English or Dutch.

**EARLY STEM**

**CodeSpark**

CodeSpark has a word-free interface, with no reading requirement, making learning to code accessible to pre-readers and non-English speakers. It is offered for free in public schools, libraries, and to nonprofits.

**EXPERIENTIAL LEARNING**

Several models of experiential learning are emerging—such as TinyTrees offering outdoor classrooms in the Seattle area and Kids Science Labs, which offers engaging, hands-on STEM classes in several states for children as young as 2 years old.

**DID YOU KNOW?**

RESEARCH ACROSS 1,000 CHILDREN BORN IN DUNEDIN, NEW ZEALAND IN THE EARLY 1970S, SHOWED THAT CHILDREN WITH STRONG NONCOGNITIVE CAPACITIES GO ON TO COMPLETE MORE YEARS OF EDUCATION AND EXPERIENCE BETTER HEALTH.
FOR OUR NEW GENERATION OF EDUCATORS AND CAREGIVERS

Innovations that reimagine curricula focused on the whole child

Enhanced curricula are emerging anchored in the science of learning, including active learning, integration of socioemotional learning and executive functions, and a focus on the needs of diverse learners.

DID YOU KNOW?

THE TWO WIDELY USED CURRICULA, CREATIVE CURRICULUM AND HIGH SCOPE (USED IN 72% OF HEAD START CLASSROOMS), “LACK EMPIRICAL SUPPORT FOR EFFECTIVENESS.”

BLENDED, ACTIVE LEARNING + CULTURALLY RELEVANT CONTENT

Genius Plaza is a multicultural education platform built for diverse communities providing an engaging, practical, and research-based curriculum in which students are the protagonists of their learning.

EXECUTIVE FUNCTIONS

Tools of the Mind gives teachers the tools to ensure every child becomes a successful learner, developing the underlying cognitive, social, and emotional skills needed to reach his or her highest potential.

EARLY MATHS

Building Blocks is a project that the National Science Foundation (NSF) has funded to create mathematics curriculum materials for young children.

COGNITIVE + SEL

Every Child Ready by AppleTree is an award-winning, comprehensive instructional model that helps all children thrive. It is a three-tier response-to-intervention model that creates a fun and interesting learning experience that is currently reaching more than 3,400 children.
Innovations that increase efficiency (for administrative tasks)

A new generation of educators and caregivers is increasingly becoming digital savvy or digital natives. Solutions are emerging, such as classroom management systems, messaging to parents, or voice recognition, to allow teachers to spend less time on administrative tasks and more time on pedagogy.

STREAMLINE ADMINISTRATIVE TASKS AND INCREASE PARENTAL ENGAGEMENT

Brightwheel’s mobile app helps pre-K teachers and care providers to manage their business, while sending parents updates about their kids throughout the school day. The app handles payments, and records sign-in and sign-out data when parents drop off or pick up kids at school. Caregivers can also use it to share photos and information with parents through a secure platform. 80% of teachers and directors report saving 1-5 hours per week by using Brightwheel.

LEVERAGE VOICE RECOGNITION FOR GREATER EFFICIENCY

The team at Arkansas Early Learning Head Start and Early Head Start has leveraged voice recognition technology, combined with machine learning to allow for new applications, such as accident tracking and reporting, so that teachers can complete administrative tasks hands-free.

DID YOU KNOW?

THE AVERAGE EARLY CHILDHOOD EDUCATOR SPENDS 12 HOURS PER WEEK ON NON-TEACHING DUTIES.
Innovations that support and elevate the early childhood workforce

The quality of any early learning setting is directly related to the training and work satisfaction of its staff. Some innovations seek to support education and training while others provide pathways for greater pay or access to affordable financial services.

DID YOU KNOW?

The national median annual wage for preschool teachers was $28,570 in 2016, half of wages earned by kindergarten teachers. In all states, median annual earnings for the child care workforce would qualify a worker with a family of three for social benefits.

FREE DEGREES FOR TEACHERS

Bright Horizons launched in October 2018 a free college tuition program for early educators that will allow employees to earn an associate and bachelor’s degree in early childhood education for free.

PEER-TO-PEER EDUCATOR LEARNING

PBS KIDS Edcamp is a participant-driven model of professional learning and community building that provides early childhood educators with a space to connect, share similar challenges and concerns, learn new ideas, and get inspired. PBS piloted 31 PBS KIDS Edcamps in 2017-18 in partnership with PBS member stations across the country and the Edcamp Foundation.

DEBT-FREE COLLEGE FOR TEACHERS

Arizona Teachers Academy and Debt-Free Teachers Program at the University of Oklahoma cover tuition and fees for prospective teachers. In return, recipients agree to teach in Arizona or Oklahoma for a period of time.

AFFORDABLE HOME LOANS

Landed helps educators buy homes in expensive areas, a service that allows educators to live closer to work. In the future, we see the potential to leverage this kind of service for home-based child care.
Innovations that empower the early childhood workforce

Platforms are being used to coordinate distributed workforces by managing overhead and providing shared resources. This has helped to power small, home- and community-based child care and education approaches in early childhood.

DID YOU KNOW?

BY 2027 THE MAJORITY OF THE US WORKFORCE WILL FREELANCE.

NETWORKED ECOSYSTEM

Wildflower is an ecosystem of decentralized Montessori micro-schools. Wildflower schools are 1-2 room schools with the faculty both teaching and administering the school. Wildflower teachers-leaders are partners and social entrepreneurs, responsible primarily to themselves and each other for every aspect of their school and its overall success.

DISTRIBUTED FREELANCE

Tinkergarten is a tech-enabled network of parents that lead classes in their communities in which kids learn through intentionally designed, outdoor play-based activities.

MARKETPLACE

Wonderschool helps educators and child care providers start and grow their own preschools or child care programs out of their home. For parents, Wonderschool is a network of modern early education programs that makes it easy to find and enroll in quality in-home programs.
Innovations that connect and inform

New platforms targeted toward Gen Y and Gen Z parents are connecting and addressing needs and wants of modern parents.

**BUILD COMMUNITY**

ParentsTogether

Leveraging Facebook Messenger and mobile messaging, ParentsTogether provides resources, connections, and community that help all kids and parents thrive.

**CONNECT**

Peanut

Peanut shows other moms nearby, and makes it easy for them to meet, reducing social isolation for new moms.

**LIVE REMOTELY**

Caribu

Caribu lets families read and draw while spending time together in a real-time video call—particularly well-suited for military families.

**FIND INFORMATION**

Winnie

Winnie helps create and organize information parents need, especially helping them find suitable child care and local activities/offerings.

**DID YOU KNOW?**

95% of Millennial moms own a smartphone vs. 87% of non-moms. Nearly 90% of US mothers are social network users.
Innovations that nudge

Behavioral science sits at the intersection of academic fields like economics, psychology, and neuroscience and helps us understand why people behave the way they do. Organizations are leveraging behavioral insights to nudge parents and caregivers about their interactions with children and help them set and achieve family goals.

**TEXT MESSAGES**

**Ready4K**

Developed by Stanford-trained behavioral scientists, Ready4K sends helpful information about supporting a child’s learning through text messages to parents at regular intervals throughout the week. This helps nudge parents toward habits and behaviors that facilitate the growth and development of their child.

**MULTI-PLATFORM**

**Vroom**

Vroom empowers parents and caregivers to play a proactive role in their children’s early brain development through fun and easy activities, turning shared, everyday moments into brain-building moments. Vroom empowers parents to see what they are already doing to support their child’s brain development and encourages more of it.

**GOAL-SETTING APP**

**Goal Mama**

Developed in partnership with HopeLab, the Goal Mama app helps moms keep track of their most important goals, access parenting and pregnancy information, and connect with other moms and their nurse—for moms enrolled in the Nurse-Family Partnership. After a promising pilot phase, it is currently being tested for efficacy.

**ACTIVITY-BASED APP**

**Kinedu**

Kinedu is an app which builds personalized plans for directed play and real-life interactions.

**DID YOU KNOW?**

Text messages to parents have been evidenced to have up to 2-3 months of literacy improvement and increased parental engagement in the San Francisco Unified School District.

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FOR OUR NEW GENERATION OF PARENTS AND EDUCATORS

Innovations that assess

New tools are easing the burden of observing, tracking, and diagnosing a young child’s development in school, at home, or in pediatrician office settings to help educators, parents, and pediatricians know how best to support and develop young children.

DID YOU KNOW?

1 IN 4 KIDS IN THE UNITED STATES IS AT RISK FOR DEVELOPMENTAL DELAYS.

COGNITIVE ASSESSMENT

Cognitive ToyBox has developed touch-screen games that make it easier for teachers to do assessments and for children to learn foundational language and math skills. Cognitive ToyBox was spun out of research from a National Science Foundation I-Corps grant in 2015 from NYU.

EXECUTIVE FUNCTION ASSESSMENT

Founded at the University of Minnesota, Reflections Sciences provides the Minnesota Executive Function Scale (MEFS) app and related tools to help promote the healthy development of Executive Function in young children globally.

OBSERVATIONAL ASSESSMENT

Learning Genie provides flexible portfolio and assessment rating tools for child development observation, documentation, and assessment rating. Parents are able to easily engage in their children’s learning, tracking their progress over time. Personalized lesson plans help teachers in delivering learning.

HEALTH SCREENING

BabyNoggin is an app platform that screens for physical, mental, and social-emotional delays and postpartum depression using validated tools such as the ASQ. Parents self-screen and the results are automatically scored and connected to their pediatricians’ or schools’ electronic records. All tools in BabyNoggin are reimbursable by health insurance.
Innovations that track

The Internet of Things and voice recognition are being applied to early childhood in interesting ways to track words spoken, body changes, and child interactions, with the goal of helping understand how children learn and interact with other children or adults and educators.

**SENSORS FOR LANGUAGE AND QUALITY**

**LENA**

LENA technology measures interactive talk between caregivers and children birth to age 3, with a small, child-safe recorder worn in a vest. Recordings are then translated into data and distilled into key insights for families to act upon to improve talk environments for their children. Children whose parents participated in LENA Start are enjoying 130 more conversations in their daily diet and gaining nearly two months of developmental skill every month. The technology is now being applied in child-care settings as well.

**SENSORS FOR INTERACTIONS**

In partnership with MIT Labs, Wildflower Schools has recently been piloting small, low-power sensors that are placed in children’s shoes and classroom materials. The sensors are used to detect the moments in the classroom when children, teachers, materials, and classroom areas were near each other. This proximity data is used to determine when educational and social interactions are happening, and provide rich observational data to teachers.

**VOICE ANALYSIS FOR AUTOMATED FEEDBACK**

**Earshot**

Earshot has developed a voice analysis technology, combined with machine learning, to automate individual teacher feedback. Data points elevate teacher awareness around key criteria, including question strategy, talk time, and wait time.
Innovations that leverage policy to provide early learning solutions

Across the US, many new policies are being tested to promote evidence-based strategies in early childhood.

**MINNESOTA**

Let’s Grow Kids is on a mission to ensure Vermont families have affordable access to high-quality child care by 2025. LGK is building a high-quality system and pursuing sweeping policy change to secure a sustainable quality early childhood education system—with potential to inspire other states.

**GEORGIA**

Georgia was one of five states selected in late 2016 to promote two-generation strategies in state policy and is implementing policy changes to promote children’s learning and healthy development while also promoting parental success as caregivers and breadwinners.

**BOSTON**

The Basics are five evidence-based parenting and caregiving principles that encompass much of what experts find is important for children from birth to age 3. Every child from every background can benefit from routinely experiencing the Basics learning experiences.

**VERMONT**

The Minnesota Model is a research-based approach for investing early to promote the success of the most vulnerable children and families. It consists of home-visiting nurses and mentors, and early learning scholarships for parents to select from high-quality Early Childhood Education programs.

**DID YOU KNOW?**

Innovations for new design and collaboration

New designs and inspiring forms of collaboration with collective, local community-level impact and a focus on outcomes, are potential catalysts for better-quality solutions for children and families. They also act as a showcase for societal commitment for greater investments in early childhood.

DID YOU KNOW?

RECENT RESEARCH ACROSS 25 COLLECTIVE IMPACT ORGANIZATIONS DETERMINED THAT "COLLECTIVE IMPACT UNDOUBTEDLY CONTRIBUTED TO CHANGES AT SCALE WITHIN INITIATIVES’ TARGETED PEOPLE OR PLACES."

LEARNING LANDSCAPE

Playful Learning Landscapes involves crafting carefully planned play experiences that focus on learning outcomes, particularly for children and families from under-resourced communities. The aim is to transform everyday places into learning opportunities in order to maximum the “other 80%” of time children spend outside of school and to augment what goes on in school.

COLLECTIVE IMPACT

Organizations like StriveTogether and Campaign for Grade-Level Reading are working with communities on advancing impact through data, solutions, and local collaboration.

COMMUNITY-LED OUTCOME METRICS

Head Start, the federally funded provider of early childhood to lower-income children, has partnered with BrightHive to build community-led outcome metrics and data-driven decision-making.
Looking Forward: From Scarcity to Possibility

The Next 50 Years

The early childhood field has already shined a pathway for what quality education is and for what our future of learning is, by integrating parental engagement, health, and socioemotional learning as core pillars. While the K-12 sector is catching up, more investments in those areas in early childhood to promote the vision of whole child learning will continue to be critical.

As outlined in this report, while innovations are bubbling up in many areas serving children and families, there are some notable gaps where we aspire to see more: trauma-informed interventions (for children, parents, and educators), workforce (professional development and compensation notably), home-based child care (and specifically friends, family, and neighbors), multigenerational education supports that accelerate families, assessment, and measurement for what quality is. Those are all areas where we hope to see more talent and capital support innovation in the future.

We are excited about what the next 50 years of innovation will bring for our youngest learners. Let’s together harness the power of science, innovation, and design for scale, combined with access to all types of support and capital, to help pave the way for innovative early childhood solutions that positively impact a new generation of early learners.

Let’s build the future of our children and families together. Let’s move from scarcity to possibility.
This report was produced by Omidyar Network’s Education initiative, whose mission is to unlock human potential through learning by catalyzing people, ideas, and systems—so every individual thrives and contributes in a changing and interdependent world.

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Sources


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NEURAL CONNECTIONS FORMED


RETURN ON INVESTMENT PROVED


COGNITIVE OUTCOMES ACHIEVED


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PUBLIC FUNDING +17% SINCE 2016

Estimated public funding as sum of State Pre-K, CCDBG, Head Start, other federal early childhood programs and CCAMPS:

- 2016 estimated total: $23.8Bn; 2017 estimated total: $23.78Bn, 2018 estimated total: $26.98Bn

- State Pre-K:

- CCDBG, Head Start, federally-funded early childhood programs and CCAMPS:


PRIVATE FUNDING BY FAMILIES


20% OF LARGE EMPLOYERS NOW PROVIDE CHILD CARE


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NEW BRAIN IMAGING TECHNOLOGY


BIOMARKERS


NEUROSEQUENTIAL MODEL OF THERAPEUTICS


YOU DID KNOW?


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AMERICA’S WORKING PARENTS

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breadwinning-mothers-are-increasingly-the-u-s-norm/


AMERICA’S CHILD CARE PRICE TAG


AMERICA’S CHILD CARE OPTIONS


AMERICA’S STUDENT PARENTS

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GEN Y AND GEN Z


DID YOU KNOW?

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DIVERSITY


MIGRATION


DID YOU KNOW?

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INNOVATION FUNDING ON THE RISE IN EARLY CHILDHOOD
Pitchbook data, Seed through Series D innovation in 2015 with $150M invested in Age of Learning (ABC Mouse).

YET, MAJOR GAP REMAINS RELATIVE TO LATER AGE GROUPS
Trends analyst data, 2017 annualized as of August 2017

DID YOU KNOW?