

ENABLING SMART EARLY CHILDHOOD TECHNOLOGY IN PUBLIC SYSTEMS

Where We Are and What Comes Next

INTRODUCTION

The recognition of the critical importance of a child's first eight years has grown significantly over the past decade, and new players including entrepreneurs, funders, and political allies have begun to champion expanding support and investment in children's healthy development and kindergarten readiness.

Along with this increased attention and focus, stakeholders from both in and outside the field are considering technology's role in maximizing the benefits of early childhood services. Practitioners and program leaders are seeking solutions that streamline and enhance their collective efforts, and entrepreneurs and investors are enthusiastically signing on to contribute ideas, tools, and products designed to do just that.

As technology continues to evolve rapidly and transform other sectors, it has significant potential to strengthen and expand service delivery to more children and families. For example, technology can help reduce administrative duties for teachers and caregivers, empower parents with tools to better understand and support their child's developmental milestones, and allow health care providers to augment their care via video conferencing and other telecommunications tools.

While there are a growing number of child-facing technology solutions designed to enhance children's learning, here at the Early Learning Lab we focus on how Smart Early Childhood Technology can support adults in children's lives. Parents, teachers, and caregivers – and the programs that support them – have to contend with an overwhelming number of demands upon their time, and Smart EC Tech has the ability to alleviate some of their key pain points and allow them to spend more and better time with children.

HOW CAN SMART EARLY CHILDHOOD TECHNOLOGY SUPPORT ADULTS IN CHILDREN'S LIVES?

- **Supports high-quality adult-child interactions** by giving parents, caregivers, teachers, and practitioners tools, resources, and solutions to help support children's healthy development and to strengthen connections with each other
- **Enhances program and service operations** by improving a range of key functions including child assessment and reporting, enrollment and registration, training and professional development
- **Ensures all programs and systems are equipped** with 21st-century infrastructure and supports robust use of data and platform solutions designed to streamline and coordinate service delivery, information management, and capacity building

See three examples of how parent communication, home visiting, and child assessments are being currently supported by Smart EC Tech.

BRIGHTWHEEL

Brightwheel is a childcare management software program and app that enables childcare providers to easily engage with parents and manage attendance and billing in a single platform. Currently, Brightwheel boasts 100 percent satisfaction by parent users who receive 10s of millions of daily classroom updates via its free, downloadable app.

In 2017, the Houston-based resource and referral agency, Collaborative for Children, was faced with an unprecedented challenge when Hurricane Harvey struck the region and thousands of local childcare providers reached out for support. The agency's Response and Recovery Director worked with his team to search for technology solutions that could help restore provider services and they identified Brightwheel as a critical component to the response effort. Local providers were then trained on how to use the software and app, and Brightwheel successfully restored and strengthened communication between providers, parents and caregivers and also helped re-establish basic program operations including billing, attendance, and licensing in a much more effective way. Today, Brightwheel continues to support local providers in the Houston region and is fast becoming a leading provider of management and communication software for early education.

PARENTS AS TEACHERS

Parents as Teachers (PAT) is a recognized evidence-based home visiting model that has been providing innovative parent support services since 1984 and currently operates in all 50 states as well as six other countries. Through their partnership with USC Suzanne Dworak Peck School of Social Work, they have been working to scale their virtual service delivery solution to reach underserved children and families with the help of videoconferencing technology.

Jessica Molina is a certified parent educator with Parents as Teachers @ USC TeleHealth and, like many of her colleagues, she uses a HIPAA compliant version of Zoom to deliver services to the dozen families in her caseload in the comfort of their own home and across geographic regions. During virtual home visits, Jessica facilitates parent-child interaction, administers child development screenings and family-centered assessments, and guides families in setting and meeting parenting goals.

Jessica often supports families in using other tech tools to find local, relevant resources such as using Google Maps to show parents a nearby park, pediatrician, or regional center for early intervention services. Additionally, video conferencing is used to facilitate group connections with parents and for training and supervision of program staff.

Parents as Teachers sees great promise in their virtual parent education solution with a goal to provide service options to community agencies and families. They are currently looking for additional implementation and evaluation partners and developing supports for professionals to share their learnings and prepare our workforce for virtual service delivery.

LEARNING GENIE

Learning Genie brands itself as the “educator’s choice for portfolio/assessment and family engagement” and currently serves more than 3,000+ child development centers/preschools, including school districts, private learning centers, and family child care providers.

Angie Tabay is the Assistant Director of School Readiness & Preschool for the Lodi Unified School District in Lodi, CA. In 2016, she was hired to assist in overseeing the district’s expansion to provide direct services to Head Start children and families. Previously the district had only served children in state preschool.

In less than eight months, the number of enrolled students doubled, and their staff increased from fifteen to 32 teachers. Angie quickly realized that the method for completing student assessments - via individual hard copy documentation packets - wasn’t scalable or sustainable. She had heard about Learning Genie and after attending an information workshop, she was convinced this was the tool the district needed to more efficiently and effectively conduct student assessments.

Implementing Learning Genie has been an overwhelming success. It has significantly reduced administrative time and expenses and on average has saved teachers more than an hour per day of assessment related reporting. Learning Genie made it possible for the teachers to focus on other things, including home visits and more time for professional development. Angie also loves the fact that Learning Genie extends the learning at home by easily allowing teachers to share video documentation of students’ progress and share their online library of family-focused content. Learning Genie has now become a tool focused on both portfolios/assessment and data-driven family engagement for both State Preschool and Head Start agencies.

PURPOSE

This report aims to equip early childhood stakeholders and technology entrepreneurs with a greater understanding of the types of tech solutions that are most critically needed now and how technology acquisition is both enabled and impeded by current decision-making processes and budgetary constraints and realities.

Additionally, the report offers strategies for technology entrepreneurs, program implementers, policy and system leaders, and funders on how they can successfully support the development and adoption of Smart EC Technology.

METHODOLOGY

The analyses and insights in the report are the result of an exciting collaboration between the Early Learning Lab and leading early childhood organizations – Early Edge California, the Ounce of Prevention, and Texans Care for Children. Each team spent time gaining a deep understanding of the state of tech adoption and public funding in their state – California, Illinois, and Texas, respectively – via two main methods of research:



- ***Funding analysis: Comprehensive analysis of federal and state funding sources*** dedicated to a range of early childhood programs and services – including community and school-based early learning and care programs as well as home visiting, nutrition, health, and other services that support families.
- ***Decision-making insights: Interviews with more than 50 decision makers*** in a range of positions, from executive- and director-level program leaders to on-the-ground practitioners across these same settings to better understand what technology solutions are most needed and uncover trends in decision making and implementation.

CURRENT LANDSCAPE

During our conversations with decision makers and practitioners about the reality of on-the-ground tech adoption across various settings, several themes emerged:

1

THE FIELD'S VIEW OF TECHNOLOGY IS SHIFTING

While some members of the field have been wary or even fearful of the role of technology in early learning settings, more and more, providers are seeking out tools that enable their work and are embracing the known benefits technology provides.

2

THE PLAYING FIELD IS HUGE AND THE NEEDS ARE DIVERSE AND MANY

From tools that support parents, caregivers, and teachers to better understand and support children's healthy development to tools that digitize manual and time-intensive administrative functions, more solutions for the field are needed.

3

PLANNING, IMPLEMENTATION, AND MAINTENANCE NEED HOLISTIC SUPPORT

Funding rarely provides for the full range of technology acquisition needs such as strategic planning, upfront hardware/software costs, staff training, ongoing maintenance, and updates. Comprehensive planning is needed from all stakeholders.

FUNDING HOW IT WORKS

Understanding the financial landscape of the early childhood field is critical to any entrepreneur who is interested in developing ideas, products, and tools to support the field's vital work and contribute to children's healthy development. That said, both the programs and funding sources that serve young children and their families are numerous and diverse.

The good news is that **decision makers are often very savvy** about how to leverage available monies and stretch what often is limited funding. While there is little dedicated money for technology procurement, program implementers know how to leverage the myriad funding streams that can be used for technology procurement. Additionally, **one-time grants and end-of-fiscal-budget reserves are often used for technology purchases.**

While entrepreneurs should take care to educate themselves on the types and sizes of investment in the field, they can and should **rely on decision makers to navigate the intricacies of the funding landscape.**

The following funding profiles for California, Illinois, and Texas are intended to provide a primer on public financing for early childhood programs and services including school and community-based child development centers, licensed family childcare homes, as well as hospitals and clinics.

CALIFORNIA

ILLINOIS

TEXAS

DECISION MAKING

MOST WANTED TECH SOLUTIONS – TOOL FEATURES & BENEFITS

Following are insights and recommendations from conversations with early childhood decision makers and practitioners on the types of solutions most needed.

WHERE TECHNOLOGY IS MOST NEEDED

Decision makers are eager for technology to address three key challenges.

1. ***Data collection, management, and integration.*** When asked about the greatest opportunities for technology to improve service delivery, decision makers repeatedly described outdated tools for collecting, managing, and integrating program data across a range of key functions including **registration, attendance, reporting, assessment, and measurement**. At the state level, coordinated service delivery is hindered by insufficient data integration across programs.
2. ***Adult-child Interactions and quality improvement.*** Practitioners are also eager for tools that directly support their ability to deliver high-quality care and instruction by enhancing creativity, problem-solving, inspiration, and collaboration. Products designed to **align with curriculum** and build core teacher and child skills, **support parent communication and engagement**, **enhance professional learning**, and **streamline child and staff assessments** were high on decision makers' wish lists.
3. ***Tech infrastructure.*** Old infrastructure and Wi-Fi speed and connectivity affect all levels of tech-enabled service delivery. Outdated infrastructure and hand-me-down hardware from K-12 play a direct role in how technology is used and adopted.

WHAT TECH ENTREPRENEURS CAN DO:

Be focused on solving a known pain point, but be aware of the unique contexts that any need sits within and develop solutions accordingly. Here are some discovery questions to consider:

- How can products align with curriculum and enhance child and adult skills?
- How can implementers track tool usage and efficacy?

- How can products help programs meet their funding and program requirements (such as attendance and registration reporting, etc.?)?
- How can products be designed for a “one stop shop” reporting experience with reporting functionality built into the product itself?
- What are the child and practitioner assessments that programs must align to and how can products support required measurement and reporting?
- How can products be designed in a way that recognizes a lack of funding and support associated with software and/or hardware updates? How can products be “future proofed” for a longer shelf life?

“THE SCHOOL’S COMMUNICATION WITH PARENTS HAS GREATLY IMPROVED WITH THE NEW APP – THERE IS MUCH LESS FRUSTRATION BETWEEN FAMILIES AND TEACHERS.”

SCHOOL PRINCIPAL, ILLINOIS

“THE SINGLE MOST IMPORTANT SUSTAINABILITY STRATEGY OF A HUMAN SERVICES ORGANIZATION IS THE ABILITY TO DEMONSTRATE IMPACT TO COMMUNITY STAKEHOLDERS... UPGRADE TO OUR DATA MANAGEMENT SYSTEM WILL SUPPORT THE PROCESS OF DEVELOPING QUALITATIVE AND QUANTITATIVE REPORTS THAT ILLUSTRATE JUST HOW VITAL OUR SERVICES ARE TO THE COMMUNITY AND THE FAMILIES THEY SERVE.”

EXECUTIVE DIRECTOR, COMMUNITY-BASED HOME VISITING ORGANIZATION

“ANTIQUATED EQUIPMENT THAT BREAKS DOWN, LONG PERIODS OF TIME FOR TEACHERS TO RECEIVE FEEDBACK FROM THEIR ASSESSMENTS, AND DATABASES THAT ARE NOT INTEGRATED, ALIGNED, AND COORDINATED WERE AMONG THE TOP CONCERN MENTIONED.”

EARLY CHILDHOOD POLICY EXPERT, ILLINOIS

“A REQUIREMENT FOR US IS THAT MEASUREMENT MUST BE BUILT INTO ANY APP WE USE AND CORRELATE WITH INTERNAL ASSESSMENTS.”

DISTRICT SUPERINTENDENT, CALIFORNIA

DECISION MAKING HOW IT WORKS

1

THE SIZE OF THE SETTING AFFECTS DECISION MAKING

The larger the setting, the longer the decision-making process. Examples of large settings include districts, regional childcare centers, and hospitals where there are often many players involved. For example, the number and types of decision makers may include a CEO, chief

information officer, school principal, director of Technology, director of Early Learning, and practitioners including teachers and nurses. In these larger settings, it's not uncommon for a decision-making process to take up to 18 months or more.

WHAT ENTREPRENEURS CAN DO

Consider targeting small to mid-sized settings (e.g., local preschool programs or health centers) where access to decision makers is more readily accessible and decision making involves few players as a good place to start. Settings that are part of larger networks like Head Start and school districts can create opportunities to spread trial and adoption more quickly.

“FROM VETTING VENDORS THROUGH TO CONTRACT APPROVAL CAN EASILY TAKE 18 MONTHS TO TWO YEARS, WHICH IS A MAJOR ISSUE.”

MUNICIPAL EARLY LEARNING EXECUTIVE, ILLINOIS

2

EARLY CHILDHOOD PRACTITIONERS PLAY AN IMPORTANT DECISION-MAKING ROLE

Practitioners, including teachers, nurses, and directors of early learning, often source products directly and sometimes pay out of pocket. Even in larger settings where layers of manager, director, and executive level approval are needed, teachers and nurses are often consulted and/or channel requests for approval of specific tools through leadership.

WHAT ENTREPRENEURS CAN DO

Identify and target practitioners and invest in understanding and solving their pain points. Teachers, directors of Early Learning, and nurses have a good amount of agency and are motivated to find solutions that solve their day-to-day problems now. Consider opportunities that allow for targeted touchpoints to these educators including traditional focus group research, field conferences like the annual NAEYC, as well as search marketing.

“THE DECISION-MAKING PROCESS REALLY INVOLVES GETTING THE NURSES’ INPUT WHO USE THE TECHNOLOGY EVERY DAY.”

HOME VISITING PROGRAM EXECUTIVE, TEXAS

IMPLEMENTATION CAN MAKE OR BREAK A PRODUCT

Decision makers repeatedly spoke of staff's varying levels of comfort and expertise with technology. One director summarized two distinct personas: "digital natives" and "digital immigrants" – staff who grew up with technology versus staff who did not. Moreover, turnover across settings is a challenge, and this means there is constant flux in staff familiarity with any given technology product.

WHAT ENTREPRENEURS CAN DO

Short-term user training is not enough. Support needs to be provided for practitioners with varying levels of fluency in technology and take into account the fluctuation of incoming and outgoing staff. Consider how training can be supported by a variety of higher touch and lower touch supports that programs can rely on over the long term.

"A LOT OF TEACHERS ARE NOT DIGITAL NATIVES AND THERE IS INSUFFICIENT TIME ALLOTTED FOR HANDS-ON TRAINING."

EARLY CHILDHOOD CENTER DIRECTOR, TEXAS

SEARCH AND WORD OF MOUTH ARE THE PRIMARY ENTRY POINTS

Across all settings, decision makers shared that they rely on recommendations from colleagues and Google searches to find products. They sometimes struggle to source needed products and know which products best suit their needs.

WHAT ENTREPRENEURS CAN DO

Consider how search and word-of-mouth strategies can support the overall marketing strategy. Be explicit with messaging that advertises key product features on packaging and in keyword searches, and consider incentives that encourage practitioners to share with their colleagues. Provide proof points for product benefits across messaging and communications efforts.

"TEACHERS AND PROGRAM LEADERS OFTEN USE GOOGLE TO SEARCH FOR TECHNOLOGY TOOLS FOR THE CLASSROOM."

SCHOOL DISTRICT EARLY LEARNING DIRECTOR, CALIFORNIA

PRICE

Given that staff turnover and student attrition are constantly in flux, pricing models tied to licenses associated with specific users can be a barrier. Without line items for technology in funding sources or operations budgets, decision makers must be creative with securing money for tech acquisition.

WHAT ENTREPRENEURS CAN DO

Develop pricing strategies that are not tied to specific users and are flexible (e.g., small, medium, and large tiered pricing), allowing for variation with student and staff turnover. Similarly, pricing and sales strategies should be cognizant of and align with fiscal cycles.

“WHEN THERE ARE UNSPENT STATE DOLLARS AT THE END OF THE FISCAL YEAR, TECHNOLOGY PURCHASES AND UPGRADES TO THE INFRASTRUCTURE ARE ALLOWED.”

COMMUNITY EARLY CHILDHOOD ADMINISTRATOR, ILLINOIS

BUILDING A SMARTER EC TECH ECOSYSTEM

WHAT PROGRAM IMPLEMENTERS, SYSTEM LEADERS, AND FUNDERS CAN DO

Program implementers, government and system leaders, and private funders are integral players in creating an environment where tech innovation can flourish. Following are go-forward strategies for each on how to build a smarter and better tech ecosystem.

PROGRAM IMPLEMENTERS

1 **Know and plan for all three phases of technology acquisition.** Develop a clear strategy that includes all three phases of technology procurement – planning, implementation, and maintenance. A three-part tech acquisition strategy will allow internal stakeholders to gain fluency in how to think about and fully support adoption as well as drive product developers to build products that align with the full range of user needs.

- *Planning – Conduct a needs assessment and triage low-hanging fruit and longer term and/or more infrastructure- and systemic-related needs.*
- *Implementation – Work with adopting entities to ensure sufficient funds and support for installation of new technology solutions.*

- *Maintenance – Create demand from product developers to provide comprehensive training and support and information on the total cost of acquisition over a product’s life cycle so that maintenance, updates, and ongoing training are anticipated and even offset by product developers.*

2 **Build the three phases of technology adoption into funding requests and operations budgets.**

Help create demand for technology funding by building distinct and dedicated amounts for planning, implementation, and maintenance into budget requests and grant proposals AND, equally important, by allocating line items for each in operations budgets.

3 **Invest in workforce capacity.** Identify and/or work to create capacity with internal staff to manage the full spectrum of technology adoption needs and to work closely with end users so they can understand specific real world needs and challenges.

GOVERNMENT AND SYSTEM LEADERS

1 **Increase funding for technology adoption:** Provide sufficient funding to adequately cover each phase: adoption, implementation, and maintenance. Investments in technology should be allowable – and encouraged – across funding streams. Where possible, tech adoption line items should be developed so investments do not have to “compete” with other elements of program delivery.

2 **Reform procurement processes:** Remove process barriers that protract timelines and put forth rigid tech specifications and provide incentives for successful products to receive greater investment and opportunities to scale.

3 **Create innovation funds:** Innovation funds can identify the most pressing challenges and allow new products to be tested simultaneously with gated funding to support products as they show efficacy and reach. Government should also avoid picking winners prematurely and should leverage private-sector expertise in new technology products and insights.

4 **Provide guidance on tech adoption:** Support the development of best practices so that funded programs know how to conduct technology needs assessments and identify short- and longer-term solutions that solve immediate and future needs.

5 **Invest in technology leadership:** Invest in tech talent to develop, manage, and implement technology investments. In larger systems, this may mean creating digital innovation teams with the expertise to manage technology initiatives including administering innovation funds, creating private sector partnerships, and reforming and managing procurement processes.

PRIVATE FUNDERS

1 **Act as catalytic investor:** Invest in technology entrepreneurs and support the continuous development of a pipeline of products through direct investments. In order to secure public funding for long-term sustainability, early stage capital is needed to support early phases of product development through piloting that builds evidence of impact and scale. Later stage capital and program-related investments are also critical to ensure proven products can scale.

- 2 Develop impact standards and guidelines:** Invest in the development of research-based impact frameworks and articulation of best practices that can guide decision makers and program implementers through all phases of technology adoption. Private funders should work together – and in collaboration with public agencies and programs – to create aligned impact standards.
- 3 Fund products that use research-based content and measure impact:** Incentivize technology entrepreneurs to build products that incorporate evidence-based content and have a plan for measuring impact. Products should have built-in reporting with evidence of impact assessments, and funders should place importance on product development that drives toward measurable outcomes.
- 4 Support research and provide needed information:** Support research on technology trends and product efficacy. The private sector may be best situated to support the development of platforms and tools that create a coherent and easy way for people to review and compare existing tech solutions.

CONCLUSION

It is an exciting time for champions of early childhood care and education. With a growing coalition and collective will to develop breakthrough solutions, the possibilities for how existing and new technologies can help leverage our public investments and support what matters most – rich relationships between adults and children – are greater than ever before.

New allies with new tools and solutions present the field with a unique opportunity to take a fresh look at the pain points in the ecosystem and to better understand the ways in which all players, including program implementers, funders, and government and system leaders, can help realize the benefits of Smart Early Childhood Technology.

We invite others to leverage the analysis offered here to conduct their own targeted efforts to contextualize needs, deepen understanding, and create action plans to facilitate Smart EC Tech planning, implementation, and maintenance.

Together, tech entrepreneurs, program implementers, government and system leaders, and funders can harness innovation and technology to advance our collective impact for young children and families.

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