NEW AMERICA

EDUCATION POLICY | LEARNING TECHNOLOGIES PROJECT

SHAYNA COOK

INTEGRATING TECHNOLOGY IN EARLY LITERACY

A Snapshot of Community Innovation in Family Engagement

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About the Author

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Our work is made possible through generous grants from the Alliance for Early Success; the Foundation for Child Development; the Bill and Melinda Gates Foundation; the Evelyn and Walter Haas, Jr. Fund; the Heising-Simons Foundation; the William and Flora Hewlett Foundation; the Joyce Foundation; the W.K. Kellogg Foundation; the Kresge Foundation; Lumina Foundation; the McKnight Foundation; the Charles Stewart Mott Foundation; the David and Lucile Packard Foundation; the J.B. & M.K. Pritzker Family Foundation; the Smith Richardson Foundation; the W. Clement and Jessie V. Stone Foundation; and the Berkshire Taconic Community Foundation.

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INTRODUCTION

The prevalence of digital media today is often seen as an obstacle to promoting rich early literacy experiences for children. Child advocates often cringe at parents who seem more focused on their smart phones than on talking with the babies in their strollers. When technology is used in ways that limit children's social interactions with each other and the adults in their lives, educators worry that the language skills that are so important for later literacy development might go undeveloped.

Yet a growing number of young children across the country are using media and interactive technology on a daily basis,[1] and more and more parents and caregivers communicate via mobile phone, social media, and other digital tools. This is the new reality. Many professionals in both the early-learning and healthcare communities are beginning to shift away from debates over whether technology is appropriate to use *at all* to a more nuanced discussion about how it should be used and with which audiences.

The *how* and *who* are very important to thinking about innovative programs geared toward engaging families, particularly those who need extra support helping their children develop language and literacy skills. Adult-child relationships and positive interactions are the active ingredients of any family engagement and early learning program focused on fostering the developing brain.[2] Digital tools can be used to help support these positive interactions.

In other words, technology should not be used for technology's sake. Early literacy programs should intentionally integrate technology to help support families with young children in having more conversations, reading more stories together (digital and print), and using other traditional models of learning. For instance, when a father is reading a digital book with his toddler, it is still important for him to ask her questions and talk about the story, as science has already shown is important to do with a traditional paper book.

More research is needed into how technology is, or can be, used. For instance, does the use of technology lead parents and caregivers to feel more distracted instead of more connected? Are there so many moments of troubleshooting and fiddling with gadgets that families become frustrated when using new digital tools? Do children and families even have access to the Internet and various up-to-date technological tools, like iPads?

The National Academies of Sciences, Engineering, and Medicine formed a committee in the fall of 2015 to examine research on parent engagement, and the use of technology is among the questions it answered.[3] The committee asked,

> What types of strategies work at universal/preventative, targeted, and intensive levels (e.g., media campaigns, information sharing, text reminders; social support groups, self-

monitoring and tracking online; modeling and feedback coaching, intensive home visiting), and for which populations of parents and children?

Their report entitled, *Parenting Matters*, says that communication technologies offer promising opportunities to tailor information to parents based on their background. [4] The committee, however, cautions programs against creating more digital inequalities for some parents, including linguistic minorities, families in rural areas, and parents with less education. Other studies will be necessary as questions continue to emerge. For example, are families in high-poverty areas more responsive to text message reminders or home visiting through video conferencing? What type of technologies can programs use to engage all families? We need to keep adding to our knowledge about this nascent intersection of technology, literacy, and family engagement.

IN CONTEXT: EARLY LITERACY AND DIGITAL EQUITY

We also need to keep an eye on the inequities in access and disparities in achievement that persist for today's young children. In 2015, the National Assessment of Educational Progress (NAEP), published by the U.S. Department of Education, found that over two-thirds of fourth graders in the United States are unable to meet the assessment's mark of proficiency in reading.[5] In *Tap, Click, Read: Growing Readers in a World of Screens*, Lisa Guernsey and Michael Levine call this phenomenon the "quiet crisis." The number of non-proficient fourth graders increases by almost 20 percentage points for those of color and those in poverty. These gaps in early literacy and language skills begin even before school entry. In a now-infamous study, Betty Hart and Todd Risley found that there is a language gap of up to thirty million words between children from low-income and high-income families as early as three-years-old.[6]

Although there are debates over whether "proficiency" in the NAEP is a solid indicator of students' ability to "read well" in the fourth grade and there are noted cultural biases in the Hart and Risley study, both of these measures point to the need to better support *every* child's literacy and language skills prior to school entry and throughout K–12.[7] Families, in partnership with early childhood educators, are essential to ensuring that children develop these skills.

The purpose of this report is to begin to analyze how early learning and family engagement programs are experimenting with innovative tools to address the need for more support in children's early language and literacy development. The issue of digital equity among families with special needs (dual language learners, children with disabilities, children in high-poverty areas) is another key component to consider. Access not only to digital tools, but also to the Internet and mentors who know how to use digital tools, are essential for these innovations in family engagement to succeed.

PROJECT DESCRIPTION AND METHODOLOGY

Project Description

For over a year, the Learning Technologies Project in the Education Policy Program at New America and the Joan Ganz Cooney Center at Sesame Workshop collected information to create a map that highlights technology-assisted initiatives. The map, and our accompanying research project, Integrating Technology in Early Literacy (InTEL), began as a way to think about how programs around the U.S. were tackling the question of how young children learn language and literacy skills in the Digital Age. The map shows where innovative programs are located,[8] how those programs are designed, and what evidence of impact they are able to share.

pin drop map and profile page for each program, which can be found at atlas.newamerica.org/tech-early-literacy. The map was designed to display a snapshot during a period of rapid innovation in communities across the country.

Programs appear on the map according to parameters that we established at the beginning of the collection process. Products such as websites, curated collections, subscription-based online libraries, apps, or e-books are not included on the map. Our intention was to capture information on pilot initiatives, programs, and other activities pursued by educators and community leaders. If a product was or is integrated into a program conducted by a community-based organization

> **The map shows where innovative programs are located, how those programs are designed, and what evidence of impact they are able to share.**

Methodology

The data for this project were collected from December 2014 through mid-March 2016 through the use of an online survey. New America and the Cooney Center used social media, newsletters, and e-mails to promote the completion of the survey. New America used the collected data to create a

or school, the product name is included in our program profile. Initiatives underway in individual classrooms but not connected to broader programs were not included.

Programs were sorted by type, languages, ages targeted, number of children served, primary technological tools, and evidence of impact.

FINDINGS AND ANALYSIS

Program Type

There are 37 programs on the map. The majority of the programs (19) have a family engagement component. Other programs (11) have school- or center-based initiatives. Five programs use public media partnerships, and another five include some professional learning for educators. Four programs are connected to a museum or library.[9]

The various approaches we saw show the many options that communities can use to engage young children and their families. In many cases, the aim is to build an ecosystem of support so children can grow up to be learners who are adept at using and understanding many different resources. Librarians, family engagement coordinators, home visitors, pediatricians, early childhood educators, and other professionals who interact with young children all can help families learn about the best ways to promote their children's healthy development.

Program Languages

All 37 programs offer English. Thirty programs offer Spanish, and seven programs use other languages, such as Arabic or Mandarin. For example, Ready4K! was able to send text messages to families in their home languages, using tech to make early learning accessible to a diverse group of people on a large scale, and through the use of short video clips, ReadyRosie shows families how to deploy short literacy or math activities in both Spanish and English.

Ages Served

On the map, we recorded the number of programs that serve each age group, from birth through age eight. Twenty-seven programs serve children from 0–3 years old. Twenty-six programs serve children from 4–5 years old, and sixteen programs serve children from 6–8 years old.

Number of children served

Almost 60 percent of the programs serve fewer than 1,000 children; eleven programs serve more than 10,000 children.

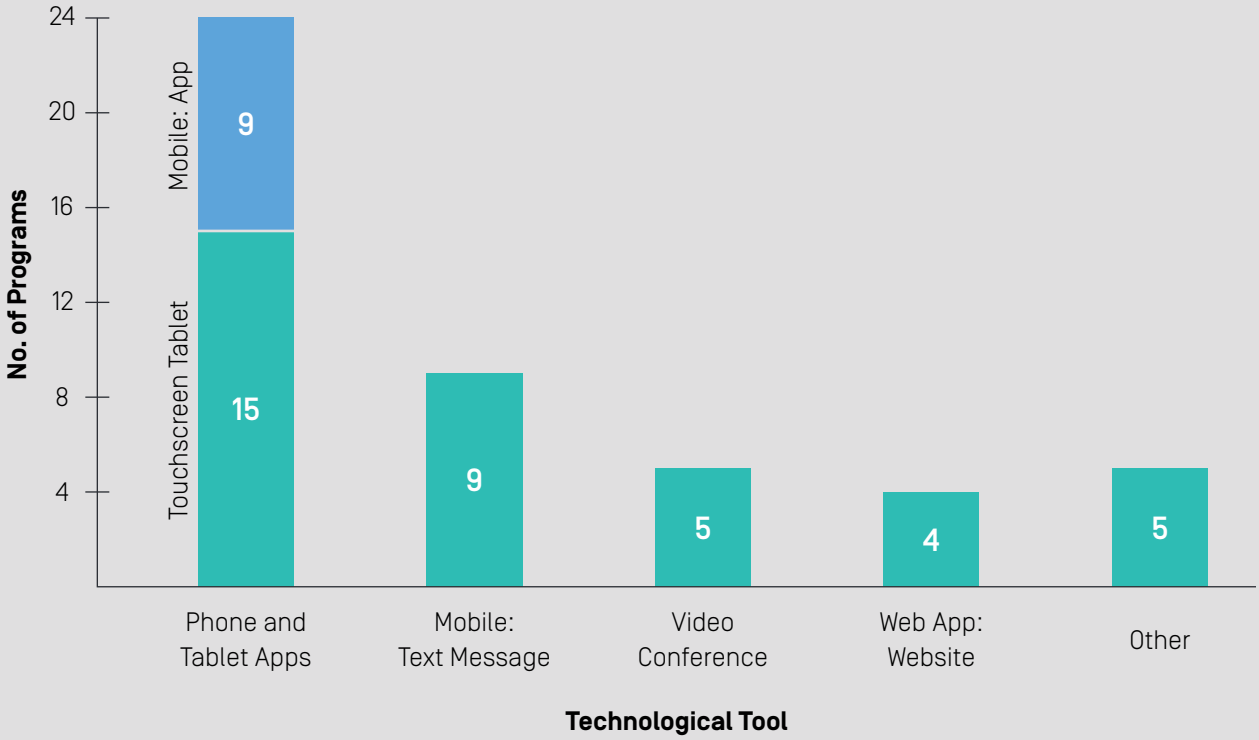
Figure 1 | Number of Children Served by Each Program

I-LABS Outreach Modules does not serve children directly and was unable to determine the number of children reached.

TAKING A DEEPER DIVE INTO HOW PROGRAMS USE TECHNOLOGY TO REACH FAMILIES

The map documents the primary technological tools that programs use to develop early language and literacy skills. All 37 programs use multiple technological touch-points for outreach.

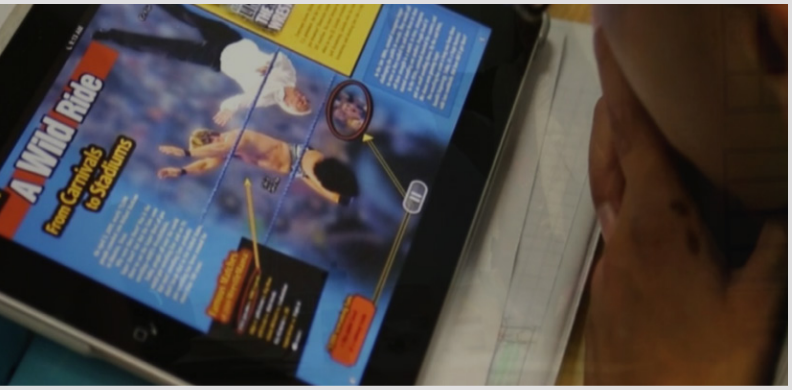
Figure 2 | Primary Technological Tools



Primary Technological Tools

The following initiatives and approaches are described not because they are necessarily exemplary—in many cases there is not yet research to make that claim—but because they provide concrete examples of the creativity of today's program designers. They also show the diversity of tools that communities are harnessing in an attempt to help children and families.

Mobile: App and Touchsceen: Tablet

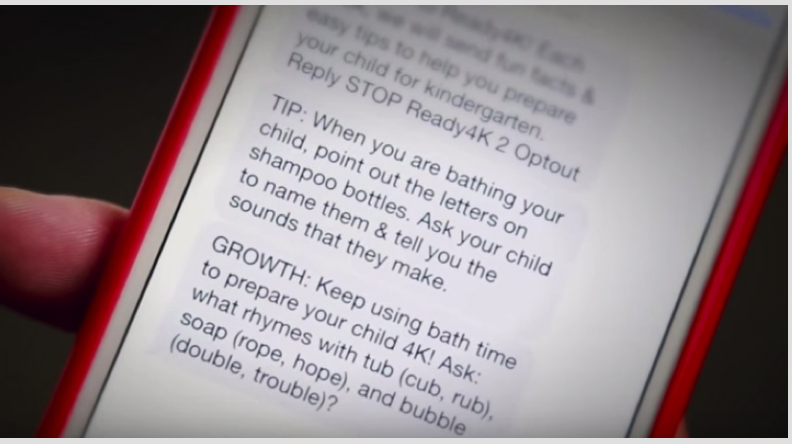


Source: https://www.myon.com/

Example: Columbia Reads: myON

Missouri's Columbia Public Schools use the myON Reader app,[10] a personalized digital reading program, on mobile devices. The myON Reader contains more than 4,700 enhanced digital books that provide audio, highlighted text, and other features, like sticky notes and shape tools. Using an Internet connection, families can access myON any time. Families without a home connection can use the myON app at school to download up to twenty books at a time onto their touchscreen tablets, which allows them access to many books offline.

Mobile: Text Message

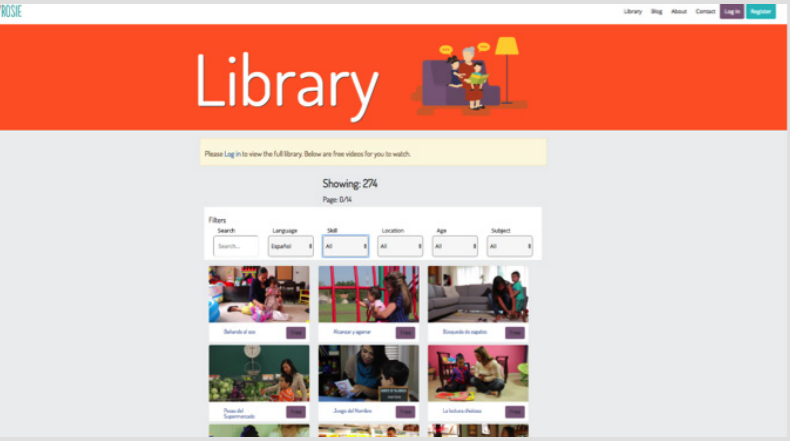


Source: https://www.youtube.com/watch?v=6rqYSx78XtY

Example: Ready4K!

Ready4K! is a text messaging program for parents to help them support their young children's development and close the word gap. The program, started in San Francisco, leverages technology to reach parents across the country. For instance, a text message may say, "Tip: Say and explain words to your child as you do everyday tasks. Tell your child that you WASH dishes to CLEAN them. To WASH is to CLEAN."[11] According to program survey results, families are then able to slowly incorporate quick early literacy and language activities into their daily routines.

Web App/Website

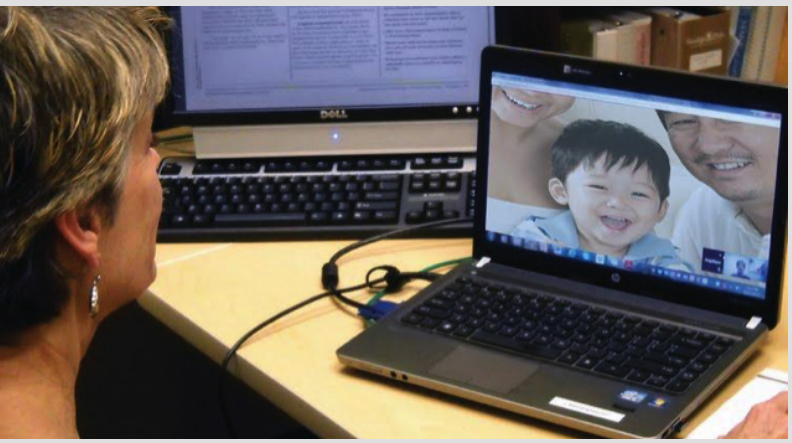


Source: https://readyrosie.com/library/

Example: Cortez Public Library's "Read to Me, 21 Days to Form the Reading Habit"

In Colorado, the Cortez Public Library's "Read to Me" program provides reading tips and models early learning activities for families and their children. Each family is given a subscription to ReadyRosie, a website and mobile app that provides daily reading and math activities for adults to do with children. The activities are simple, brief, and can be incorporated into a family's daily routine.

Video Conference



Source: https://sowkweb.usc.edu/news/parents-teachers-school-begin-delivering-online-parent-education

Example: Parents as Teachers Telehealth Initiative

The Parents as Teachers Telehealth Initiative (PATTI) is a pilot created in partnership between Parents as Teachers (PAT) and the University of Southern California (USC) School of Social Work. PATTI helps families build their knowledge of child development, including early language and literacy skills. Using an adapted parent education curriculum from PAT, home visitors are able to reach children and their families through video conferencing.

Other Tools (Videos, Talk Pedometers, Video, and Video Recorder)

This girl is putting on the LENA talk pedometer.

Source: http://studeri.org/2016/03/dr-dana-suskinds-journey-to-advocate/

Example: Thirty Million Words (LENA Talk Pedometer)

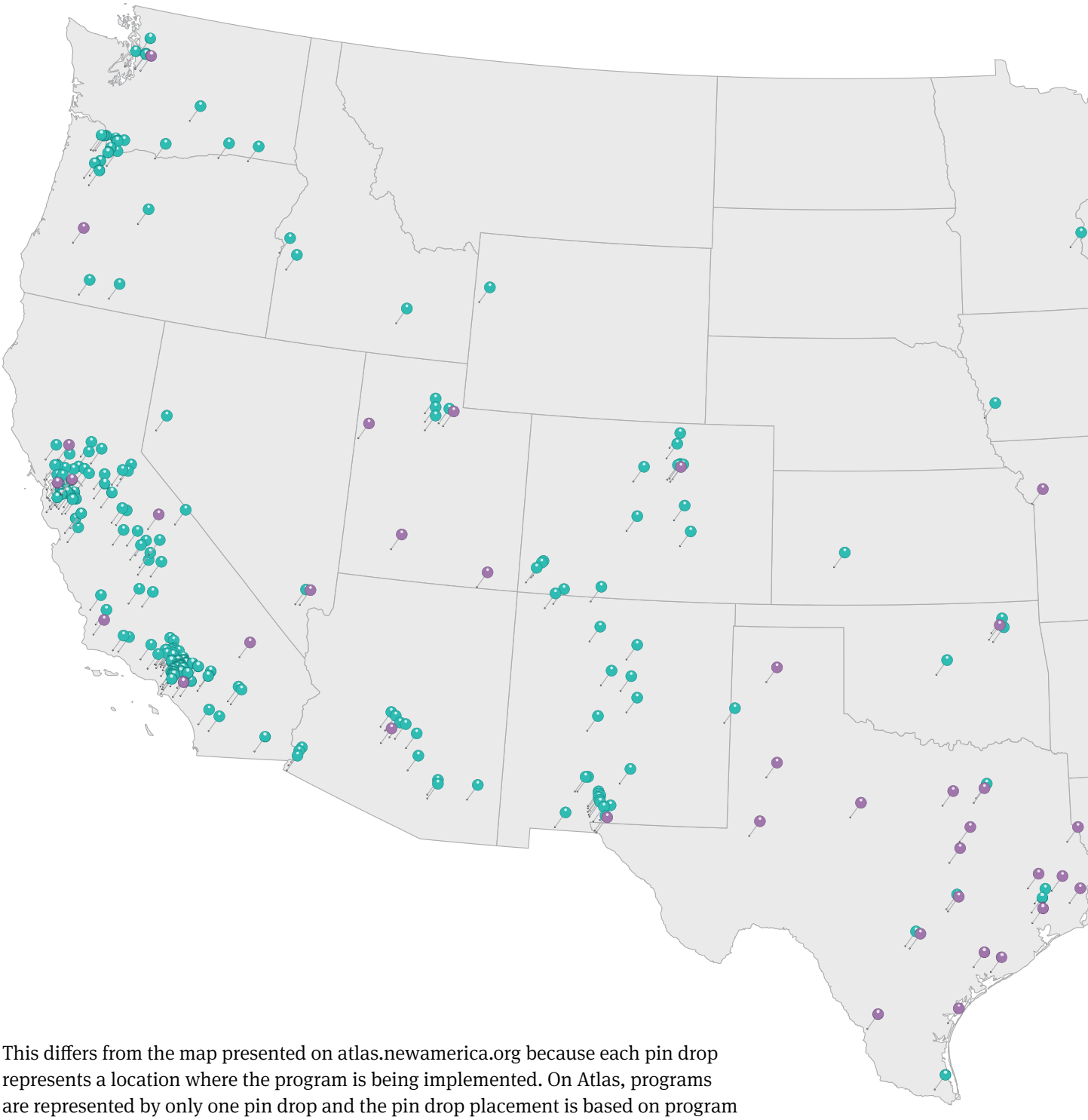
The University of Chicago Medicine's Thirty Million Words Initiative (TMW) develops interventions to help parents, caregivers, practitioners, and policymakers close the language gap. TMW hopes to foster quality adult-child interactions to help develop language and literacy skills. The initiative uses the Language ENvironment Analysis (LENA), a digital language processing technology that provides families with quantitative linguistic feedback. Using LENA, families can monitor their progress and work toward increasing talk and interaction with their children.

Source: https://www.youtube.com/watch?v=LGSqFL8VEgI&feature=youtu.be

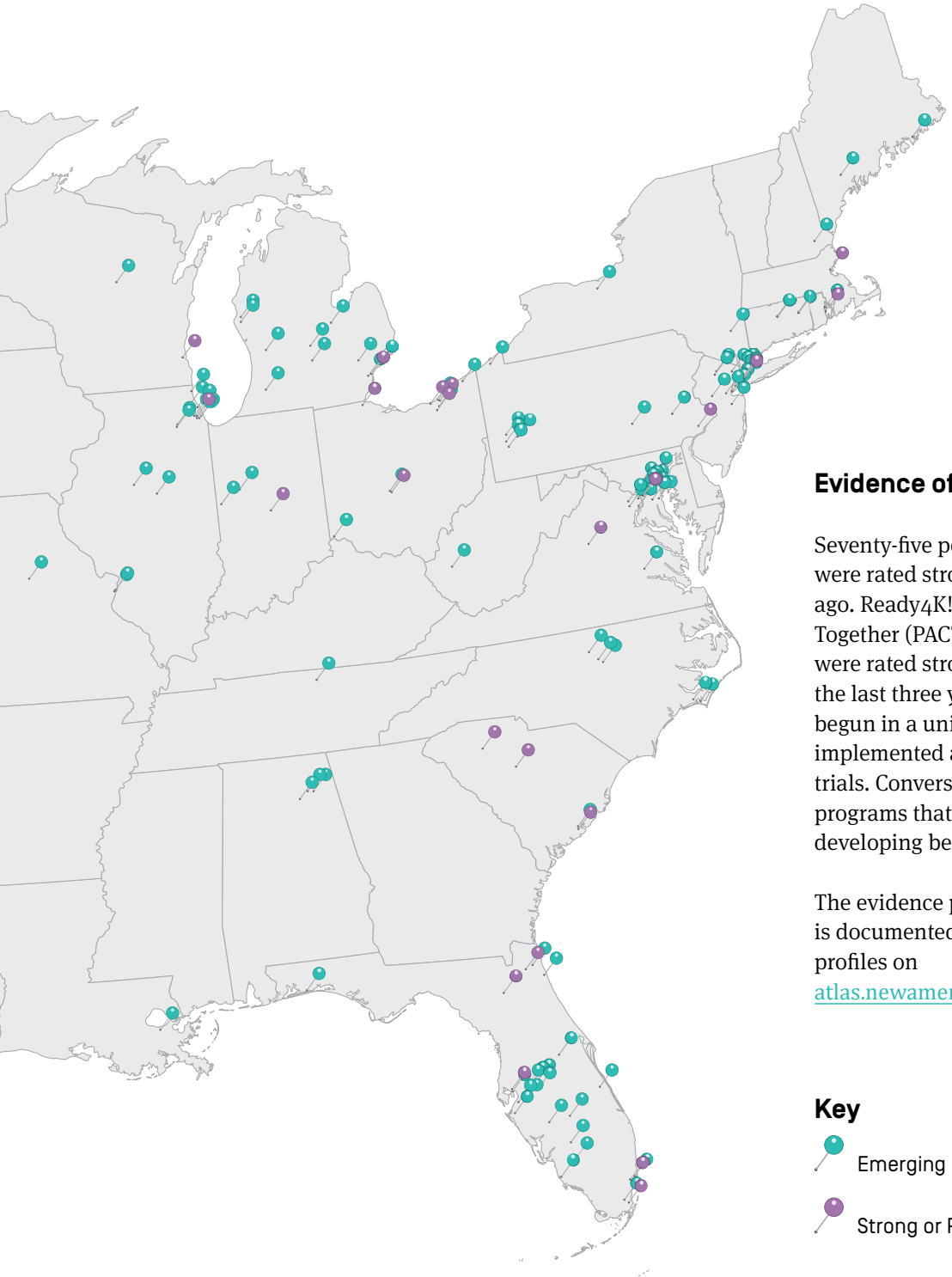
Example: The Play and Learning Strategies (PALS)-Infant-Net (Video Recorder)

The Infant-Net project, located in Oregon, Texas, and Kansas, uses online tools to extend the reach of a home-visiting program called Play and Learning Strategies (PALS) that is designed to help parents and caregivers foster their babies' development with a particular focus on early language and self-regulation skills. Home visitors work with parents to show them how children learn specific skills, and they help parents record themselves practicing different ways of responding to their babies to build those skills. Home visitors coach parents after reviewing the videos.

Figure 3 | Programs Around the Country: Differences in Evidence of Effectiveness



This differs from the map presented on atlas.newamerica.org because each pin drop represents a location where the program is being implemented. On Atlas, programs are represented by only one pin drop and the pin drop placement is based on program headquarters or primary location.



Evidence of Impact

Seventy-five percent of the programs that were rated strong began over seven years ago. Ready4K! and Parents and Children Together (PACT) are two programs that were rated strong that were started in the last three years. Both programs were begun in a university setting and were implemented as randomized controlled trials. Conversely, eighty percent of programs that were rated emerging or developing began in the last four years.

The evidence provided by these programs is documented in each of the program profiles on atlas.newamerica.org/tech-early-literacy.

Key

Emerging or Developing Program

Strong or Promising Program

Evidence of Impact Rating

"Evidence of impact" refers to evidence that the technological intervention improves children's outcomes, adult behaviors in interacting with children, or teacher practice. Elisabeth McClure, a research fellow at the Joan Ganz Cooney Center, checked the evidence that programs provided for veracity and contacted individual programs to address discrepancies and gather more information for our analysis. The programs were sorted based on four categories:

Strong—The program has provided documentation of the results of one or more randomized controlled trials, preferably conducted by an independent research institution on the specific intervention. The study is aligned with the What Works Clearinghouse's standards.[12]

Promising—One or both of the following criteria have been met:

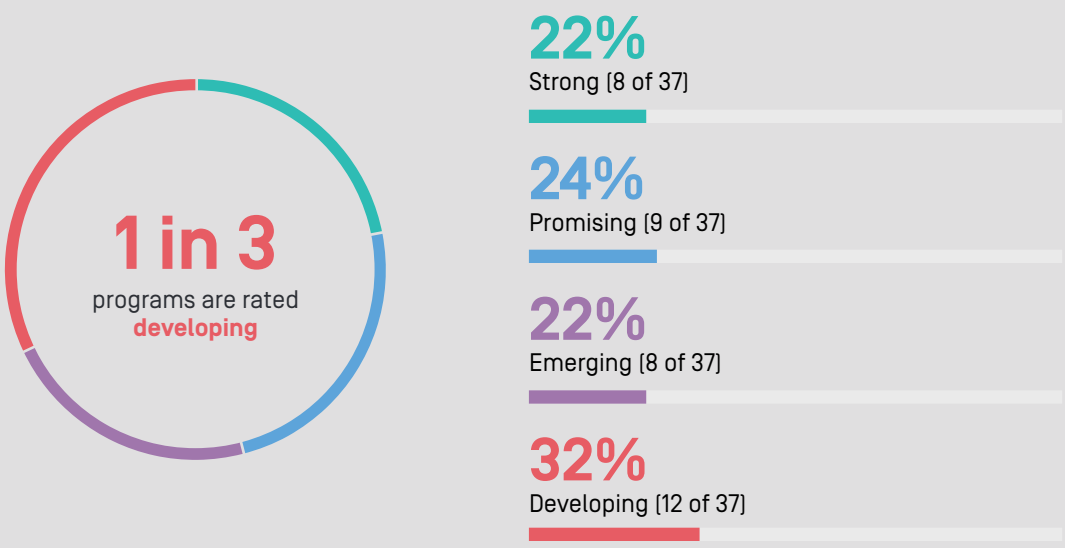
The program has provided documentation of the results of an assessment of effectiveness (beyond data or user feedback, but not meeting the What Works Clearinghouse's standards for randomized controlled trials), preferably conducted by an independent research institution on the specific intervention.

The program has provided documentation of peer-reviewed evidence showing that a similar approach has worked elsewhere.

Emerging—The program has provided documentation of intervention usage and user feedback.

Developing—Research is ongoing, so no current evidence exists or documentation of evidence is forthcoming.

Figure 4 | Evidence of Impact Rating Breakdown



Barriers to Advancing New Approaches

In the online survey, we asked programs about their biggest challenges. Over 70 percent of programs reported they were concerned about limited funding. This limit is often a barrier to thinking about program evaluation because programs are focused on sustainability.

Twenty-four percent of programs worried that families without Internet access would be unable to use the technology. Around 30 percent of programs reported that they had trouble getting different stakeholders to change their mindsets around the use of technology with young children.

Two of the larger and more established programs, Thirty Million Words Initiative and Mind in the Making, reported that they needed to balance the pressure to scale up against the slowness of randomized controlled trials. TMW and MITM worried about expanding too rapidly because they wanted to maintain program effectiveness and yet reach a larger number of children and families.

How ESSA Could Enable Innovation in Family Engagement

The Every Student Succeeds Act (ESSA) includes language on family engagement that represents a shift from the No Child Left Behind Act (NCLB). This new federal education law replaces words that encourage states to focus on "parental involvement" with words such as "parent and family engagement." This change in language acknowledges that all members of a child's family play a role in her educational development.[13]

Under the law, school districts must designate *at least* one percent of their Title I funds for parent and family engagement. Some allowable uses for this funding[14] are the following:

- Supporting schools and nonprofit organizations in providing professional development in parent and family engagement strategies. Those receiving training can include early childhood educators, paraprofessionals, parents, and family members.

- Supporting programs that reach parents and family members at home, in the community, and at school.

- Collaborating with or providing subgrants to organizations with a record of success in improving and increasing parent and family engagement.

- Disseminating information on best practices in parent and family engagement, focusing on those from economically disadvantaged backgrounds.

- Activities that local educational agencies determine are appropriate and consistent with parent and family engagement policies.

Each year, school districts must evaluate their engagement policies and practices with meaningful input from parents and family members with the goal of improving academic quality.

Title IV of the law authorizes a federal grant program for the creation of Statewide Family Engagement Centers. In their applications to the U.S. Department of Education, states must describe their approach to family engagement in education, how the proposed center will operate, and how any partner organizations would help to support that vision. States must also explain how the center would support low-income students, English language learners, minorities, students with disabilities, homeless children, youth in foster care, and migrant students.

Under ESSA, Congress has authorized $10 million a year for these new centers. However, this amount of funding is not guaranteed during appropriations. Under NCLB, an earlier iteration of the Statewide Family Engagement Centers known as the Parental Information and Resources Centers received approximately $40 million annually.[15]

IMPLICATIONS FOR PROGRAM DESIGN

It seems clear that those in early education and family engagement are not afraid to experiment, based on the dozens of new programs underway across the country. The next step for program developers is to assess what is worth pursuing on a larger scale to engage families and educators in ways that improve children's literacy. Based on the information gleaned from programs with strong evidence of effectiveness, and recognizing that family engagement programs represent the majority of the new programs captured in our snapshot, here are four recommendations on how to ensure success for families and children:

1. **Programs should consider how to evaluate the impact of their work prior to implementation.** In our snapshot, the programs that showed a strong evidence of impact had an established evaluation component. The majority of newer programs had not considered rigorous evaluation methods prior to implementation. The use and efficacy of technological tools in family engagement and early literacy development is still experimental, and programs need to have an evaluation plan.

2. **Program evaluation should spur continuous improvement and reflect families' input.** When programs experiment with innovative ways to engage families and foster children's development, they should appreciate the iterative nature of their work. Currently, there are programs that are just emerging or developing evidence of impact. As programs collect data about their work, they should use that information to reflect on what needs to change, how programs should be tweaked, and what approaches should be discarded. These feedback loops should involve families and their judgment of program efficacy.

3. **Programs should remember the science that shows human relationships as a more powerful ingredient than technology by itself.** Technology is always changing. Just in the last decade, the mass production of touchscreen tablets has revolutionized how people interact with the Internet. Programs should avoid becoming too reliant on one technological tool or product. Technology should always be secondary to the positive interaction between adults and their young children. Independent of the technology, programs should continue to work on establishing a rapport with the families that they serve.

4. **Programs should, where possible, make their processes and outcomes open and available to others, building networks of professional learning.** In a time of rapid change, it can be difficult for program leaders to keep up with what is known about the benefits and drawbacks of new approaches. Programs should strive for easy, open, and continual sharing of information between leaders, researchers, and designers. Networks that cross geographic boundaries as well as disciplines allow developers, researchers, educators, and family engagement experts to share ideas.

POLICY IMPLICATIONS

In a 2014 New America paper, Envisioning a Digital Age Architecture for Early Education, we spelled out five actions needed for ensuring that digital media and technological tools are used to improve early education and children's outcomes instead of undermining them. Those actions—aiming high, boosting the workforce, tapping hidden assets, connecting to information and to others, and investigating what works—will be far easier to implement with the aid of policies at the federal, state, and local levels. Below, we touch on those actions with some high-level policy recommendations that New America and the Joan Ganz Cooney Center will be elaborating on in a future paper. Some of these ideas are also laid out in *Early Literacy in the Digital Age: A Modern Action Plan for States and Communities*, a free guide published this month on TapClickRead.org, the website that accompanies the book *Tap, Click, Read*.

1. **Recognize the importance of digital equity and digital learning opportunities for families when investing in early learning.** All levels of government should invest dollars in high-quality early-learning ecosystems for families and children so that access is open to all. Governments should ensure that funding streams are flexible enough to enable states and cities to conduct needs assessments on digital access and learning opportunities. Funding for professional learning systems should allow for the integration of training and coursework on how to use digital media in ways that empower families and stimulate learning.

2. **Undertake an early learning and technology audit**. Forward-thinking communities are already assessing the needs of children and families. The next step is to add assessments that unearth whether and to what degree families are experiencing disparities in digital access. Community leaders could work through

In this Digital Age, with the Internet enabling a much greater sharing of ideas, books, videos, and other resources, publicly-funded organizations should open new channels for distribution of resources.

early learning councils or other local alliances to examine the following: the presence of high-speed Internet in homes and schools, the availability of media mentors in libraries and other place-based learning settings, and the robustness of an ecosystem of learning that enables families to engage with rich content online and off. Results from the audit should drive plans for bridging gaps and setting goals for deeper literacy engagement throughout the community.

3. **Create new channels for communication and resource-sharing between public libraries, public media outlets, school districts, and publicly-funded institutions that provide early learning opportunities.** Too often, libraries, schools, and early childhood programs operate separately from one another. In this Digital Age, with the Internet enabling a much greater sharing of ideas, books, videos, and other resources, publicly-funded organizations should open new channels for distribution of resources. Not only will this avoid duplication, and potentially save scarce dollars, it also allows for more dialogue about the types of resources that families use and need.

4. **Fund independent and peer-reviewed research on what works.** Every community should set aside funding to stimulate independent and peer-reviewed research and investigation about what works and what does not in the digital media and literacy learning arena. The concept of using digital technology to engage with families and advance literacy is still new. Leaders need more studies on what is most effective with diverse populations, what training may be required for specialists and educators, what implementation strategies work best, and so on. As this research is published, it should be open to all, to enable sharing and learning in a timely way.

5. **Support new training and professional learning communities for professionals in education and family engagement.** Help today's educators, librarians, and home visitors build new skills to provide guidance to families and become selective in their use of digital media. Use grant programs and federally-funded competitions to support organizations that are working to build cadres of media mentors and create a digital teacher corps. As much as possible given the nascent state of research on digital learning, ground these training opportunities in research on what has been documented to work best and what the science says about how young children develop their language and early literacy skills.

6. **Map and track innovation emerging from states and communities.** Networks of researchers may need to be established to enable new tools like the Atlas map to move from a one-time snapshot to a continually renewed resource for the community. This will involve collecting and analyzing data on tools used and populations served, as well as details related to implementation, evidence of effectiveness, and barriers encountered. This information can help support implementation and scale-up where warranted as well as help communities to build on lessons learned elsewhere, avoiding unnecessary duplication and the waste of following short-term fads.

WHERE WE ARE NOW

Although integrated technological tools are becoming more prevalent in family engagement and early literacy programs, we are still in the early days. There are so many questions that researchers, policymakers, educators, and program developers will need to work through before innovative programs are implemented on a large scale.

For example, text messaging is one approach that has gained considerable attention so far. Some early work on the use of text reminders has shown that parents are receptive to them and that, in the case of a San Francisco study, young students whose parents used the messages did, in fact, gain skills in early literacy compared to a control group.[16] Still, many questions persist. Is text messaging the latest digital fad in the family engagement and parent education area? Will it be a reliable way to reach families across demographics?

Not only for text messaging but also for many other technological tools, program designers and policymakers will need to address a host of issues related to the influence of commercialization on programs and the question of personal privacy. A positive sign is the desire of program leaders to learn about each others' work, to seek out research-based approaches, and to continue to address inequalities and search for ways to achieve the best outcomes for children and their families.

Further Reading

Envisioning a Digital Age Architecture for Early Education

Early Literacy in the Digital Age: A Modern Action Plan for States and Communities

Tap, Click, Read: Growing Readers in a World of Screens

Family Engagement in the Digital Age: Early Childhood Educators as Media Mentors (forthcoming)

APPENDIX

Sample of Online Survey

A Map in Progress: Integrating Technology in Early Literacy Survey

Is your institution engaged in an initiative for families, educators, or children that uses new tools to promote children's language development and early literacy skills? If so, we invite you to fill out this survey, the results of which may be published in an interactive map. The map is part of a project by New America and the Joan Ganz Cooney Center to identify and examine the uses of technology within early learning initiatives. We are seeking examples from programs across the age span of birth through age 8 or through the third grade. If you have any questions, please visit our FAQs page: http://www.edcentral.org/wp-content/uploads/2015/10/INTEL-FAQ.pdf. The survey will close on March 15, 2016. Programs will be added to the Integrating Technology in Early Literacy mapping project on a rolling basis.

What is the name of your initiative?

E.g., the Parental-Outreach Texting Initiative

_____

If this initiative is embedded within an existing program, what is the name of the program?

E.g., a Head Start program, home-visiting program, literacy tutoring program, etc.

_____

Does your program have a partnership?

☐ Yes

☐ No

If yes, who are your partners?

_____

Please provide a brief description of your program.

Limit to 250 words.

_____

What is the goal of your program?

Limit to 250 words.

_____

Where is your program located? Please list all locations by city and state.

If your program serves a larger region, please select a city that would most accurately portray the location of your services.

_____

In what year did your program begin?

Month and day can be approximated.

_____

What is the current status of your program?

- ☐ Pilot
- ☐ Ongoing Initiative

Describe how your program began. Why was there a need for this program?

Limit to 250 words.

_____

Estimate the number of children served by your program, currently.

- ☐ 0–100
- ☐ 100–500
- ☐ 500–1,000
- ☐ Other:

Age range of the children served.

Check all that apply.

- ☐ 0–3 years old
- ☐ 4–5 years old
- ☐ 6–8 years old

Does your program target a specific population of children and families?

- ☐ Dual language learners/English language learners
- ☐ Low-income families
- ☐ At-risk children
- ☐ Children of color
- ☐ Other:

List the language(s) in which you provide materials to your audience.

Check all that apply.

- ☐ English
- ☐ Spanish
- ☐ Other:

What are the eligibility requirements for your program?

_____

What type of technological tool does your program utilize?

Check all that apply.

- ☐ Touchscreen tablet
- ☐ Mobile: Text message
- ☐ Mobile: Application
- ☐ Two-way communication: Skype, webcam, etc.
- ☐ Video recorder
- ☐ Other:

What is the purpose of using this technology?

_____

What is your program's primary source of funding?

This information will be used to spot trends and inform other programs that are exploring financing options.

- ☐ Philanthropy
- ☐ Federal
- ☐ State
- ☐ Tuition
- ☐ Private
- ☐ Other:

What are some of the biggest challenges or barriers that your program has encountered?

- ☐ Limited funding
- ☐ Lack of or unreliable Internet access
- ☐ Lack of professional development
- ☐ Concerns about using technology with families with young children
- ☐ Limited motivation to change ways of doing things
- ☐ High staff turnover
- ☐ Uncertain funding for next year
- ☐ Lack of interest or support from families
- ☐ Other:

If you chose: "Concerns about using technology with families with young children" or "other," please explain your answer choice in more detail below.

Skip this question if it does not apply.

_____

Please provide websites, images, and videos of your program, if available.

This is material that would be made public and may be used on the program's profile page. You may include links (urls) to your program website, high resolution pictures, videos, etc.

How is your program documenting evidence of impact for the technologies that are being used?

Check all that apply.

- ☐ We are not documenting the technology's impact
- ☐ Tracking/usage data
- ☐ Anecdotal or field notes and/or user feedback
- ☐ Pre- and post- assessments
- ☐ Evaluation surveys
- ☐ Randomized trial
- ☐ Program sponsored by or partnered with a research institution for the purpose of evaluation
- ☐ Other:

What evidence of impact do you have so far for your program's use of technology?

Please provide links to evaluations, studies, etc., or provide a few of your usage statistics and/or user feedback, as applicable.

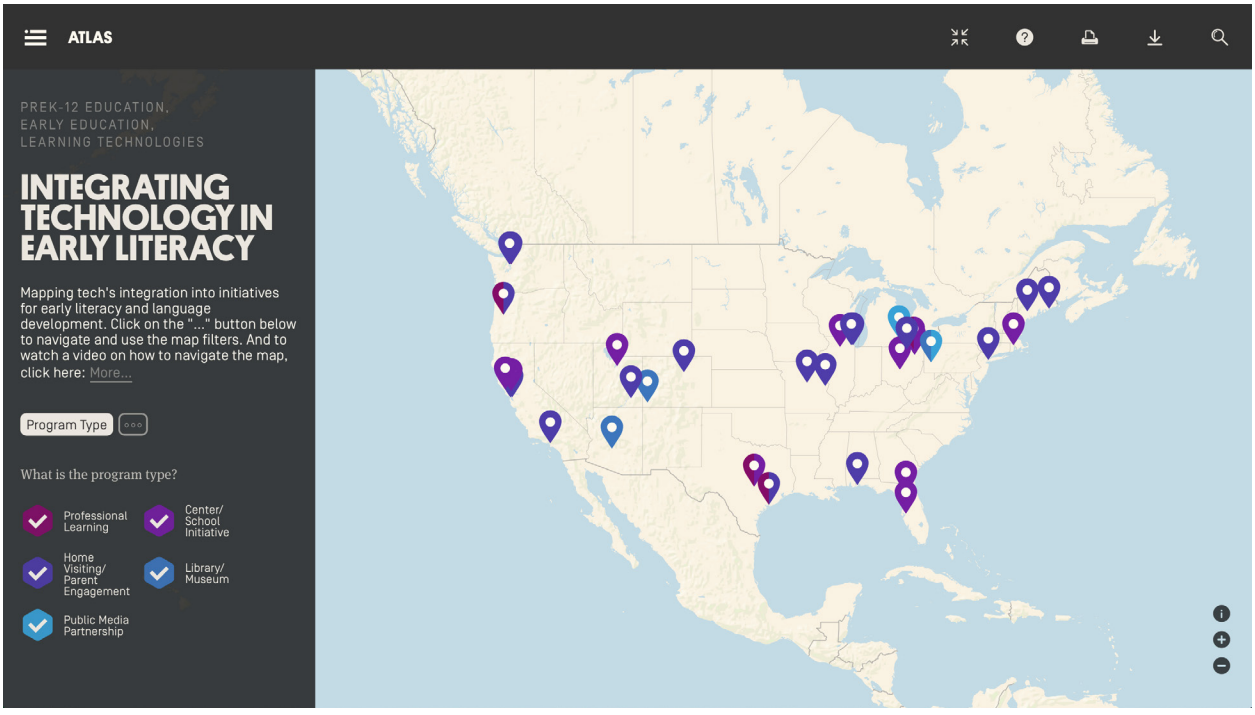
_____

Program contact information

This information is for internal purposes and will be used to contact you for further questions. Include: Name(s), E-mail Address(es), and Phone Number(s).

_____

INTEGRATING TECHNOLOGY IN EARLY LITERACY ON NEW AMERICA'S ATLAS



To find the Integrating Technology in Early Literacy project online go to http://atlas.newamerica.org/tech-early-literacy. To find a tutorial on how to navigate the data visualization tool and read each program's profile go to https://www.youtube.com/watch?v=eXS0jBCypGs&feature=youtu.be.

Notes

[1] Hilda K. Kabali, Matilde M. Irigoyen, Rosemary Nunez-Davis, Jennifer G. Budacki, Sweeta H. Mohanty, Kristin P. Leister, and Robert L. Bonner, *Exposure and Use of Mobile Media Devices by Young Children* (Cincinnati, OH: Pediatrics, 2015), http://pediatrics.aappublications.org/content/pediatrics/early/2015/10/28/peds.2015-2151.full.pdf; Victoria Rideout, *Learning at Home: Families' Education Media Use in America* (New York: The Joan Ganz Cooney Center, 2014), http://www.joanganzcooneycenter.org/wp-content/uploads/2014/01/jgcc_learningathome.pdf.

[2] *The Science of Early Childhood Development: Closing the Gap Between What We Know and What We Do* (Cambridge, MA: Harvard University, 2007), 6, http://developingchild.harvard.edu/wp-content/uploads/2015/05/Science_Early_Childhood_Development.pdf.

[3] National Academies of Sciences, Engineering, and Medicine, Board on Children, Youth, and Families, "Committee on Supporting the Parents of Young Children," http://www.nationalacademies.org/hmd/Activities/Children/ CommitteeonSupportingtheParentsofYoungChildren.aspx.

[4] National Academies of Sciences, Engineering, and Medicine, *Parenting Matters: Supporting Parents of Children 0-8* (Washington, DC: The National Academies Press, 2016), http://www.nap.edu/read/21868/chapter/1.

[5] The Nation's Report Card, "2015 Mathematics & Reading Assessments," http://www.nationsreportcard.gov/reading_math_2015/#reading?grade=4.

[6] Betty Hart and Todd R. Risley, "The Early Catastrophe: The 30 Million Word Gap by Age 3," *American Educator* 27, no. 1 (Spring 2003): 4–9, http://www.aft.org/sites/default/files/periodicals/TheEarlyCatastrophe.pdf.

[7] Jim Hull, *The Proficiency Debate: A Guide to NAEP Achievement Levels* (Alexandria, VA: Center for Public Education, 2008), http://www.centerforpubliceducation.org/Main-Menu/Evaluating-performance/The-proficiency-debate-At-a-glance/The-proficiency-debate-A-guide-to-NAEP-achievement-levels.html; http://academic.evergreen.edu/curricular/med/langpoor.pdf.

[8] The pin drops on the Atlas map represent where the program is headquartered or one of the main locations. See http://atlas.newamerica.org/tech-early-literacy.

[9] Throughout our analysis, numbers may not add up to 37 because programs can be counted in more than one category.

[10] The myON Reader app is in the Apple Store for iPad use only. It is also available on Android. The tool is being used in several cities across the country.

[11] May Wong, "Stanford 'Tips-by-Text' Program Helps Boost Literacy in Preschoolers, Study Finds," *Stanford News*, November 17, 2014, http://news.stanford.edu/news/2014/november/texting-literacy-tips-111714.html.

[12] The What Works Clearinghouse was established in 2002 by the U.S. Department of Education's Institute of Education Services to provide educators, policymakers, researchers, and the public with a trusted source of scientific evidence of what works in education. See http://ies.ed.gov/ncee/wwc/ and http://www.w-w-c.org/.

[13] Melissa Dahlin, *State Approaches to Family Engagement in Pre-K Programs* (New Brunswick, NJ: Center on Enhancing Early Learning Outcomes, 2016), http://ceelo.org/wp-content/uploads/2016/03/ceelo_policy_brief_family_engagement_2016_03_final_web.pdf.

[14] One Hundred Fourteenth Congress of the United States of America, *The Every Student Succeeds Act* (2015), https://www.gpo.gov/fdsys/pkg/BILLS-114s1177enr/pdf/BILLS-114s1177enr.pdf. (Note: language from the Act was modified for this paper.)

[15] Andrew Ujifusa and Sarah Tully, "ESSA May Offer Megaphone for Parent, Community Voices," *Education Week*, March 22, 2016, http://www.edweek.org/ew/articles/2016/03/23/essa-may-offer-megaphone-for-parent-community.html.

[16] Benjamin N. York and Susanna Loeb, *One Step at a Time: The Effects of an Early Literacy Text Messaging Program for Parents of Preschoolers* (Stanford, CA: Center for Education Policy Analysis, August 2015), http://www.edcentral.org/wp-content/uploads/2015/12/Ready4K_York-Loeb-August-2015.pdf.