How a Small Nonprofit Helped Quadruple Kindergarten Readiness

The Case for Investing in ApSeed



EXECUTIVE SUMMARY

For $230, a Lifetime Head Start

For $230 per child, ApSeed puts a safe, no-Wi-Fi learning touchpad, a Kindergarten Readiness Guide, and weekly caregiver coaching into the homes of children facing barriers to learning. Where ApSeed has saturated a community, kindergarten readiness has climbed sharply: in Rowan County, the share of kindergartners passing the district's DIAL-4 screen rose from 17% in 2019 to 73% in 2025.

17% → 73%

Rowan County kindergarten readiness, 2019–2025 (DIAL-4)

60–70%

of the end-of-school achievement gap already present at kindergarten entry

$7.30

returned per $1 invested in high-quality birth-to-five programs (Heckman)

The need is urgent. U.S. children from families with fewer resources arrive at school roughly a full year behind their peers, and that entry gap explains 60–70% of the achievement gap seen at the end of school (Waldfogel, via *The Washington Post*). Children not reading proficiently by third grade are four times as likely to leave high school without a diploma (Annie E. Casey Foundation).

The evidence behind ApSeed comes from three distinct sources:

- **Community results.** Rowan County readiness rose 56 percentage points as 8,360 touchpads reached local children.
- **Clinical results.** A pediatric clinic study found statistically significant gains ($p < .001$) in letter, number, and shape recognition after six months of use.
- **University research.** An Appalachian State University pilot recorded a 26.5% gain on the Bracken School Readiness Assessment — more than double the norm-expected 11.4%.

The model also rests on proven science. Randomized trials show weekly parent texting raises home literacy activity and early reading scores, and Heckman's research finds high-quality birth-to-five programs return up to 13.7% per year, or $7.30 for every $1 invested.

> **The ask:** fund touchpads for children in new communities and invest in a rigorous comparison-group study that moves ApSeed from promising to proven.

THE CHALLENGE

The Readiness Gap Opens Before Kindergarten

The gap between children of promise and their more advantaged peers is already wide at age four, and it rarely closes on its own. Most of the inequality seen in young adults is present on the first day of school.

Finding	Figure	Source
Gap in reading and math at school entry, less-educated vs. more-educated parents	1 standard deviation (about one year of development)	Waldfogel, *Too Many Children Left Behind*
End-of-school achievement gap already present at kindergarten entry	60–70%	Waldfogel
U.S. 4-year-olds with access to universal, publicly funded preschool	Under 30%	Waldfogel
NC children from low-income families rated “ready” for kindergarten, vs. higher-income peers	40% vs. 56%	NC DHHS, cited in Bryan et al.
NC children under 18 living in poverty	About 20%	U.S. Census Bureau, cited in Bryan et al.
Non-proficient third-grade readers who do not graduate on time	1 in 6 (4× the rate of proficient readers)	Annie E. Casey Foundation
Poor, non-proficient third-grade readers in high-poverty neighborhoods who do not graduate on time	35%	Annie E. Casey Foundation

The root cause is access, not motivation. Affluent families have sharply increased spending on learning toys, technology, and enrichment, while families with fewer resources cannot keep pace (Waldfogel). Researchers have also documented large differences in early language exposure by family income (Hart & Risley, 2003).

In Rowan County in 2019, just 17% of kindergartners met the DIAL-4 readiness benchmark. That is the starting point many ApSeed communities share.

The ApSeed Model: Simple, Safe, and Built for Home

ApSeed removes the access barrier with three connected pieces, delivered free to families through the places they already visit.



ApSeed Touchpad

100+ games teaching letters, numbers, shapes, colors. No Wi-Fi, camera, or browser.



Kindergarten Readiness Guide

A plain-language checklist any caregiver can use.



Text to Teach

Weekly coaching texts with short videos and activities.

Component	What it does	Why it matters
ApSeed Touchpad	100+ pre-loaded games teaching letters, numbers, shapes, and colors; no Wi-Fi, camera, or browser	Works in homes without internet; safe for a 3-year-old to use; answers caregivers' screen-content worries
Kindergarten Readiness Guide	Plain-language checklist of the skills a child needs before kindergarten	Any caregiver, including grandparents and foster families, knows exactly what to practice
Text to Teach	Weekly coaching texts with short videos and activities	Keeps caregivers engaged as co-teachers, regardless of their own literacy level

The hub-and-spoke distribution model is what makes ApSeed scalable. ApSeed distributes through organizations, not individuals, so one partner such as a WIC clinic can reach hundreds of families. In Rowan County, 40 partner agencies distribute touchpads, and 89% of families registered for Text to Teach.

ApSeed has partnered with communities since 2016 and today serves more than 40,000 children in 22 states, from California to New York, and internationally in Liberia and Zimbabwe.

THE EVIDENCE BASE

What the Research Says: Why This Model Works

Each part of the ApSeed model maps to a well-documented finding in early childhood research.

1. The years before kindergarten carry the highest return (Heckman)

Nobel laureate James Heckman's research shows that the earlier we invest in children facing barriers to learning, the greater the payoff. In his words, "the highest rate of return in early childhood development comes from investing as early as possible, from birth through age five," and "starting at age three or four is too little too late" (Heckman Equation). Two landmark studies anchor that conclusion:

- **Perry Preschool (ages 3–4):** a social rate of return of 7–10% per year, above historical stock-market returns (Heckman et al., 2010).
- **Abecedarian/CARE (birth to five):** a 13.7% annual return and $7.30 in benefits for every $1 invested, from higher lifetime earnings, parents' added income, less crime, and better adult health (García, Heckman et al., 2017).

No single outcome drives those returns; the benefits build across a whole lifetime. Waldfogel's review likewise names evidence-based parenting programs as one of the two strongest levers for young children in families with fewer resources.

2. Children who start behind spend years catching up

Wayne Foster and Merideth Miller followed 12,261 children in the national Early Childhood Longitudinal Study from kindergarten through third grade (Foster & Miller, 2007). Children with average or high literacy readiness mastered phonics by the end of first grade. Children who entered with low readiness needed until third grade to catch up, and by then a second, "very significant" reading comprehension gap had opened.

> **The takeaway for funders:** readiness on the first day of kindergarten sets a child's reading path for years, so the most efficient place to close the gap is before school begins.

3. Short, weekly parent texts change behavior and raise scores

In two randomized controlled trials with 1,031 San Francisco preschool families, the READY4K! texting program (now Tips by Text) sent three short texts a week (York, Loeb & Doss). Parents who received texts engaged in more home literacy activities than the control group, asked teachers more questions about their child's school experience, and saw learning gains for their children on the district's early literacy assessment. Children who started below the median benefited most, suggesting the program narrowed achievement gaps. Text to Teach applies the same design: ApSeed sent more than 338,000 Text to Teach coaching messages to families in 2025.

4. Family involvement and the home learning environment drive readiness

A study of 204 preschool teachers found that family involvement and the learning environment are significant determinants of school readiness (Pekdoğan & Akgül, 2017). ApSeed puts learning materials and coaching where children spend most of their time: at home.

5. Caregivers want safe, pre-vetted technology

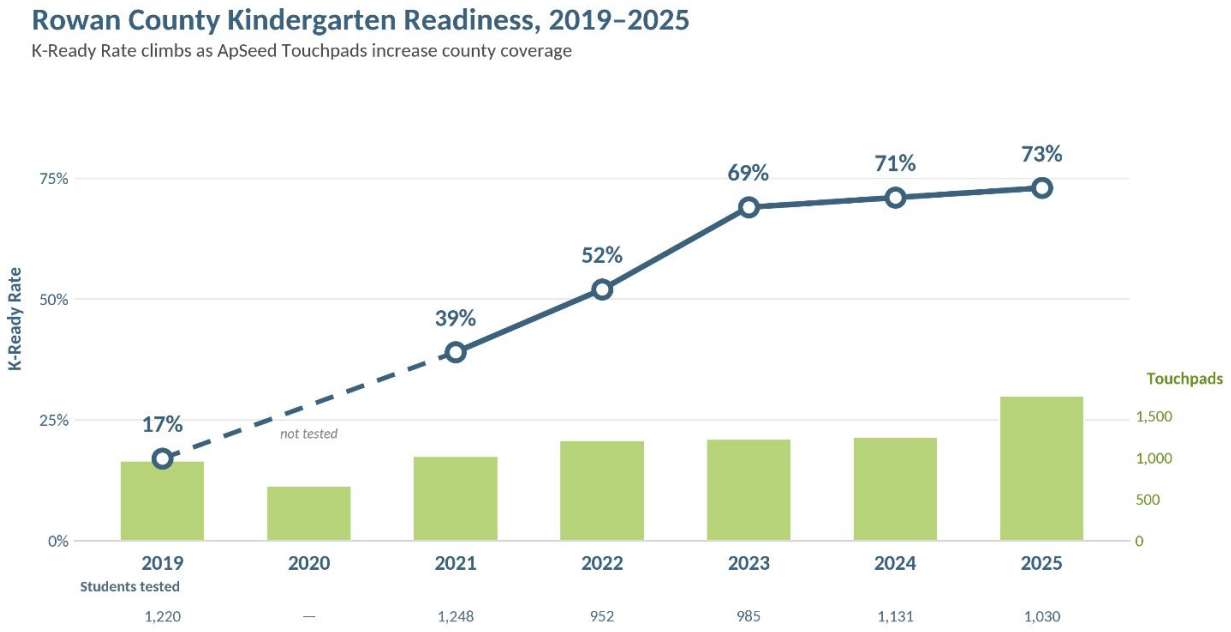
In the Appalachian State study, every interviewed family said they preferred their child use the ApSeed touchpad over other home devices, citing no time to vet apps or set parental controls. A no-internet, no-camera device removes that barrier.

APSEED RESULTS

What the Data Show

Three distinct data sources point the same direction: children who use ApSeed at home gain the foundational skills kindergarten requires.

Rowan County: Five Years of District Data



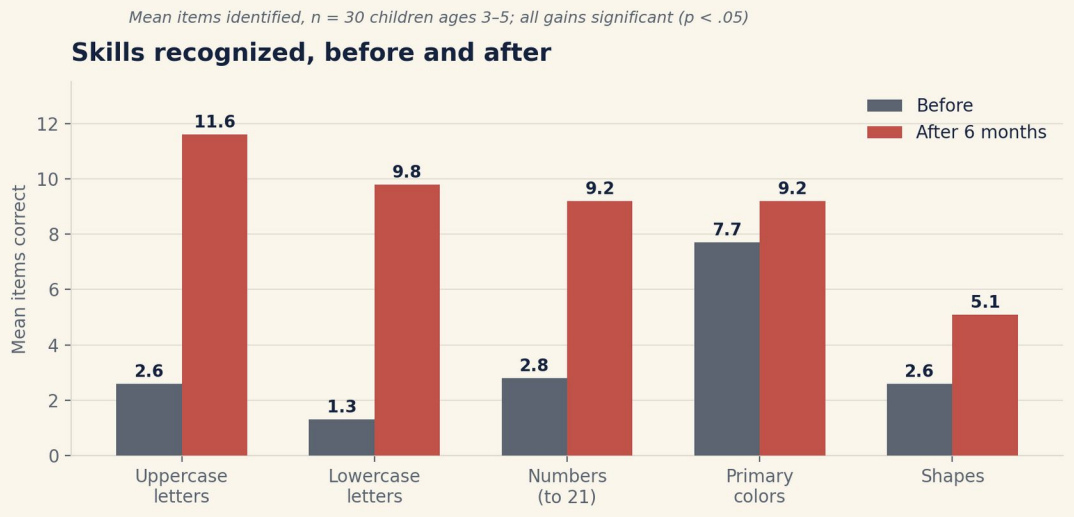
Source: Rowan-Salisbury School District. DIAL-4 screener administered each fall; no screening in 2020 (COVID-19). District-wide results, not adjusted for other district initiatives or demographic change.

Rowan County kindergarten readiness rose from 17% to 73% between 2019 and 2025 as ApSeed saturated the county with 8,360 touchpads through 40 partner agencies and more than 20,000 text messages sent to families. The DIAL-4 is administered and scored by Rowan-Salisbury Schools, not ApSeed.

> *"ApSeed is a game changer for preschoolers. We see a dramatic improvement when our students have been using ApSeed at home."*
>
> **— Dr. Kelly Withers, Superintendent, Rowan-Salisbury Schools**

Pediatric Clinic Study: Significant Gains in Six Months

At a rural pediatric Federally Qualified Health Center in North Carolina, 30 randomly selected children ages 3–5 used the touchpad for six months. Uppercase letter recognition rose from 2.6 to 11.6 letters, and every measured skill improved significantly (Bryan et al.).



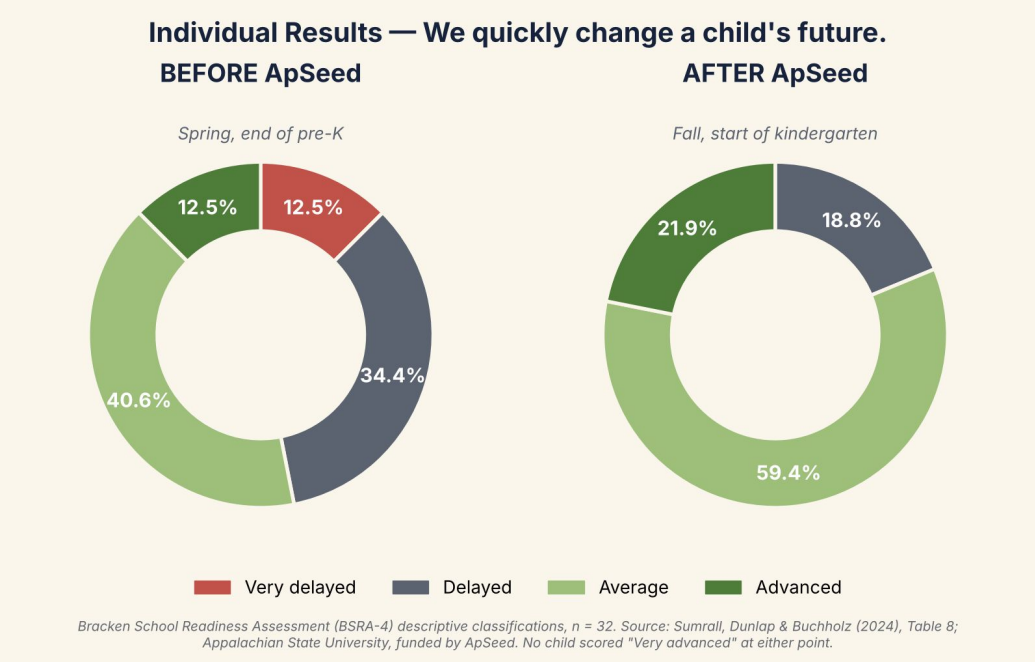
The sample reflected the families ApSeed serves: 43% Hispanic, 30% Black, and 27% White. Caregivers unanimously called the touchpad a valuable addition to their child's learning.

APSEED RESULTS, CONTINUED

A University Pilot, and Results Across Partner Districts

Appalachian State University Pilot

Thirty-two children who took the touchpad and a Readiness Kit home over the summer before kindergarten raised their Bracken School Readiness Assessment scores by 26.5%. The national norm sample would predict about 11.4% growth over the same period. Every child improved, and no child remained "very delayed": the share scoring Average or Advanced rose from 53% to 81%, and the share Delayed or Very Delayed fell from 47% to 19%.



Partner Districts

- **Fairfield County, SC:** average 45-point improvement on DIAL-4 evaluations among ApSeed households.
- **Union County, NC:** touchpad users had an on-track success rate 20% higher than non-users.
- **Ashe County, NC:** children classified as significantly delayed fell from 12.5% to 0% after six months.

> **Families agree:** in ApSeed's survey, 100% said the touchpad helped their child learn, and 100% would recommend it to other families.

RETURN ON INVESTMENT

A High-Leverage Gift

At $230 per child, one time and all-in, ApSeed delivers birth-to-five learning support for about 1% of what the most-studied intensive program costs in a single year. That gift covers the touchpad, the Kindergarten Readiness Guide, and a year of Text to Teach coaching.

What an Early Dollar Returns

Heckman's research gives funders a benchmark for the value of reaching children before kindergarten.

Study	Ages served	Annual return	Where the return comes from
Abecedarian/CARE (García, Heckman et al., 2017)	Birth to 5	13.7% per year; $7.30 per $1	Higher lifetime earnings, parents' added income, less crime, better adult health
Perry Preschool (Heckman et al., 2010)	3 to 4	7–10% per year	Education, employment, and reduced crime

The ABC/CARE program costs $18,514 per child per year (2014 dollars). ApSeed is a lighter-touch, home-based model and has not yet measured its own lifetime return. Its promise lies in reaching the same birth-to-five window, and the same families, at a small fraction of the cost.

Where the Savings Show Up

- **In kindergarten through third grade:** children who enter with low readiness need until third grade just to catch up in phonics, then face a new comprehension gap (Foster & Miller, 2007). Every child who arrives ready means fewer years of intervention, less grade retention, and more teacher time for the whole class.
- **At graduation:** children who are not reading proficiently by third grade are four times as likely to miss on-time graduation (Annie E. Casey Foundation). A high school graduate earns about $10,000 more per year than a non-graduate, according to NC State Board of Education figures.
- **Across a lifetime:** Heckman's work finds benefits in earnings, health, and public safety, with no single outcome driving the return.

In Rowan County, readiness rose from 17 to 73 of every 100 kindergartners. That is 56 more children in every hundred beginning school on track.

What Your Gift Does

Gift	Children reached	What it looks like
$230	1	One child and family equipped for kindergarten
$2,300	10	A Head Start classroom's families
$23,000	100	A WIC clinic or pediatric practice partner for a year
$230,000	1,000	County-wide reach — the scale Rowan County reached in 2019

> *ApSeed's efficiency comes from its design. The hub-and-spoke model uses existing partners instead of new staff or buildings, and no-Wi-Fi devices need no family internet plan.*

THE PATH FORWARD

Scaling What Works

ApSeed's next chapter is to bring the Rowan County saturation model to more communities, and to build the rigorous evidence that institutional funders expect.

ApSeed is expanding in North Carolina, South Carolina, and Ohio, including a new Columbus launch. In 2026, Rowan County became the first pilot site for a kindergarten extension, placing touchpads with 1,500 rising and current kindergartners.

How Can You Help

Audience	How to help
Donors and foundations	Sponsor children at $230 each, or fund a county-wide rollout
Research and evaluation funders	Underwrite the matched-comparison study and third-grade follow-up
Community partners	Become a distribution hub: Head Start, WIC, Title I, pediatric clinics, libraries, faith communities
School districts	Share kindergarten-entry data so outcomes can be tracked by cohort



ApSeed founder Greg Alcorn

A Founder's Urgency

"The window to impact a child's life is small."

— Greg Alcorn, on why ApSeed moves as fast as it does.

To invest or partner, contact **Dr. Julie Morrow**, Executive Director, at julie.morrow@apseed.org, call (980) 643-0451, or visit apseed.org.

Children First!

Bring ApSeed to your community — support@apseed.org · (980) 643-0451 · apseed.org

REFERENCES

Sources

ApSeed research and program data

Sumrall, T., Dunlap, R., & Buchholz, B. (2024). “Seedling” Touchpads and Children’s School Readiness: Technical Report. Appalachian State University. Funded by ApSeed.

Bryan, S. H., Ollis, M., & Fallas, C. Enhancing Kindergarten Readiness in Socioeconomically Disadvantaged Children Through ApSeed Tablet Implementation. Kintegra Pediatric Medicine and Lenoir-Rhyne University.

Rowan-Salisbury Schools DIAL-4 kindergarten readiness data, 2019–2025; ApSeed, “Dial4 Results Compared with Touchpad Distributions” (internal, updated Sept. 10, 2026).

ApSeed Rowan County Impact Report, November 2025 (internal); SC Innovation Grant 2024–2025 Results Report (Fairfield and Union County data).

ApSeed, How a $230 Touchpad Helped Deliver a 325% Leap in Kindergarten Readiness (2026) and Executive Summary white paper (2020).

ApSeed.org, About, and Impact pages.

ApSeed, How a $230 Touchpad Helped Deliver a 325% Leap in Kindergarten Readiness: Rowan County One Pager (2026).

ApSeed, The Results Are In! ApSeed’s Impact: Celebrating 10 Years (Impact Report, 2026). Source of all report images.

External research

Ferdman, R. A. (2015, Dec. 17). Only in America: Four years into life, poor kids are already an entire year behind. *The Washington Post* (interview with Jane Waldfogel).

York, B., Loeb, S., & Doss, C. One Step at a Time: The Effects of an Early Literacy Text Messaging Program for Parents of Preschoolers. Tips by Text paper in brief.

Hernandez, D. J. (2011). Double Jeopardy: How Third-Grade Reading Skills and Poverty Influence High School Graduation. Annie E. Casey Foundation.

Heckman, J. J. 13% ROI Research Toolkit. The Heckman Equation.

Pekdoğan, S., & Akgül, E. (2017). Preschool Children’s School Readiness. *International Education Studies*, 10(1), 144–154.

Hart, B., & Risley, T. R. (2003). The Early Catastrophe: The 30 Million Word Gap by Age 3. *American Educator*.

García, J. L., Heckman, J. J., Leaf, D. E., & Prados, M. J. (2017). Quantifying the Life-cycle Benefits of a Prototypical Early Childhood Program. NBER Working Paper 23479.

Heckman, J. J., Moon, S. H., Pinto, R., Savelyev, P. A., & Yavitz, A. (2010). The Rate of Return to the HighScope Perry Preschool Program. *Journal of Public Economics*, 94(1–2), 114–128.

The Heckman Equation. Invest in Early Childhood Development: Reduce Deficits, Strengthen the Economy.

Foster, W. A., & Miller, M. (2007). Development of the Literacy Achievement Gap: A Longitudinal Study of Kindergarten Through Third Grade. *Language, Speech, and Hearing Services in Schools*, 38(3), 173–181.