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RESULTS FROM 2 YEARS OF ACTIVE PLAYFUL LEARNING IN PRIMARY SCHOOLS

TEACHING IN THE WAY HUMAN BRAINS LEARN PART 2

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OVERVIEW

Active Playful Learning (APL) is a pedagogical framework co-developed by scientists and educators to help teachers create learning experiences that are more active, meaningful, socially interactive, and joyful. The APL Project examines whether kindergarten through fourth grade teachers could implement APL practices when provided professional learning opportunities, and whether those practices were associated with changes in educators' experiences of teaching and student development of academic and 21st century skills. The project provides two professional learning pathways: a self-paced pathway that includes APL workshops and a coached pathway that includes the same workshops plus regular classroom-embedded coaching. The project is being implemented in school districts in Virginia, Illinois, Texas, and California. This working paper reports findings from the first two years of implementation during the 2024-2025 and 2025-2026 school years.

REVISITING THE WIDER EDUCATIONAL CONTEXT

Around the world, education systems are being asked to do more than raise achievement scores. Since the 1990 World Conference on Education for All in Jomtien, Thailand, global education frameworks have moved from a primary focus on access and basic learning to school completion, inclusive and equitable education, and more recently to broader goals related to agency, well-being, meaning, and human flourishing (e.g., Qargha et al. 2026, 10-12, 18-20; Ho and Dimmock 2023, 6-7; Lee et al. 2023, 386; Luther and Olateju, 2026; UNESCO 2024, 12). This broader framing shifts how education systems define success and raises a practical question: How can education systems create the kinds of learning opportunities and teaching conditions nee ded to realize these ambitions?

In the United States, standards-based reform emerged from a similarly important aspiration. In the wake of No Child Left Behind (NCLB; No Child Left Behind Act of 2001), policymakers and educators sought to clarify what children in public schools across the country should know and be able to do and to hold schools accountable for making progress towards those goals (No Child Left Behind Act of 2001, §§ 1111(b), 1116). The commitment to equity and excellence for all students remains vital. Yet the accountability-centered strategy that came to dominate the post-NCLB reform era did not produce the gains many had hoped for (Dee and Jacob 2011, 430, 433; Ladd 2017, 462-463) and made the day-to-day experience of teaching and learning more pressured and less engaging for teachers and students (Markowitz 2018, 742, 744; Reback et al. 2014, 225; Smith and Kovacs 2011, 210). Research has documented that high-stakes accountability reduced teacher autonomy, tightened control over instruction, and narrowed curriculum toward what was tested (e.g., Au 2007, 258–259; Berliner 2011, 289-290; Berliner 2009, 285-286; Valli and Buese 2007, 520–522, 532–536; Jennings and Rentner 2006, 110–113). In many classrooms, this contributed to more passive, teacher-directed instruction and fewer opportunities for students to discuss, contribute ideas, or connect learning to their own experiences (e.g., Christopher and Nesbitt 2023, 6; Justice et al. 2022, 1245).

Persistently high rates of chronic absenteeism also signal that school is not working well for many children in the U.S., where absenteeism remains far above pre-pandemic levels (Kaufman et al. 2026, 1; Chang et al. 2025). While absenteeism is shaped by many factors, research suggests that both children's daily experiences in classrooms and families' connections to school influence whether children attend school consistently and remain engaged in learning throughout the school year (e.g., Epstein and Sheldon 2002; Hidajat et al. 2026; Winthrop et al., 2025, 1–2; National Center for Education Statistics 2026).

The pressures of the accountability era have also taken a toll on educators. The demands teachers face limit their professional autonomy and instructional discretion (e.g., Valli and Buese, 2007, 519–522; Santoro 2018), contributing to burnout and attrition (e.g., Carver-Thomas and Darling-Hammond, 2017, 19–20). RAND's 2026 State of the American Teacher findings indicate that teachers continue to report poorer well-being than comparable educated working adults, a pattern that has persisted since RAND began tracking teachers' professional well-being in 2021 (Steiner, Levine, and Doan 2026, 1-2). Teachers in the nationally representative sample identified managing student behavior as their top source of job-related

stress, and only one in four said that they planned to remain in the profession long-term (Steiner, Levine, and Doan 2026, 4). Although many factors influence student behavior, it is also shaped by students' daily learning experiences—particularly the extent to which classrooms provide meaningful, accessible, and socially connected opportunities to participate, contribute, and exercise agency (Nesbitt et al. 2023, 143–145; Hofkens and Pianta, 2022, 431-449). Educational improvement may therefore depend, in part, on a pedagogical approach that recognizes that agency and engagement are foundational to effective teaching and learning (Hofkens and Pianta 2022, 431–449; Winthrop, Shoukry, and Nitkin 2025, 1–3, Nesbitt et al. 2023, 143–146).

A pedagogical approach could advance these goals even within the structure and constraints of current education systems. The Brookings Institution's Center for Universal Education argues that education systems must attend not only to foundational academic skills, but to a breadth of skills, agency, and the larger purpose of education (Winthrop and McGivney 2016, 13; Sengeh and Winthrop 2022; Hirsh-Pasek et al. 2022, 14-15). Recent Brookings work on human flourishing suggests that school systems have not adapted quickly enough to support the growing demands placed on educators. For example, research examining efforts by countries to make education more student-centered, competency-based, and interdisciplinary found that teachers were often not resistant to change, but instead felt constrained by the broader structure and demands of the education system, including compliance-oriented professional development, assessment routines, and career structures that leave little room for reflective, relational teaching (Qargha et al. 2026). Education systems need to evolve to better support these forms of instruction. At the same time, educators need practical ways to improve learning opportunities while structural change unfolds. The challenge, then, is not only to define what students should learn and how teachers can support them, but to offer a strategy for enacting these goals within the school systems in which they currently operate—one that can both inform broader change while beginning to improve systems from within.

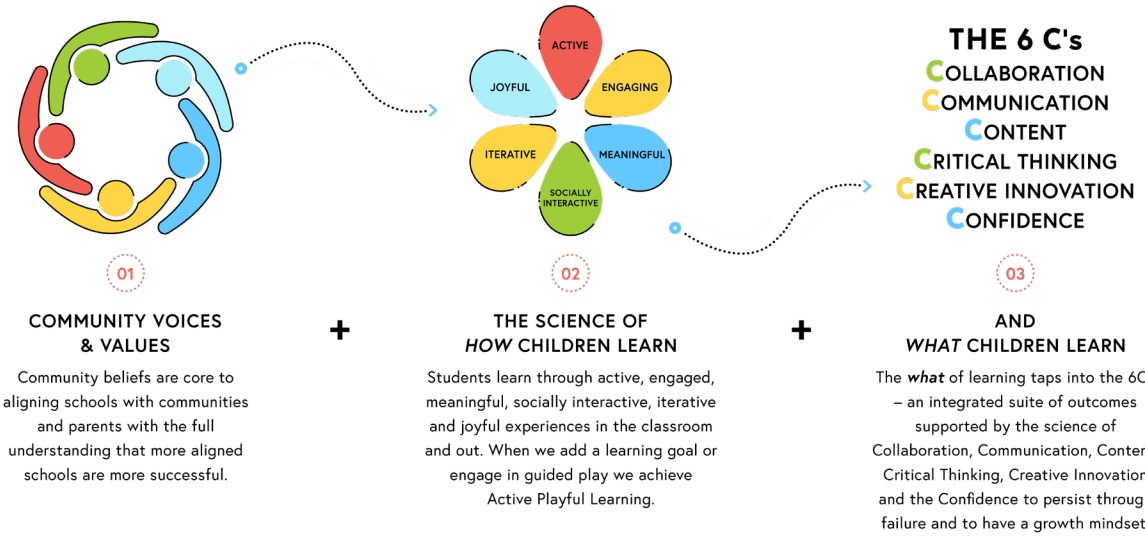
THE ACTIVE PLAYFUL LEARNING (APL) FRAMEWORK

Scientists and educators collaborated to develop APL to help teachers create classroom experiences that are aligned with how humans learn. The goal was to promote an evidence-based, practical, and adaptable pedagogy that could be used in real classrooms to make teaching and learning more engaging and joyful. Scientists contributed theory and evidence about learning and human development; educators, coaches, and school leaders contributed expertise about what is feasible in classrooms, how APL can enhance curriculum and support learning goals, and how pedagogical change can occur within the structure and demands of real schools.

The resulting framework outlines how teachers can structure classroom learning to support both academic goals and the broader set of skills increasingly recognized as important in a changing labor market and a rapidly evolving world—known as "21st century skills." (Winthrop and McGivney 2016, 13). In our first Brookings paper (Nesbitt et al. 2025) and in "Making Schools Work: Bringing the Science of Learning to Joyful Classroom Practice" (Hirsh-Pasek et al. 2022), we described the APL framework as a three-part equation that starts with the foundational view that learning is more powerful when it is connected to the interests and lived experiences that all students bring into the classroom from their homes and communities (Figure 1). It also draws from a substantial body of research in the science of learning that indicates that children learn best when learning is active, meaningful, socially interactive, engaging, iterative, and joyful (Hirsh-Pasek et al. 2020, 12-14; Zosh et al. 2018, 8). Finally, the framework highlights that these conditions support the development of a breadth of skills defined as the "6Cs:" collaboration, communication, content, critical thinking, creative innovation, and confidence (Golinkoff and Hirsh-Pasek 2016).

FIGURE 1

The three-part equation for Active Playful Learning (APL 2023)



APL focuses on pedagogy because changing instruction is one of the most direct ways to impact learning and development. Instruction influences how children experience and engage in learning, and that engagement emerges in the context of opportunities that invite them to participate, contribute, think, and make meaning (Hofkens and Pianta, 2022, 431-449; Hofkens and Ruzek, 2023; Winthrop et al., 2025, 1-2). These opportunities are structured and supported by what teachers ask children to do and how they ask them to do it.

Since the team intentionally designed APL as a flexible instructional framework, teachers can use it with any curriculum and across content areas. Critically, it avoids conflicting with existing curricular objectives or mandates. This enables APL to be woven into the fabric of what schools are already doing; school leaders and teachers can adapt APL to their students and instructional goals.

To make the framework actionable and impactful, the APL team collaborated with educators to identify and describe six research-based teaching practices that support the elements and goals of the framework:

1. **Using small groups and pairs of students**

2. **Creating opportunities for students to discuss ideas with peers and teachers**

3. **Actively engaging learners in thinking, reasoning, problem-solving, and making meaning**

4. **Providing students agency to select the focus of their learning or decide how they approach a learning goal**

5. **Connecting instruction to experiences in and out of school**

6. **Infusing enthusiasm and positivity into learning experiences**

Teachers can use these practices to create opportunities that provide multiple entry points to deeper, generalizable learning, enabling students with different strengths, backgrounds, and levels of understanding to engage meaningfully and exercise agency.

THE APL PROJECT AND PROFESSIONAL DEVELOPMENT PATHWAYS

The APL Project asks whether kindergarten through fourth grade teachers can implement APL practices when provided professional learning opportunities and how these practices influence children's content mastery, alongside the other 6C skills (Golinkoff and Hirsh-Pasek 2016). The project also aims to understand how professional learning structures like coaching can support the development of APL teaching practices. Learning about an instructional approach is one thing; implementing that approach consistently and well is another. Instructional approaches are shaped by beliefs about teaching and learning, established routines, contextual constrains, curriculum demands, and accountability pressures (Guskey, 2002). Changing teaching practice typically requires ongoing coaching, opportunities for reflection, and repeated cycles of implementation and feedback (Kraft et al. 2018).

Importantly, the APL team approached implementation as an evolving process. The goal was not simply to determine whether teachers could use APL, but to understand what kinds of training, supports, and structures made implementation stronger and more consistent and feasible at scale and what types of measures would effectively capture APL coaching, teaching, and student outcomes. Developing a practical and flexible approach that can be integrated into existing school structures requires cycles of iteration and refinement. Thus, after each full year of implementation, the APL team examined data about implementation within and across the sites located in different geographical regions to identify successes, challenges, elements of the framework that could be clarified, aspects of coaching that could be improved, and additional data that would be helpful to collect.

Finally, while APL is content agnostic, for this project the research team prioritized integrating APL into mathematics instruction. Focusing on a specific content area in a multi-site study enhances the ability of the project to study the impact of APL on learning. The partnering districts in all sites were receptive to doing APL in math, and the team instructed teachers and schools that they could extend APL practices and professional development into other content areas at their discretion, resulting in a "Math+" approach across sites.

APL professional learning pathways for teachers

Across partner sites in Virginia, Illinois, Texas, and California, APL professional learning was organized in two layered pathways: self-paced and coached. In the self-paced pathway, teachers participated in workshops that provided foundational information about APL and had access to APL materials and resources. In the coached pathway, teachers participated in APL workshops, had access to APL materials, and re-

ceived regular (bi-weekly) classroom-embedded coaching focused on the APL framework throughout the school year.

Using two professional learning pathways served several purposes. First, it provides some professional development for all participating educators. Second, it makes it possible to examine the extent to which teachers develop APL teaching practice on their own. Finally, it enables the team to assess the added value of coaching in helping teachers enact APL more fully in their classrooms. However, the design sets a high bar for detecting differences between groups that received workshops: If self-paced teachers can implement APL without coaching, coached teachers would need to show meaningfully stronger gains for differences to emerge as statistically significant.

At the beginning of each school year, each site offered APL workshops to all participating teachers (self-paced and coached). The workshops introduced teachers to the core logic of APL as defined by the three-part equation (Figure 1). Teachers in the coached pathway subsequently worked with APL coaches in a process that emphasized partnership, goal-directed improvement, job-embedded support, ongoing feedback, and reflective practice. Coaching began with an initial classroom visit and reflection session to help the teacher identify an APL practice on which to focus based on classroom data, observation, student needs and priorities, and teacher self-reflection. Together, the teacher and coach developed a SMART goal—a goal that is 1) Specific to a focal APL practice, 2) Measurable through observable instructional behaviors, 3) Achievable within the coaching cycle, 4) Relevant to student learning and engagement, and 5) Time-bound with clear benchmarks for progress (Doran 1981). The team designed SMART goals to focus teachers' attention and efforts on a concrete instructional practice while supporting teachers' ability to integrate the broader APL framework into their instruction.

Following goal development, the APL coach visited each teacher's classroom every other week for roughly one hour to support the teacher's work toward their SMART goal specifically and APL more generally. Each classroom visit was paired with a 30-minute debrief session between the coach and the teacher to deepen support and reflection. APL coaches offered a wide range of possible supports during classroom visits and debriefs depending on the teacher's goal, the teacher's needs and preferences, and the classroom context. Coaches assumed the role of "thought partners" for teachers, often suggesting strategies, activities, and/or resources that would support the teacher's SMART goal during debrief sessions or via other communication channels, and then supporting teachers to try these suggestions during classroom visits—through co-teaching, modeling, or offering student or teacher support during lessons. Coaches also provided a valuable, non-evaluative extra pair of eyes and ears during classroom visits, allowing the coach to provide the teacher with feedback and insights on implementation strategies and student engagement that are difficult to gather while teaching and attending to all students. Debriefs often centered coach observations on successes, challenges, and barriers teachers were experiencing with their SMART goal, and on brainstorming or sharing ideas and resources to help teachers continue to progress toward their goal. After each classroom visit and debrief, coaches completed a log describing the teacher's progress toward their SMART goal as evidenced during that visit, as well as indicating what coaching activities and strategies were used during the visit and debrief.

After several visits and debriefs focused on a particular SMART goal, teachers and coaches decided together whether to set a new SMART goal. New goals could either focus on a different APL teaching practice or could involve working toward the same practice in a new way or in a different subject area.

APL implementation in schools

Each study year, instructional coaches received training, including booster trainings for returning coaches. Sites recruited teachers into either the self-paced or coached condition throughout summer and early fall. The school year began with foundational APL workshops and initial coaching visits, as well as baseline teacher self-report surveys, teacher-student questionnaires, and fall classroom observations. Teachers in the coached pathway then participated in coaching during the school year, ideally starting within six weeks of the start of school and continuing through the period of regular instruction, typically ending before state testing for upper elementary grades in the spring. Towards the end of the school year, teachers again completed teacher self-report surveys, teacher-student questionnaires, and a spring classroom observation. Throughout the school year, APL coaches documented their work with teachers by completing logs that described their coaching activities and teachers' progress on APL practices.

The following sections describe the APL Project implementation and research during the 2024-2025 and 2025-2026 school years—the first two (of three) project years. Specifically, this report draws on evidence from teachers, coaches, and independent observers about teacher participation, teachers' experiences, change in teaching practice, student experiences, and growth in student outcomes. Together, this information provides a promising view of the potential of APL to change teaching and learning over time.

APL RESEARCH

Research design. After the pilot year (2023-2024), the research team shifted the study from a randomized controlled trial to a quasi-experimental design intended to support cautious causal inference. Shifting the design enabled the team to partner with districts who refused to allow random assignments, often because they wanted all teachers to benefit from APL. We addressed the following questions about the project in its first two years of implementation:

1. **What did participation in APL look like, including teachers' participation in workshops and coaching?**

2. **How did teachers perceive APL and, for coached teachers, the coaching process itself?**

3. **Did teachers in the coached pathway show greater changes in teaching practices than teachers in the self-paced pathway?**

4. **Did students in coached classrooms show stronger gains in academic and 6C-related outcomes than students in self-paced classrooms?**

5. **Was change in APL teaching practice related to change in student outcomes?**

The sections that follow describe how the study was implemented, how these questions were examined, and what was learned across two years of implementation.

Instructional coaches. A team of instructional coaches provided coaching to teachers (three in Texas, six in Illinois, eight in California, and three in Virginia). All coaches on the APL team during these academic years had prior experience with instructional coaching and were experienced elementary school teachers.

Study sites. The APL research team collaborated with school district administrators across the participating states to recruit elementary schools. The 2024-25 cohort consisted of 45 schools (10 in Texas, 15 in Illinois, 16 in California, and four in Virginia). APL expanded in 2025-26 to 65 schools (19 in Texas, 17 in Illinois, 26 in California, and three in Virginia). Using federal data, Table 1 describes the 2024-25 participating schools' organizational characteristics, student demographics, student achievement, and teachers by site. The federal data for 2025-26 are not yet available. In 2025-26, schools included 47 public schools, five parochial schools, and 14 charter schools.

TABLE 1

School, student, and teacher background information of participating sites, 2024-25

Type of school				School characteristics						
Site	Public schools (N)	Paro-chial schools (N)	Charter schools (N)	Total students (N)	% ELA profi-cient (Mean)	% Math profi-cient (Mean)	% Mul-tilingual learners (Mean)	% Free/ reduced price lunch (Mean)	% Chronic absent (Mean)	Number of FTE teachers
TX	6	0	4	580.9	44%	33%	22%	87%	18%	35.3
IL	8	7	0	621.3	46%	44%	36%	59%	29%	47.9
CA	15	0	1	464.6	26%	20%	50%	92%	16%	22.6
VA	4	0	0	734.5	82%	86%	19%	17%	12%	58.6

Data collection. To understand implementation and outcomes, the study drew on multiple types of information collected from teachers, coaches, and trained independent classroom observers. Twice per year, teachers completed self-report surveys describing their backgrounds, instructional beliefs, classroom practices, and views about APL. Teachers also completed questionnaires rating the skills of a randomly selected group of students in their classroom at the start and end of the implementation of APL in their school. These ratings included academic skills, approaches to learning, interpersonal difficulties, and a set of APL-related outcomes focused on the 6Cs. At the end of the year, teachers also reported the extent to which APL supported their practice and their students.

Coaches reported on teachers' use of APL and students' display of 6C-related behaviors. Coaches also reported on the SMART goals selected at the start of each coaching cycle and provided information from each classroom coaching visit and debrief. In both years, coaches rated teachers' progress toward the APL teaching practice that was the focus of their SMART goal after each classroom visit.

In years one and two, independent trained observers used a modified and improved Episodic Classroom Observation System (ECOS; Farran, et al. 2024) to capture classroom-level rates of implementation of APL practices. Observations lasted approximately three hours and were conducted during scheduled instructional time in participating teachers' classrooms, with the goal of capturing instruction across multiple subject areas. Observers completed 13 hours of virtual training on the use of the ECOS measure and were required to achieve at least 80% agreement with a master ECOS rater before conducting observations. Across the 17 reliability visits completed in each study year, initial reliability estimates ranged from 82.90% to 98.10% agreement in year one (Y1) (mean = 88.22%, SD = 4.06%) and from 82.90% to 98.10% agreement in year two (Y2) (mean = 88.22%, SD = 4.06%). All coached and a random selection of half of self-paced classrooms were observed twice a year, at the beginning of the school year (and before or at the time initial coaching visits started) and at the end of the school year.

Teacher sample. Over the first two years, 184 teachers participated in the self-paced pathway and 258 participated in the coached pathway (Y1: 58 self-paced, 125 coached; Y2: 126 self-paced, 133 coached). Most teachers had many years of teaching experience (Y1 average: 13.7 years for self-paced, 14.3 years for coached; Y2 average: 14.3 for self-paced, 12.9 for coached) and most were credentialed with a license

to teach elementary grades. Approximately one-third to two-thirds were white (Y1: 72% self-paced, 65% coached; Y2: 36% for self-paced, 42% for coached) and almost all the teachers were female (Y1: 97% self-paced, 97% coached; Y2: 93% self-paced, 93% coached). The only significant differences between the APL groups in teacher characteristics was in years of education in Year 1 (76% of the self-paced teachers had a master's degree and 56% of the coached teachers had a master's degree).

Student sample. After receiving parental consent, the research team randomly selected five to eight students per classroom for teacher ratings, resulting in teachers reporting on a total of 1,286 students in year one and 1,102 students in year two. Y1 included teacher reports for 354 self-paced and 968 coached students, and Y2 included teacher reports for 544 self-paced and 583 coached students. Slightly less than half the students were Latinx (Y1: 33% self-paced, 59% coached; Y2: 48% self-paced, 44% coached). Students varied in terms of race (Y1: Asian 29% self-paced, 13% coached; Black 8% self-paced, 16% coached; white 23% self-paced, 15% coached; Y2: Asian 17% self-paced, 17% coached; Black 16% self-paced, 16% coached; white 27% self-paced, 26 coached). On average, over half the students in the recruited classrooms qualified for free or reduced-price lunch in Y2 (Mean (M)=55% self-paced, M=53% coached), whereas on average fewer qualitied in Y1 (M=24% for self-paced, 41% for coached).

The research team used a cluster randomized approach to ensure that the classroom sample included both children whose home language was and was not English and children whose race was and was not white. A random selection of students was oversampled for race and home language to ensure diversity among the student sample.

Analysis of child demographics showed no significant differences between the self-paced and coached conditions.

Refinements from year one to year two. After each project year, the APL team carefully examined research data to identify elements of APL implementation and evaluation that could be improved. Notably, the team focused these refinements on implementation processes and did not alter the core components of APL or its theory of change. For example, in response to Y1 data, in Y2, the project team developed a coach certification protocol in which coaches demonstrated proficiency to support APL practices through responses to coaching vignettes and achieved calibration (i.e., 80% agreement with the consensus ratings of master coaches) on their most frequently used measure of APL teaching practices. The team also revised the SMART goal protocol and coaching strategies to better support teachers in integrating APL practices and to make connections with student outcomes more explicit. These changes helped improve consistency across sites and better capture APL implementation for those in the coached pathway.

Analyses. Descriptive and longitudinal analyses were conducted separately by year because both the intervention and some outcome measures were refined in Y2. All longitudinal analyses accounted for the district, the type of school system (public or private), and grade level. Analyses included classroom, teacher, or child characteristics for which there were significant group differences at baseline. The research team used an econometric approach (called difference-in-differences; Angrist and Pischke, 2008) that compares changes in outcomes over time between teachers and students who participated in coaching to those who participated in the self-paced option. This approach examines whether the coaching group improved more than the self-paced group over the same time period and thereby reduces, though does not eliminate, the selection bias associated with the lack of random assignment by accounting for preexisting differences in each group.

YEAR 1 AND 2 APL RESULTS

Research question one: What did participation in APL look like, including teachers' participation in workshops and coaching?

Participation in APL workshops was strong across both years. Specifically, in Y1, 85% of the self-paced and 90% of the coached teachers attended the first workshop, and 78% of the coached teachers attended the second workshop. In Y2, almost all of the teachers attended at least one of the workshops. Specifically, 98% of the self-paced and 93% of the coached teachers attended the first workshop and 78% of the coached teachers attended the second workshop.

Teachers in the coached pathway generally engaged in coaching throughout the year. In Y1, 99% of teachrs participated in at least one coaching session, with an average of 2.1 SMART goals (SD = 0.7 range = 1-3) across an average of 7.3 coaching sessions (SD = 3.1, range = 1-15). In Y2, 94% of teachers participated in at least one coaching session, with an average of 2.2 SMART goals across an average of 9.0 coaching sessions (SD = 2.5, range = 1-15). In both years, teachers selected SMART goals focused on "Hands-on and Minds-on," "Small and Paired Groups," and "Students' Contributions" most frequently, "Choice and Agency" and "Meaningful Connections" moderately frequently, and "Enthusiasm and Positivity" least frequently.

Samples of teachers' SMART goals from Y2 illustrate how educators sought to implement specific APL teaching practices in alignment with the SMART criteria. For example, a teacher in Illinois worked towards "Hands-on and Minds-On" learning as a strategy to advance critical thinking, confidence, and content mastery:

> *"To create more engaged and joyful learning: Students will think critically, and develop their confidence and content knowledge through the use of hand- on, minds-on strategies in which students are using math manipulatives at least 2 times per week through the end of October."*

Similarly, a teacher in Texas aimed to make "Small and Paired Groups" a more routine part of their learning environment in support of collaboration and communication, along with math content:

> *"To create an engaged classroom environment, I will integrate Math lessons that support small and paired groups, so students can increase collaboration and communication and deepen their academic content at least 3 times per week until January 16, 2026."*

Finally, four teachers in Virginia all worked towards the same goal of increasing the quantity and quality of "Students' Contributions" as a way of building communication and critical thinking skills about math:

> *"Create an engaged and social learning environment: Students will build communication and critical thinking skills by increasing and enhancing their contributions through number sense routines 3 time per week, during January and February 2026."*

Research question two: How did teachers perceive APL and, for coached teachers, the coaching process

itself?

Across both years, all teachers reported that they benefitted from APL. Using a four-point scale, many teachers in both the coaching and self-paced treatment groups selected the highest rating, indicating that they benefited "very significantly" from their participation in the project. In Y1, coached teachers reported higher levels of benefit from participating in the APL study (M = 3.3) than did the self-paced teachers (M = 2.6) but the two groups did not differ on the extent to which APL improved their instruction (M > 3.1 in both groups) or their willingness to recommend APL to a colleague (M > 90% in both groups). In Y2, compared to self-paced teachers, coached teachers reported significantly higher levels of benefit (M = 2.3 self-paced, M = 3.3 coached), reporting higher levels of support for their instructional practices (M = 3.1 self-paced, M = 3.5 coached) and higher levels of willingness to recommend APL to a colleague than self-paced teachers (51% self-paced, 88% coached).

Our data replicated the established trend that, overall, teachers' excitement for teaching declined from fall to spring (e.g., Von der Embse and Mankin 2021, 176-177). In Y2, coaching appeared to buffer the decline among coached teachers who reported more sustained excitement about teaching from fall to spring compared to self-paced teachers (Figure 2). Specifically, on a 10-point scale of excitement regarding teaching, coached teachers reported small reductions from fall (M = 6.6) to spring (M = 6.2), whereas self-paced teachers reported larger reductions from fall (M = 6.8) to spring (M = 5.6).

Research question three: Did coached teachers show greater changes in APL teaching practices than teachers in the self-paced group?

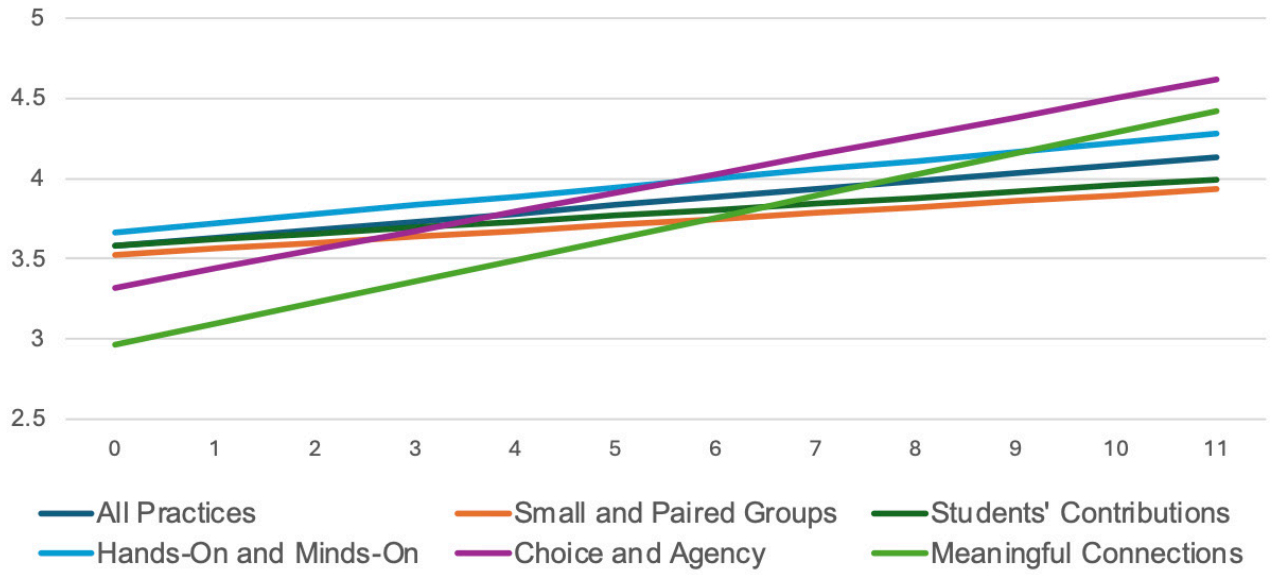
Coach reports

After each classroom visit, coaches rated the progress teachers made on the teaching practice that was the focus of their SMART goal and discussed the SMART goals with teachers during subsequent debriefs. In Y1, coaches reported their teachers made significant progress toward mastery of the focal teaching practices related to each SMART goal, with the largest gains on "Small and Paired Groups," moderate gains on "Choice and Agency," "Hands-on/Minds-on," and "Students' Contributions," and the smallest gains on "Meaningful Connections," as shown in Figure 3. Similarly, in Y2, teachers showed significant gains over time on all practices, with larger gains on "Hands-on/Minds-on" and "Students' Contributions," more moderate gains with "Small and Paired Groups" and "Choice and Agency" and smaller gains with "Meaningful Connections." This is shown in Figures 3 and 4.

In both years, coach ratings of mastery of APL pillars at the beginning, midpoint, and end of the year showed teachers made substantial progress with ratings on the five-point scale, with gains over time of about 0.8 points in Y1 and 1.2 points in Y2.

FIGURE 3

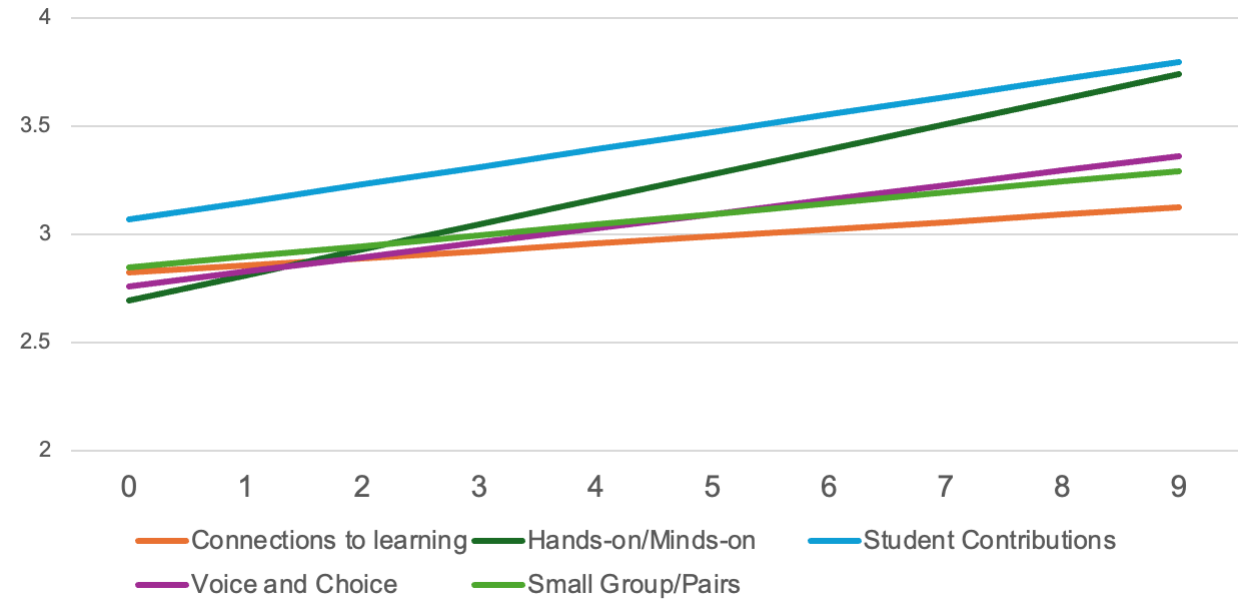
Mastery of APL teaching practices for Y1 coached teachers in 2024-25 over time



NOTE: Mastery is rated on a five-point scale (1 = No evidence or beginning, 2 = Weak or Developing, 3 = Needs work or growing, 4 = Emerging to thriving, 5 = Accomplished thriving with integration).

FIGURE 4

Mastery of APL teaching practices for Y2 coached teachers in 2025-26 over time



NOTE: Mastery is rated on a five-point scale (1 = No evidence or beginning, 2 = Weak or Developing, 3 = Needs work or growing, 4 = Emerging to thriving, 5 = Accomplished thriving with integration).

Teacher reports

Teachers in both groups reported how frequently they implemented APL teaching practices in the online survey they completed in the fall and spring. In both years one and two, coached and self-paced teachers reported significant gains in APL teaching practices including "Small and Paired Groups," "Choice and Agency," "Students' Contributions," "Hands-on/Minds-on," "Meaningful Connections," and "Enthusiasm and Positivity." In Y1, the increase was significantly larger for coached teachers than self-paced teachers in their use of "Small and Paired Groups" (B = 0.55) and providing "Choice and Agency" (B = 0.46). This means that over the school year, coached teachers tended to increase how often students in their classrooms had these learning opportunities (e.g., from rarely to sometimes), whereas the frequency of these practices tended to remain more stable in comparison classrooms. In Y2, coached teachers reported larger gains over time in incorporating student "Choice and Agency" in instruction than self-paced teachers (B = 0.36).

Independent ECOS observations

Independent observers visited classrooms in the fall and spring to rate the use of APL teaching practices during instruction. In Y1, both self-paced and coached teachers showed gains over time in their use of "Choice and Agency" (B = 0.09), "Hands-on/Minds-on" (B = 11) and "Small and Paired Groups" (B = 0.07) in math lessons. These gains did not differ between coached and self-paced teachers. Similarly, math instruction in Y2 increased over time in the use of the following APL teaching practices: "Students' Contributions" (B = 0.06) and "Meaningful Connections" (B = 0.05) and there was a statistically significant increase for the coached teachers for student Choice and Agency (B = 0.10).

Research question four: Did students in coached classrooms show stronger gains in academic and 6C-related outcomes than students in self-paced classrooms?

Teachers in both coached and self-paced classrooms reported that their students gained skills over the years. In both years, students in classrooms with coached teachers showed gains relative to their peers in self-paced classrooms in academic skills (scale ranged from 1 = far below grade level, 3 = at grade level, and 5 = far above grade level), overall gains in task orientation, approaches to learning, and 6 C skills and reduction in interpersonal problems. Approaches to learning refers to a broad set of skills that students use during learning, while "task orientation" refers more specifically to their focus and effort in completing classroom activities. In addition, the Y1 children in coached classrooms showed significantly larger gains over time than children in the self-paced classrooms, with teacher ratings showing significantly greater gains in mathematics (B = 0.10), literacy (B = 0.08), 6C skills (B = 0.16), task orientation (B = 0.21), and approaches to learning skills (B = 0.14). The Y2 coached children showed significantly larger gains than the self-paced children in math (B = .10), and 6Cs (B = 0.13). For one outcome, APL group gains differed across sites: the coached children were rated higher on attention/approaches to learning than self-paced children in two sites (B = 0.19 and B = 0.14).

ANALYSIS AND NEXT STEPS

Across the first two years of implementation, teachers' participation in APL was strong and both coached and self-paced teachers consistently reported benefiting from the approach. Coached teachers, however, consistently reported greater benefit, stronger instructional support, and sustained greater excitement for teaching over the course of the school year. Teachers, coaches, and trained observers all documented growth in APL practices throughout the year, with the greatest gains in "Hands-on/Minds-on," "Small and Paired Groups," "Students' Contributions," and "Choice and Agency." Coached teachers also consistently reported stronger gains in mathematics and the 6Cs.

What the findings suggest

The results speak directly to the challenges facing education systems today. Public education is expected to promote child development, support social mobility and innovation, and prepare children to fully participate in a changing world. At the same time, an increasing number of students are disengaged and teachers are burned out. Public education needs a strategy for pursuing excellence and equity that supports teachers and creates the kinds of learning experiences that build students' skills and their desire to learn.

APL emerged as a response to that need. Co-designed by researchers and educators, APL's pedagogical framework was designed to help teachers provide more active, meaningful, social, iterative, and joyful learning experiences within real classrooms. Overall, the findings suggest that APL is both practical and promising.

APL is implementable. Across four sites, coached teachers participated in workshops and coaching and made measurable progress in their APL practice. Notably, teachers were able to participate and change aspects of their practice while continuing to meet the various demands of their schools and school systems. The fact that teachers were able to use APL with their existing curricula, learning standards, pacing, assessment pressures, and other professional development requirements suggests that bridging evidence-based pedagogical frameworks with existing educational practices for students and teachers alike could promote system improvement.

APL is adaptable. Because APL is a pedagogical framework rather than a fixed program, and because it is designed to incorporate community voices and values, it can be used across a wide range of education settings. For example, teachers in Virginia chose to work together in collaborative groups, as reflected in their common SMART goals, but this shift was not detrimental to the feasibility or effectiveness of APL. Rather, it allowed the teachers to participate in the format that best suited their existing instructional and professional development contexts, accounting for existing curricula, learning standards, pacing, assessment pressures, and professional development requirements. The project also implemented APL in elementary schools located in four geographic regions of the United States, each with very different educational and sociocultural contexts. This adaptability allows teachers to enrich the quality of students' learning experiences in ways that respond to the local settings and communities and build on the backgrounds, strengths, and experiences that students bring to the classroom.

APL coaching matters. Workshops introduced the framework, but coaching appears to have helped teachers more fully engage in and feel supported by APL and incorporate the APL framework into teaching practice. The benefit of coaching above and beyond attending workshops is consistent with a large body of research showing that learning and implementing a pedagogical approach well seems to require the type of consistent, structured, and job-embedded support that coaching can provide (Kraft et al. 2018).

APL could support both growth of academic and 21st century skills. Taken together, these findings suggest that children can be supported in developing a broader set of skills needed for the 21st century, and that it may be possible to do this in a way that also makes teaching feel more energizing for teachers and learning more joyful for students.

Playful learning could be valuable through grade four. The study also suggests that playful learning need not be limited to the earliest years of schooling. In policy and practice, play-based learning is the most common in preschool and sometimes kindergarten. Much less attention is given to how active playful learning might support learning and development across the elementary grades. In this project, APL was successfully implemented with kindergarten through grade four teachers, suggesting that active playful pedagogy is feasible and potentially impactful across throughout the elementary school. This is important because student engagement can begin to decline during elementary school, and there are relatively few practical approaches designed to support engagement and active learning across content areas during elementary school. Approaches like APL may offer one way to support development, achievement, and sustained investment in learning throughout elementary school.

The APL Project's next steps

This year, the Project has ambitious plans to leverage additional data to strengthen research on APL. First, the team will analyze student behavior and achievement data provided by districts and compare data from schools who did not participate in APL with schools that did, where available. These analyses should provide robust evidence about whether gains can be attributed to the intervention. Second, the team will analyze one-year follow-up data to assess whether teachers continue to implement APL and if children who were in classrooms of teachers who received APL coaching have sustained or compounded gains one year later. Finally, the team will analyze data collected about student engagement and agency to assess the impact of APL on students' motivational pathways to 21st century skills.

As part of the cycles of improvement, the project will also refine measurement in year three. In response to data reviewed from year two, coach ratings in year three will be more aligned with the observable and measurable aspects of teachers' mastery of APL practices. Likewise, the classroom observation protocols will be revised to better measure the degree to which students communicated and collaborated with one another, as well as improve the documentation of student agency in shaping their learning experiences.

CONCLUSION

The first two years of the APL Project suggest a potential strategy for responding to some of the pressures facing education systems today. They show that teachers can be supported in creating classrooms that are more active, meaningful, socially connected, and joyful while sustaining the pursuit of excellence in academic learning. They suggest that children may be able to develop both academic and broader 21st century skills through richer pedagogical experiences, and they suggest that doing so may sustain teacher engagement across the school year.

Even as these conclusions remain provisional, the findings suggest that educational improvement may be more likely when systems focus not only on what students should learn, but also on the quality of the experiences through which they learn it. APL offers a practical example of how an approach to pedagogy and professional development that was co-developed by scientists and educators might support deeper learning for children and more sustainable, joyful teaching for educators.

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