What California Teachers Are Trying, Building, and Learning with AI

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When Katie Sanchez, a third-grade teacher in Sacramento, California, joined a professional learning community about using artificial intelligence (AI) in the classroom, her first instinct was to try giving students an AI chatbot for feedback on their writing. But she soon realized, "I like to look through my students' writing. I like to sit down and confer with them." Rather than reduce that "human connection," she used AI to automate parts of lesson planning, freeing her to focus on the relationships she values most.

Stories like Ms. Sanchez's are often missing from the national conversation about AI in schools. Headlines tout rapid AI adoption and a growing market of AI-enabled education tools, but pay little attention to how educators choose and use those tools or the challenges of implementing them.

In the 2024–25 school year, researchers from the Center on Reinventing Public Education (CRPE) studied 18 California schools—15 public charters, one public district, and two private schools—that are piloting AI tools to address issues like learning gaps, behavioral challenges, and teacher inexperience. These schools serve different student populations—some serve large numbers of English learners, students with disabilities, and students from low-income households.

The Silicon Schools Fund facilitated and funded the cohort of participating schools, guiding more than 80 educators (about half teachers and half administrators) through six sessions to learn about AI tools, identify problems of practice, and design their own AI pilots.[1] Across over 30 pilots, some participants crafted custom tools, while others used off-the-shelf options.

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1   The Silicon Schools Fund designed and facilitated the cohort in partnership with AI for Education and Villanueva Consulting. Participating schools received a small grant from the Silicon Schools Fund to cover their travel, lodging, and release time expenses related to cohort participation. Funding also supported limited software licensing and collaborative planning time.

Through meeting observations, pilot documents, and interviews with 12 of the pilot teams, CRPE researchers found that educators are still experimenting with and iterating on how best to use these tools. In some cases, educators saw early signs of impact on student learning and engagement.

This brief offers a rare look inside the messy, creative process of early AI adoption in schools and classrooms. It shows why teachers might turn to AI tools, and what they hope to gain, including improvements to how students learn, connect, and thrive in school.

KEY FINDINGS

1. **Given support, educators quickly learned to use AI tools** and devised bold, creative ideas to tackle persistent education problems.

2. **If AI tools weren't well aligned with an instructional vision, educators found limited success** in achieving and sustaining the results they wanted.

3. **Educators in the cohort wanted AI to preserve or even deepen human relationships** between teachers and students in schools.

4. **Some AI solutions saved time or made tasks easier, making educators feel "lighter."** But educators were more motivated by problem solving than by efficiency for efficiency's sake.

5. **Many educators were dissatisfied with current AI education tools**, even after extensive experimentation.

Our findings suggest that for AI to support educators and improve student outcomes:

- **School system leaders and education technology developers** should ensure that educators develop a strong foundational understanding of AI—how it works, how to use it effectively, and how to mitigate its risks.

- **Schools and districts** should establish a clear vision for how AI will integrate with instruction and key school priorities.

- **AI developers** should better align products to what educators and students say they need, and involve educators throughout the design, development, and adoption process.

1. Given support, educators rapidly learned to use AI tools and devised bold, creative ideas to tackle persistent education problems.

Educators in the Silicon Schools Fund cohort quickly got up to speed on a wide range of AI tools. A third had rarely used generative AI before, but by the end of the cohort experience, 97% reported using it at least weekly. Even skeptical educators became interested once they saw AI's potential to solve problems they cared about. Silicon Schools Fund supported this learning through a mix of information sharing and on-demand coaching and by encouraging experimentation. Educators found this mix of support to be helpful.

Educators we interviewed said it was worthwhile to invest time in developing an understanding of generative AI and a range of different tools. When they understood what these tools were trained to do, they selected them more effectively and used more effective prompting to get better results. Some also stressed that, without this baseline level of knowledge, teachers won't be able to help students, many of whom are already using AI. As one educator put it, "Unless teachers have to use [AI] and know there are limitations, we cannot expect them to know how to teach a student to use it responsibly."

For these educators, AI was more than flashy tech because it had the potential to solve real problems—and sometimes actually did. The process helped educators see AI as a tool to address persistent challenges like learning gaps, inequitable outcomes, low engagement, irrelevant learning, behavioral issues, and teacher inexperience—many of which have worsened since the Covid-19 pandemic. Not every pilot succeeded, but many expanded educator capacity and improved student outcomes. Examples include decreases in documented behavioral incidents and increases in student math scores, confidence in math and writing, engagement, writing stamina, and the number of students writing at grade level.

At Alpha Public Schools, teacher David Carcamo used an AI math tutor to support students far below grade level, including English learners. Previously, he had developed individualized practice problems and met with students outside of his working hours, leading to feelings of overwhelm and potential burnout. The AI tutor gave students an on-demand way to ask questions and practice skills, freeing David to focus on students who needed the most hands-on support. He reported feeling less overwhelmed and greater math gains in the AI pilot class than in another class that didn't use the tool.

About half of the pilots involved student-facing tools like AI tutors or writing and math coaches. The other half were educator-facing, aimed at solving time or capacity constraints by helping teachers tailor materials to meet students' needs, plan project-based learning more efficiently, or better align lessons to standards.

Similarly, a second root problem that educators focused on was building students' social skills. In one pilot, students used a chatbot that coached them on resolving interpersonal conflicts. In another, teachers used an AI tool to quickly generate assignments that helped students reflect on conflicts and behavioral issues.

Student-facing tools seemed to add to educator capacity by complementing what educators were already doing to solve the root problem. Teacher-facing tools seemed

to add to educator capacity by growing it, giving them more capacity to solve the root problem themselves. Our study didn't reveal which approach was better, but showed how varied AI solutions can be.

2. If AI tools weren't well aligned with an instructional vision, educators found limited success in achieving and sustaining the results they wanted.

The potential for AI to help educators achieve student learning gains depended on how AI tools fit into an instructional model. In some of the most compelling pilots, AI tools helped bring an ambitious instructional vision within reach. AI helped educators implement instructional models that require significant planning and instructional skill, like inclusion and project-based learning models.

Aspire Public Schools uses a "full inclusion" model (where students with specialized needs learn alongside peers in general classrooms) that relies heavily on effective differentiation. With limited administrator time to support lesson planning, the school piloted two AI chatbots that offered on-demand differentiation strategies tailored to each teacher's style and classroom context. Teachers found it easy to use, reported smoother planning, and noticed stronger student engagement. "It's helping us do something we wanted to do but couldn't before," said one administrator. One key enabling factor was that the school was already pursuing a vision for fully inclusive classrooms and had systems in place to enable that vision, like instructional coaching. The AI tools then worked to augment those systems.

PILOTS IN ACTION: WESTLAKE CHARTER SCHOOL

Westlake Charter School is a K–12 public charter in Sacramento, California. For Sally Hubbard, a sixth-grade math and science teacher at Westlake, the timing of the Silicon Schools Fund Cohort was ideal: math scores were low, some students were disengaged, and she was struggling to meet individual needs. "[Some students felt] like they were bad at math already," she said. "[I was] struggling myself to be like, 'Put your pencil to paper. This is the first step. If you don't know what to do, here's the second step.' And I can't be everything for every kid all the time."

After trying small groups and alternative math programs—difficult to manage alone—Sally was introduced to OKO through the cohort. OKO is an AI platform that supports collaborative small-group learning, assigning standards-aligned problems and prompting peer discussion. After using the tool, Sally saw increased engagement and improved test scores: **"I could tell their confidence in working through problems had increased. ... So many [students] had more than a four-point increase, and they were so proud of themselves."**

When an AI tool didn't fit the instructional model, educators typically ran into implementation issues, and some even planned to stop using the tool despite promising results. Mr. Carcamo, whose students used the AI math tutor described in Key Finding 1, saw learning gains, but due to a strict curriculum pacing guide that left little time for tutoring, he anticipated that he would have to stop using the tool. In another math classroom at Westlake Charter School, one teacher enjoyed using an AI tool to support small-group learning, but the tool followed a different pace from her own lessons, so she had to create guardrails—for example, telling students not to move beyond certain problems.

This highlights a key tension: while AI tutoring and whole-class instruction can be complementary, they can also end up competing for time if the school model doesn't account for both. AI tools seem well-suited to individualized pacing and tutoring, which can support student learning but may clash with traditional classroom structures. As more teachers and administrators experiment with AI to improve learning outcomes, they may find themselves increasingly asking not just how AI can fit into schools, but how their school designs—including how they organize time, staff, and space—can leverage the opportunities AI offers for tailoring student learning.

3. Educators in the cohort wanted AI to preserve, or even deepen, human relationships between teachers and students in schools.

Many educators in the cohort were concerned about technology degrading the relationships between students and teachers and among students themselves. Whether or not pilot teams used AI to intervene in relationships, they were motivated to design for connection over isolation. "We're in a mental health crisis in the United States," said Daniel Whitlock, vice principal at Gilroy Prep, part of Navigator Schools. "Either we keep going down that road … or we look at [AI] from a different perspective where we use it as a tool to increase our humanity versus taking it away."

We saw teachers in the cohort use AI to reduce their administrative loads, allowing them to spend more time and energy with students. As noted above, Ms. Sanchez used AI to help generate lesson plans so she could spend more of her time coaching students one-on-one. Other teachers with large class rosters found it impossible to give every student individualized attention and used AI chatbots as tutors or coaches available to all their students. The chatbots then freed up teachers' capacity to provide intensive support for struggling students.

Interestingly, and perhaps counterintuitively, some educators used AI to take on a "human-like" role to promote better teacher and student relationships. At Summit Tamalpais High School, educators piloted a chatbot that offered advice for how teachers could best collaborate based on their Enneagram (a personality test) types. Two other pilot teams, including the Navigator Schools team, developed student-facing chatbots intended to help students resolve conflicts and strengthen friendships. Initial impressions from users in the pilots were positive—sometimes even to the surprise of the educators who built the tools.

Educators on these pilot teams were quick to acknowledge the risks associated with using AI to simulate human interaction, and many were actively making relationships a priority to guard against AI's undermining of human connections. They worried that excessive focus on AI tools as plug-and-play solutions could make relationships an afterthought instead of an essential focus. "Don't lean on AI to just pump out some type of lesson," said Wayne Pang, a teacher at Allegiance STEAM Academy. "The best lessons kids can get [are] when you know who they are as people and their interests." Educators' concerns squarely align with evidence on why relationships matter for student success in school.

PILOTS IN ACTION: ALLEGIANCE STEAM ACADEMY

Wayne Pang, a sixth-grade English teacher at Allegiance STEAM Academy in Chino, California, joined Silicon Schools Fund's cohort to explore how AI could ease his students' fear of writing. "I see [AI] more as a new tool. Just like how the calculator used to be considered cheating in math, and now we all use calculators," he said.

Using PlayLab, a platform that allows educators to build tools tailored to their needs, he built a custom chatbot called "Hello Helper" to support students with narrative writing. The bot guided them to use figurative language and descriptive detail, but only wrote part of each response—encouraging students to do the rest. "I viewed creating a bot to be a replica of me in a sense," he said. "So I would limit it to just talking to the kids how I would talk to them, which is to encourage them, pull something out of them, just to get the wheels turning."

After using the chatbot for a handful of lessons, Mr. Pang assigned a writing task for the students to complete without the chatbot's help. He found that all his students used more figurative language. Many struggling writers became more confident and wrote longer responses. **"I have one kid who struggled to put two sentences together. Now [they are] writing 300-word responses."** And with a full classroom of students who all need frequent writing help, the bot helped relieve some pressure on Mr. Pang, too.

These concerns also point to the need for longer-term evaluations of AI applications—both those that intervene in human relationships, like bots that help students resolve conflicts, and those that potentially sideline them, like auto-generated feedback on student assignments. Such evaluations will need to develop or adopt existing measurement strategies that focus on relationships and social capital in addition to other learning outcomes.

4. Some AI solutions saved time or made tasks easier, making educators feel "lighter." But educators were more motivated by problem solving than by efficiency for efficiency's sake.

Education technology developers are fond of touting how AI can save teacher time and improve their productivity. In some cases, we found evidence that using AI can save time and reduce the effort needed for certain tasks. But most of the educators who took part in this study were not explicitly focused on increasing their own efficiency or decreasing their workload. Instead, they saw productivity gains as a means to an end: solving persistent problems in education that limit student success.

PILOTS IN ACTION: RANCHO MILPITAS MIDDLE SCHOOL

Rancho Milpitas Middle School in Milpitas, California, set out to introduce a "Flex Time" period—an extra elective block for intervention and enrichment. But for already overextended teachers, planning for it felt like an added burden. "The goal is just to try to get [teacher] buy-in … and to address some of the concerns they have, [such as having] the time to develop this plan and curriculum," said Principal Vern Caruz.

To support implementation, two teacher leaders joined Silicon Schools Fund's AI cohort and brought their learning back to Rancho Milpitas through peer-led professional development. They introduced colleagues to MagicSchool, an AI tool for generating lesson plans, which saved time and boosted collaboration. **"The same teachers who have used AI to help with their Flex Time planning, they've saved around 30 to 40% of their planning time,"** one teacher leader noted. A post-pilot survey showed that nearly 60% of teachers plan to continue using AI tools next year, while 40% indicated they might continue using the tools. With this strong momentum, the school has formally adopted Flex Time for the 2025–26 school year.

At Rancho Milpitas Middle School, teachers used an AI lesson-planning tool to help create lessons focused on extracurricular enrichment and academic intervention. Before using AI, teachers spent up to two hours planning each of these additional lessons, which they believed were essential to help students solidify their learning and explore their passions. Teachers reported that the AI tool helped them generate ideas and saved up to 40% of their planning time, making the extra interventions and enrichment experiences a far more sustainable practice.

In some cases where AI saved educators time, the real benefit was redistributing that time toward instruction and relationship-building. At Navigator Schools, the pilot team created an AI chatbot that helped teachers quickly generate what they called "restorative assignments," which helped students reflect on a behavioral incident and

take action to repair relationships. Prior to developing the chatbot, classroom teachers, who only have a few moments to respond to incidents without taking away from class time, would have referred most behavioral incidents to the vice principal. The vice principal estimated that dealing with these incidents consumed 60% of his time. With the new tool, teachers were able to resolve more issues independently, and the vice principal only needed to get involved in the most serious incidents.

PILOTS IN ACTION: NAVIGATOR SCHOOLS

Navigator Schools, a K–12 charter network serving agricultural and exurban communities in central California, faced two challenges: reducing disciplinary issues and building stronger student-teacher relationships. "Every kid needs something a little bit different," said Dan Whitlock, Middle School vice principal at Gilroy Prep. But assigning individualized follow-ups for each incident was impractical for teachers and time-consuming for administrators.

To ease that burden and improve connection, the Navigator Schools AI pilot team co-designed two tools: one that auto-generates personalized reflection tasks after minor behavioral incidents, and another that uses AI to facilitate group discussions on social-emotional topics. **The results have been promising, with a 43% drop in detentions and referrals, and increased student engagement and willingness to reflect.** Rather than replacing human interaction, the tools streamlined routine tasks and created space for students to communicate their feelings.

Some teachers said AI tools didn't save them time, but still helped them feel "lighter" by making workloads more manageable. Mr. Pang from Allegiance STEAM Academy spent weeks building a chatbot to give students feedback on their writing. The tool helped reduce his mental load during periods when he received a flood of student questions (typically just before an assignment was due), which historically had left him feeling overstimulated and drained. Even though he continued to spend the same amount of time teaching and preparing for lessons, shifting how that time was used reduced stress and gave him more energy to focus on improving instruction.

5. Many educators were dissatisfied with current AI education tools, even after extensive experimentation.

Educators experimented with a wide range of AI tools and platforms. A few of the 12 teachers we interviewed were satisfied adopting off-the-shelf education technology software, such as MagicSchool for math tutoring or Diffit for differentiated reading materials. But about half of them found that existing tools didn't meet their specific needs. Several educators noted that multi-purpose "AI-for-education" platforms were too complicated, making them less useful than more generic AI tools like ChatGPT.

In the absence of a single tool fit for purpose, some educators cobbled together multiple tools to find a solution that worked. One teacher who tried over 10 different AI tools initially used an education-specific tool to make differentiated learning materials and said, "It makes really cool worksheets … but the sentences, they're not always written correctly. So I was finding myself having to … take the text and throw it into ChatGPT and have it rewritten and then plug it back in." The teacher called this approach "app smashing." As another teacher put it, "There is no perfect tool." That's partly due to variation and a culture of autonomy among teachers; as the app-smashing teacher said, "We're all unique educators and want it a certain way."

Just over half of the educators we interviewed built their own bots or adapted existing tools instead of using off-the-shelf products. For instance, Mr. Pang used PlayLab to craft his "co-writer" bot to help students get started with narrative writing, saying that other tools didn't offer customizable solutions. But building new AI tools took significant time and was often only possible for educators with either a foundational understanding of AI or a technical support partner who could translate an AI tool's capabilities to classroom needs.

Not all solutions were successful, even after extensive testing. One pilot team from Clovis Global Academy hoped to save time by having AI automate the creation of student groups for small-group learning. The team ultimately called their custom-built tool a failure after putting in extensive time to design it, with output from the tool that they graded a "C-". One administrator explained, "It's just not clear right now that it's worth our staff's time to develop the capacity to learn how to work with the AI." Still, the experience offered important insights—both into how the tool can be improved and how to best apply AI in the classroom—aligning with the cohort's goal of learning through experimentation.

Despite investing time and sometimes running into challenges, most educators who built custom AI tools weren't deterred; they enjoyed designing solutions that met their needs. One team, for example, built two chatbots to help teachers design differentiated lesson plans—one bot for each teacher in the pilot, with specific knowledge of each teacher's style, approach, and preferences. As one administrator said, "[Those] closest to the problem usually have the best solution to the problem."

RECOMMENDATIONS

Silicon Schools Fund's Community of Practice significantly increased educators' understanding and use of AI, with some tangible student-level results even in a short time frame. AI tools can be powerful when used to support a clear, consistent instructional strategy and strong teacher-student relationships.

But the educator pilots we studied showed that such results were by no means guaranteed, and many educators were unable to find tools that met their needs. School system leaders and education technology developers have critical roles to play in ensuring that educators have the knowledge, conditions, and tools they need to use AI responsibly, creatively, and effectively.

Educators need a strong foundational understanding of how AI works, its risks, and what tasks different tools are well-suited for.

- **District and charter leaders** need to invest in ongoing opportunities for educators to learn about AI, including both open-ended exploration and explicit training on how to mitigate risks.

- **Education technology developers** should design resources for educators to learn how to use AI tools alongside the tools themselves. Failing to support educators and administrators in understanding AI will result in the adoption of tools and practices that don't work or, worse, that negatively impact students and educators and provoke backlash.

Schools and districts need to establish a clear vision for how AI will integrate with instruction and key school priorities.

- **District and charter school leaders** should articulate how AI will support schools' instructional goals, help solve deeply rooted problems, and strengthen educator and student relationships.

- **Education technology developers** should prioritize their own understanding of instructional delivery models and how tools actually fit into classrooms. Developers should also design AI solutions to address those specific, deeply rooted, urgent problems that educators and students face. Boosting productivity may not be the primary goal.

Education technology companies need to listen to what educators and students are saying they need and work with educators to create solutions to meet those needs.

- **District and charter school leaders** should communicate their priorities to developers once they have a clear vision for how AI can support schools' goals. Forward-thinking leaders may consider collaborating with other school systems to aggregate demand and exert more influence in the education technology market.

- **Education technology developers** should prioritize the needs of students and educators. Top-down solutions promising to "revolutionize classrooms" ignore the wide variations in schools and classrooms.

AI has the potential to help address many fundamental problems in education when implemented with intention and a clear purpose. But the solution isn't AI. The solution is effective schools with instructional models that are responsive to individual needs and designed to empower every learner.

Educators are beginning to show how AI can serve that vision, and even how it may reveal new possibilities for school design. AI technologies are advancing quickly—so early adopters have a unique chance to influence how AI in education evolves.

Acknowledgments

To explore more of CRPE's research on AI in education, visit crpe.org.

About the Center on Reinventing Public Education

The Center on Reinventing Public Education (CRPE) is a nonpartisan research organization at Arizona State University's Mary Lou Fulton Teachers College. We rigorously examine and test transformative ideas, using our research to inform action. We are truth tellers who combine forward-thinking ideas with empirical rigor. Since 1993, we have been untethered to any one ideology but unwavering in a core belief: public education is a goal—to prepare every child for citizenship, economic independence, and personal fulfillment—and not a particular set of institutions. From that foundation, we work to inform meaningful changes in policy and practice that will drive the public education system to meet the needs of every student.

About the Silicon Schools Fund

Silicon Schools Fund is a nonprofit venture philanthropy dedicated to improving educational opportunities for students throughout California. It partners with visionary leaders to launch new school models that drive transformational outcomes. To learn more, visit siliconschools.com.

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