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AI-Driven Education: Strategies for Enhancing Teaching and Learning

Stuart Briers for Education Week

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EDITOR'S NOTE

This Spotlight explores the potential of AI to enhance teaching and learning, while also addressing considerations for responsible implementation. From using AI to deliver instruction with human guidance and exploring its impact on standardized testing to providing targeted professional development on AI, these articles offer valuable perspectives. Discover how AI can be used effectively and the importance of retaining the human element in AI-integrated classrooms.

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OPINION

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This School Will Have Artificial Intelligence Teach Kids (With Some Human Help)

By Brooke Schultz

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Artificial intelligence is at the foreground of an Arizona online charter school slated to open in the fall, with teachers taking on the role of guides and mentors rather than content experts.

Unbound Academy was approved by the state school board last month, with enrollments beginning in January. The school's model, which will prioritize AI in its delivery of core academics, is part of a continuing evolution of using AI technology in classrooms.

But as the technology becomes more prevalent, so too does the conflict of determining how schools can use it to enhance offerings and downsize workloads, without risking replacing teachers. The nation's two largest teachers' unions have already begun to grapple with AI's growing involvement in the nation's classrooms, issuing guidance and guardrails around its use.

In this case, humans are still an important part of the equation, according to the founders of the school. Still, it marks a movement toward embracing AI as a collaborator—something schools are more readily doing now, said Marcelo Worsley, an associate professor of computer science and learning sciences at Northwestern University's school of education and social policy.

"I think COVID kind of pushed us more into that space as more students were getting connected to one-to-one technology experiences, and people were looking for the resources and tools that students could use—especially when they don't have continuous access to an instructor, or when they're not always certain that they're going to be in person in a classroom setting," Worsley said.

'You cannot get rid of the human in the classroom'

Unbound Academy aims to enroll roughly 200 students in its first year, and will serve students in grades 4 to 8 initially. School leadership told the school board in December they hoped to expand to kindergarten through 3rd grade eventually.

The program is affiliated with private schools in Texas and Florida, but this will be the founders' first foray into public schools.

The school will prioritize AI in its content delivery model, with students working at their own pace through math, reading, and science for the first two hours of their day.

AI, the founders say, will adapt to address what students are excelling in—ratcheting up the instruction to match the student's knowledge and skills to keep things challenging—while tempering other lessons if a student isn't grasping material. The goal is for fine-tuned personalization: One 5th grade student could be reading at an 8th grade level, while starting math at a 3rd grade level.

The school's charter school application to the state school board says the "AI rigorously analyzes comprehensive student data—response accuracy, engagement duration, and emotional feedback via webcam—to ensure lessons are appropriately challenging."

The curriculum will utilize third party providers—such as online curriculums like IXL or Math Academy, among others—along with their own apps, including the AI tutor, which monitors how students are learning, and how they're struggling.

Meanwhile, teachers—known as "guides"—will monitor the students' progress. Mostly, the guides will serve as motivators and emotional support, said MacKenzie Price, a cofounder of Unbound Academy. She also founded 2 Hour Learning, which focuses on having two hours of academics a day followed by four hours of personal projects, the model Unbound Academy will employ.

"You cannot get rid of the human in the classroom. That is the whole connection," Price said. "But what we can do is provide a better model. Instead of a teacher having to try to meet 20-plus different students who are all at totally varied levels of understanding where they're at academically—that is such an impossible hill, in traditional models, to climb—we're allowing them to really do what they're able to do really well: connecting with students."

The guides, who will be "well-compensated" according to the school's application, will be charged with connecting with students throughout the day, including in a group session in the morning before students begin their coursework.

Price said the teachers will be certified according to Arizona's requirements, though at the private brick-and-mortar schools employing the same model in Texas, previous teaching experience is not required for the guides, according to NBC's reporting. The application projects a ratio of one guide to 33 students.

Guides will hold one-on-one meetings with students throughout each week. They will be able to see how students are progressing and learning, will assist if there are challenges with the material, and contact families if students aren't doing coursework.

"Our teachers are looking at the motivation, how kids are learning, if they're learning effectively and efficiently through the system—but they're not teaching math," Price said.

Guides will lead "life skills" workshops in the afternoon, where students learn "practical, real-world experiences," such as financial literacy, public speaking, goal setting, and more, according to the application. If students work together on a specific project such as a simulation of defusing a bomb, Price said, the guides will help teach communication, teamwork, and leadership.

Schools are more readily embracing AI

There has been a decades-long movement toward intelligent tutoring systems, said Worsley, the professor from Northwestern—identifying what students know, don't know, and if they've demonstrated mastery of a topic. The original models relied more on human input, but now technology is more advanced, he said.

Public schools now often incorporate AI-powered resources like IXL or Khan Academy into their instruction, Worsley said.

And for years now, some schools have used online learning programs to fill hard-to-staff vacancies—students learn from the software with oversight from an in-person facilitator. AI could make those models more effective.

Still, teachers and their associations remain wary of AI taking over classroom duties. In the National Education Association's July 2024 guidance, the teachers' union emphasized that AI should never replace human interaction. The American Federation of Teachers also highlighted the importance of humans in a June report.

Unbound Academy's model, of having AI take over instruction with a human touch, is an outlier for now—but it might show up more frequently, Worsley said.

"The reality is that aspects of AI are being built into many of the tools that school districts were using beforehand, or recently adopted, as a result of the pandemic, or just the general explosion and excitement around AI that's happening right now," he said. ■

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Will AI Transform Standardized Testing?

By Alyson Klein

Stuart Briers for Education Week

Here's a multiple-choice question: Which of the following have educators said is a problem with current state standardized tests?

a. Teachers don't get the test data back quickly enough.

b. The exams are not personalized for students' interests or learning needs.

c. The exams don't measure what students really need to know.

d. All of the above

The correct response, d., points to the big, long-standing problems with today's standardized tests. That raises another, more recent question that has been coming up in education circles: Can artificial intelligence mitigate those problems and help standardized testing improve significantly?

For now, there's no hard and fast answer to that question. While AI has the potential to help usher in a new, deeper breed of state standardized tests, there are plenty of reasons for caution.

On the one hand, testing has long been due for a facelift, many experts argue.

The tests students now take—particularly the state standardized assessments that carry significant stakes for schools and districts—were developed for a time when the "dominant testing model was a lot of students sitting in a gym, taking a pencil and paper test," said Ikkyu Choi, a senior research scientist in the research and development division of ETS, a nonprofit testing organization.

AI may be able to "provide much more engaging and relevant types of scenarios, conversations, interactions that can help us measure the things that we want to measure," Choi said, including students' ability to think critically and communicate. "We're quite interested and excited, with the caveat that there are a lot of things that we need to be aware of and be careful about."

AI's greatest potential at this moment seems to be in helping with the nuts and bolts of assessments—including generating test items and scoring them more efficiently, as well as providing more actionable feedback to educators on their students' strengths and weaknesses.

Technologies like natural language processing—the ability of AI to listen and respond to human speech in real time—may make it possible to gauge some of the skills educators say most traditional tests simply cannot do, such as creativity and problem-solving abilities.

But the technology comes with its own problems, experts add. For one thing, AI often cites wrong information, without a clear explanation of where it originated.

Plus, because AI is trained on data created by humans, it reflects human biases. In one controlled experiment, AI tools gave a lower grade to an essay that mentioned listening to rap music to enhance focus, compared with an otherwise identical essay that cited classical music for the same purpose.

Educators aren't especially enthusiastic about the potential of AI to make testing better. In fact, more than a third of district and school leaders and teachers—36 percent—believe that because of AI, standardized testing will actually be worse five years from now.

Fewer than 1 in 5—19 percent—believe the technology might improve the assessments. The survey by the EdWeek Research Center of 1,135 educators was conducted from Sept. 26 through Oct. 8 of this year.

How AI might help capture more sophisticated thinking skills

One of the most-cited problems with the current breed of state standardized tests: Teachers don't often see the results of tests their students take in the spring until the following school year, when it is typically too late to make any changes to instruction that could help students.

Multiple-choice tests are relatively easy and inexpensive to score, and much of that work can be automated, even without AI. But those exams can only capture a limited portion of students' knowledge.

For instance, Matt Johnson, a principal research director in the foundational psychometrics and statistics research center at ETS, would love to be able to give students credit on an assessment for successfully working out multiple steps of a problem even if they ultimately arrive at the wrong answer because of a simple calculation error. That is essentially the approach many teachers use now.

Analyzing students' work in that way would take significant muscle and manpower for human scorers. But it might be a simpler proposition if AI tools—which can recognize and process human writing—were employed. The technology, however, hasn't reached the

point where it can assess students' thinking process reliably enough to be used in high-stakes testing, Johnson said.

Even so, AI may help speed up scoring on richer tests, which ask students to write a constructed response or short essay in answer to a problem. Typically, grading those questions requires a team of teachers all working with the same scoring guidelines and reviewers to check the fairness of their assessments—though that process can already be partially automated.

That, however, is where questions about bias surface. Parents have also expressed concerns about relying on machines to score student essays, on the assumption that machines would be less effective at understanding students' writing.

For the foreseeable future, human beings will still play an integral role in scoring high-stakes tests, said Lindsay Dworkin, the senior vice president of policy and government affairs at NWEA, an assessment organization.

"I don't think we're ready to take things that have historically been deeply human activities, like scoring of, you know, constructed-response items, and just hand it over to the robots," she said. "I think there will be a phased-in period where we see how it goes but we make sure it's passing through teachers' hands."

Despite that gradual approach, AI may be able to offer more actionable feedback to teachers about their practice so that they can improve their teaching, Dworkin said.

For instance, a language arts teacher with a class of 30 kids could ask an AI tool: "Tell me what all of my students collectively did well. Tell me what they didn't do well. Tell me the skill gaps that are missing?" Dworkin said. "Is everybody failing to give me strong topic sentences? Is everybody failing to write a conclusion?"

Big experiment on AI and testing about to begin

One high-profile experiment in using AI for standardized assessment is about to get underway. The 2025 edition of the Program for International Student Assessment, or PISA, is slated to include performance tasks probing how students approach learning and solve problems.

Students may be able to use an AI-powered chatbot to complete their work. They could ask it basic questions about a topic so that the test could focus on their thinking capability, not whether they possess background knowledge of a particular subject.

That prospect—announced at a meeting of the Council of Chief State School Officers earlier this year—got an excited reaction from some state education leaders.

Their enthusiasm may reflect concerns about whether the current batch of state standardized tests capture the kinds of skills students will need in postsecondary education and the workplace.

More than half of educators—57 percent—don't believe that state standardized tests—which generally focus on math and language arts—measure what students need to know and be able to do, according to the EdWeek Research Center survey.

States are increasingly focused on creating "portraits of a graduate" that consider the kinds of skills students will need when they enter postsecondary education or the workforce. But right now, state standardized tests emphasize language arts and math skills, and that can carry big consequences, said Lillian Pace, the vice president of policy and advocacy for KnowledgeWorks, a nonprofit organization that works to personalize learning for students.

"We are missing the picture entirely on whether we're preparing students for success" by ignoring kids' ability to work across disciplines to solve more complex problems, Pace said. "What might it look like if AI opens the door for us to be able to design integrated assessments that are determining how well students are using knowledge to demonstrate mastery" of skills such as critical thinking and communication.

That prospect—though intriguing—will take significant work, even with AI's help, said Joanna Gorin, now the vice president of the design and digital science unit at ACT, a public benefit assessment corporation.

In a previous role, Gorin helped teams design a virtual task that asked students to decide whether a particular historical artifact belonged in their town's museum. The simulation required students to interview local experts and visit a library to conduct research.

The task was designed to give insight into students' communication skills and ability to evaluate information. That's the kind of test many educators would like to move toward, she said.

"States want to move [toward richer assessments] because there's incredible promise from AI, and it can potentially get them the kind of information they really want," Gorin said.

But that could come with complications, even with AI's help, she added. "At what point are [states] willing to make the trade-offs that would come along with it, in terms of cost, in terms of technology requirements, in terms of other possible effects on how they teach?"

For instance, creating and reliably scoring performance tasks with AI would require significant data, meaning a lot of students would have to participate in experimental testing, Gorin said.

Given all that, "I do not foresee full-blown performance assessment, simulation-based AI-driven assessments in K-12, high-stakes, large-scale assessment" for quite some time, Gorin said.

AI could help generate better test questions, faster

Instead, Gorin expects that AI will help inform testing in other ways, such as helping to generate test questions.

Say an educator—or a testing company—has a passage they want to use on an exam, Gorin said. "Can I use AI to say 'what would be the best types of items to build based on this [passage] or the reverse, what passages would work best based on the types of questions that I need to generate?" she said.

AI could also write the initial draft of an item, and a human could "come in and take it from there," Gorin said. That would allow test-makers to be "more efficient and more creative," she said. Being able to create test items faster could be a key to personalizing tests to reflect students' interests and learning needs.

If a goal of an assessment was to figure out if students understood say, fractions, it could offer a baking enthusiast a set of questions based on a chocolate chip cookie recipe and a sports-loving student another set based on the dimensions of a football field.

It could be possible to train AI to craft questions on different topics that measure the same skill, experts say. But it would be difficult—and pricey—to "field test" them. That entails having real students try them out to ensure fairness.

That means change will likely come first and most dramatically to teacher-created exams for classrooms, which may determine student grades, as opposed to state standardized tests, which evaluate how teachers and schools are performing.

In fact, teachers are already experimenting with the technology to create their own tests. One in 6 teachers have used AI to develop classroom exams, according to the EdWeek Research Center survey.

When a version of ChatGPT that could spit out remarkably human-sounding writing in minutes was released in late 2022, it seemed to come out of nowhere. Even so, it is unlikely that AI will transform standardized testing overnight.

"I think it's going to come slowly," said Johnson of ETS. "My opinion is that there will be a slow creep of new stuff. Scenario-based tasks. Maybe some personalization will come in. As we get more comfortable with the various [use] cases, you'll start seeing more and more of them." ■

Stuart Briers for Education Week

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What Teacher PD on AI Should Look Like. Some Early Models Are Emerging

By Caitlynn Peetz

The Wichita school district in Kansas is preparing for a big summer of learning—for teachers.

The district is teaming up with a local university to host a two-day conference about artificial intelligence, challenging teachers to spend part of their preservice week learning about AI and its many functions, challenges, and opportunities. Then, on the second day, attendees will split up into groups of four to complete challenges, such as designing lessons.

The catch? There will be a fifth member of each team: an AI tool.

"We will challenge them with: How do you truly design learning experiences that are rigorous, meaningful, relevant to students, while using AI in the best possible way," said Dyane Smokorowski, the coordinator of digital literacy for the district.

The two-day conference will be optional professional development for teachers, though the majority are expected to attend, Smokorowski said. It is intended to blend the need for AI literacy with engaging and relevant activities that educators can take back to the classroom to kick off the 2025-26 school year.

The Wichita district is one of a small number of school systems that have taken a structured, districtwide approach to professional development around the use of artificial intelligence—even if it's not required learning. Most districts have yet to take such a step, largely because either the technology is evolving so quickly it's hard to keep up, or leaders don't really understand it themselves, so it's difficult to facilitate widespread, effective training. Some districts have made smaller-scale efforts to teach educators about AI, by infusing concepts into existing professional development or by offering less formal opportunities to experiment with the technology.

Experts in the field say that providing some level of guidance and training about the rapidly evolving technology, even if it's not perfect or comprehensive, is better than nothing at all. And it's training that many educators want and are looking for anyway.

Still, the majority of teachers say they've received no professional development on using generative AI, according to a nationally representative survey conducted by the EdWeek Research Center in October. Six percent of teachers say they're receiving ongoing training on the topic, while 58 percent say they've received no training at all.

For educators who have received training, 41 percent rated it as "poor" or "mediocre" while 18 percent thought it was "good" or "excellent."

Despite the widespread lack of training, about one-third of teachers say they use AI-driven tools in their classrooms in some capacity. Of those teachers, more than 1 of every 5 say they use the tools "a little," and nearly 1 of 10 reported using them "some." Two percent of teachers say they use AI tools "a lot."

The survey results illustrate the galaxy of opinions about AI tools. For some, the technology promises more manageable workloads and less clerical work, like paperwork and responding to emails. But for others, it's more ominous, posing threats to job security, increasing cheating and plagiarism among students, and making it possibile for personal or confidential information to be misused.

Artificial intelligence has actually been around for decades, though attention to it has spiked in the past two years, following the release of ChatGPT in November 2022.

Since then, AI—particularly generative AI—has evolved rapidly, with new tools and iterations available seemingly daily. That rapid evolution is from where much of educators' concern and confusion stems, said Pat Yongpradit, the chief academic officer for Code.org and a lead for TeachAI, an initiative to support schools in using and teaching about AI.

It's also why most districts have yet to roll out professional development modules or mandatory training sessions about how to use—and not use—AI.

But tackling AI training doesn't have to be so daunting, Yongpradit said.

Despite how quickly it is evolving and in whatever forms it may take in the future, artificial intelligence does have some basic components and strengths and weaknesses that will remain the same. Educators can learn about those, like the role of data and algorithms that power AI-generated responses, biases the technology has and why, and the importance of a human being double-checking its accuracy.

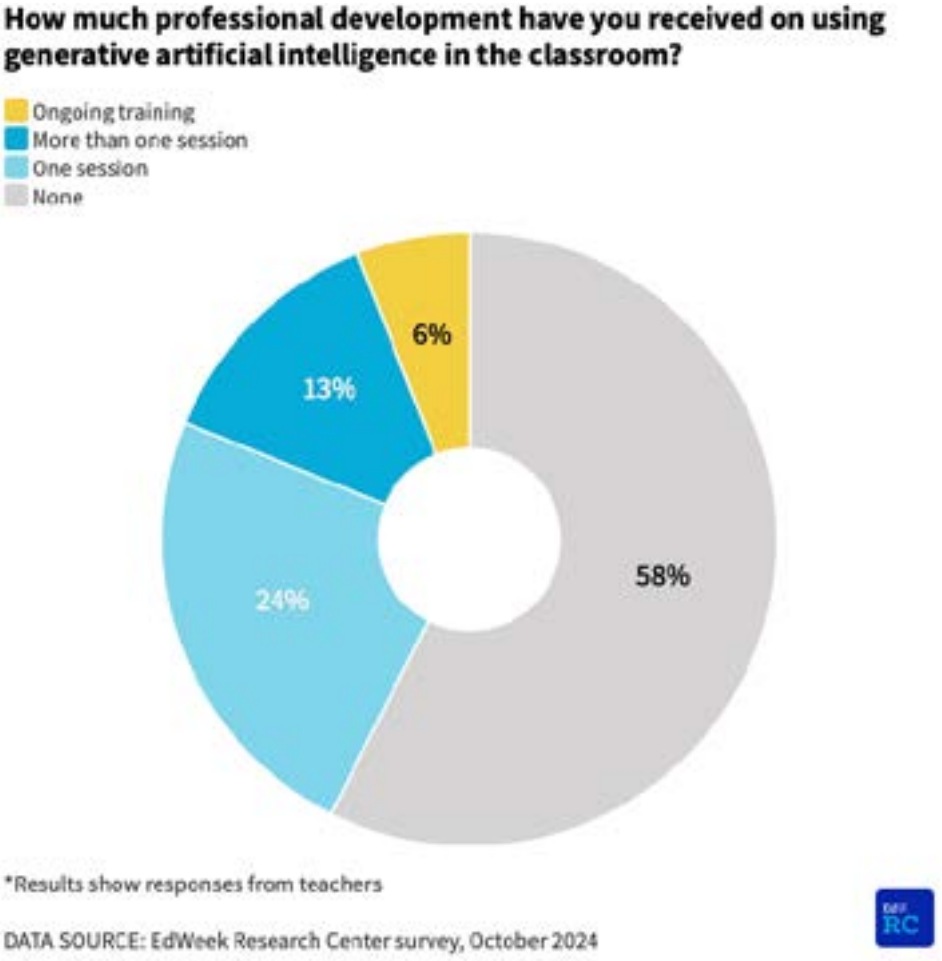
"Even if it's advancing and even if it gets more and more capable, just the idea of having some of that general AI literacy can go a long way," Yongpradit said.

Once districts take the initial steps to train their educators, leaders can also survey their teachers about what parts of the basic AI training were useful, what didn't work, and what they'd still like to learn more about.

Districts using optional activities, existing PD to teach AI

Some districts are taking the plunge, finding relatively simple and straightforward ways to explore AI and use it in their schools.

The Fox Chapel Area school district in the Pittsburgh area has taken an approach that



blends exploratory learning with some expectations to try out the technology in small ways, said Superintendent Mary Catherine Reljac.

Some early and enthusiastic adopters of AI in the district have hosted optional "lunch and learns" and after-school professional learning to demonstrate how to use the tools for such classroom tasks as lesson planning and responding to parent emails, Reljac said. Students have also participated in talks about their thoughts, concerns, and hopes for how to use AI to learn and prepare for future jobs.

The district has also mandated professional development, requiring some educators to create an "interesting lesson with artificial intelligence." If that sounds vague, Reljac emphasized, it's on purpose.

Administrators strategically didn't clarify whether teachers should craft a lesson about AI or use AI to help create their lesson. They wanted to "leave a bit of creative opportunity and personalization," which can generate more interest and a sense of autonomy over the activity, she said.

Some teachers constructed classroom-assignment rubrics using AI, while others used AI to produce examples of essays using the parameters of a classroom rubric. Then, students evaluated the AI-generated essays against the teacher's rubric.

"Our logic is that if we embrace it, it helps to diminish anxieties and fears, and the way we're approaching it allows for multiple on ramps and off-ramps so people can explore and learn in ways that are comfortable to them," Reljac said. "We're seeing that pay off as a lot of our people are embracing it after they find a few tricks they can use it for."

Eventually, though, Reljac said the Fox Chapel district intends to develop and implement some sort of required professional development module for educators. In the meantime, staff have been provided some basic parameters about AI tools. For example, they are not supposed to put personal or confidential information into any AI system, nor should they assume AI-generated responses are factual.

"I think eventually there will be core concepts that have to go through a professional development module or workshop," Reljac said. "I just don't think we're there yet because the tools are evolving so quickly."

Another approach that could prove effective is incorporating relevant AI tools into already-existing professional development modules, said Virginia Reischl, the coordinator of literacy and language for the Orange County Department of Education in California.

Finding practical ways in which AI applies to different subjects—like creating historical timelines for a history teacher or showing an English teacher how to use AI to support struggling readers—and infusing that into professional development already on the schedule can help avoid resistance, she said.

"Teachers don't want another thing on their plates," Reischl said. "So, if you can avoid a stand-alone training and instead say, 'This is how AI can support you and the work you're already doing,' it's going to draw people in."

Finding ways to incorporate AI training into existing professional development opportunities can offset the challenge of finding time to target the topic, too, Reischl said.

Finding the fun in AI learning

In Wichita, district leaders are also prioritizing fun and collaborative ways to practice using AI.

The district has held virtual "game nights" on Microsoft Teams with parents and students, during which teachers use AI for "prompt engineering." For example, a teacher could ask an AI tool to explain how to make a peanut butter and jelly sandwich in the voice of Winnie the Pooh and have students critique the response. Then, students and parents could ask for the process to be repeated with a different process and a different character.

The game nights help build community connections while also allowing educators to explore how to phrase prompts correctly to get the desired outcome and reiterating the importance of fact-checking AI-generated responses.

"I feel that there is an urgency that staff should have some AI literacy so they can guide students to be good digital citizens with AI themselves, and there's not anyone else really going around and having community events that give families the chance to build AI literacy, too," said Smokorowski, Wichita's digital literacy coordinator. "So, we need to take the lead so that our students have the best foundation to have success with AI as it grows." ■

Additional Resource
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Published October 21, 2024

Meet Sassy, the AI Chatbot Helping Students Find Their Dream Jobs

By Lauraine Langreo

Meet "Sassy," an AI-powered career exploration guide. It's a chatbot that can help students in Oregon brainstorm possible careers, create action plans for how to get their dream jobs, prepare for an interview, and even stay motivated.

Sassy—short for Sasquatch, Oregon's "Bigfoot"—was created by the Oregon Department of Education in partnership with the nonprofits Journalistic Learning Initiative and Playlab.ai.

It's part of the state's investment in expanding career-connected programs to engage students in relevant learning, complete unfinished learning, and improve their mental well-being and sense of belonging, according to a statement from the state education department.

The development of the AI tool comes as more states and school districts are emphasizing career readiness. In 2023, 47 states passed career-education laws, with a majority of the new laws adding accountability measures for the programs and supporting more industry partnerships and work-based learning for schools.

Education Week interviewed Ed Madison, a University of Oregon professor and executive director of the Journalistic Learning Initiative, about the chatbot and how he envisions students and teachers using it.

This interview has been edited for brevity and clarity.

> **"How can we help students, even at the middle school level, start to explore different areas of potential futures?"**
>
> **ED MADISON**
> Executive director,
> Journalistic Learning Initiative

How did this chatbot come about?

Because our nonprofit has contracts with the Oregon Department of Education in several areas around [career and technical education or CTE], we proposed creating this Sassy tool. If you go to Career Connect Oregon, we manage the development of that. We also have a whole series of videos that we've created for the state under careerjourneys.org.

So this [chatbot] was kind of an extension. If you're going to have this web portal, how can we help students, even at the middle school level, start to explore different areas of potential futures?

What's the benefit of using a chatbot interface?

First of all, we know that the adviser or guidance counselor-to-student ratio is pretty high. [Sassy is] a way for young people to explore—generally under teacher supervision—different opportunities, but also to copy and cut and paste that into a document, so when they do sit down with the counselor, they actually have something, a basis, to work with.

It's not designed to replace human professionalism or expertise, but actually enhance it. Counselors are sort of having to repeat rote information, as opposed to really having more substantive time with the student who they're advising to get into the specifics of the student's interest or needs.

What information is it trained on? Does it collect any data?

It doesn't collect any personal data. As a matter of fact, if you try to enter information, it'll say, "I don't need your personal data. Thank you." It's not really necessary for the narrow function that it performs. And I know everyone's talking about what happened in Los Angeles—they were trying to do too much with their tool, but in the narrow nature of what we're doing, we don't need personal data. It's not an area we want to get into because of FERPA (the federal Family Educational Rights and Privacy Act) and all the other issues related to that in terms of the documents or what it's drawing from.

The state of Oregon, like most states, has generated guidebooks and pamphlets and all

kinds of career and technical education helpful material. These materials are things that you can, on your own, probably go and find and turn to a certain page and address a question or concern that you have. But the ability of AI to actually tap that information as needed, as specific to your question at that time, is something that AI allows that I don't know that there's another way to do so efficiently.

When you open the chatbot, Sassy gives some options for what you can ask. How did you decide on those?

Our mandate is to make sure our students are prepared to enter the world of work. I intuitively realized that there's some gaps that happen in the career readiness space that I wanted to address. It's one thing to just give young people a tool that explores possible careers, but then does it also prepare them for job interviews, or does it prepare them for the follow up? Does it help them stay motivated?

How do you envision students using this tool?

What we need is more opportunities to honor students' interest. Students come to school with all kinds of interest, most of which don't get honored. The example that we give is that a kid can say, "hey, I'm interested in video games," and in many classrooms, teachers would not necessarily respond in a way that honors that kid's interests. However, video game designers make a lot of money. It's a growing area.

Here's a chance for a kid to just share an authentic interest and get some feedback and learn: "Oh, by the way, there's a degree program at University of Oregon, or there's a community college that offers this." Or, "Hey, have you thought about looking at these companies that create games and going after an internship?" and "here's how you would prepare to get that internship," and those kinds of things.

The conversation so far around AI has been around concerns about cheating, when really the conversation should be more about, how do we harness this new tool in a way that empowers kids? ■

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PROMETRIC

AI Is Here for K-12 Education... If We'll Have It

By Dr. Jesús Jara

Artificial intelligence has arrived, and it's capable of reshaping the American education system. The big question is, will the system let it? There is a pressing issue severely hindering how we educate our children in 2025: resistance to change. I know this because until last year I was superintendent of Clark County, Nevada, the fifth-largest U.S. school district. The county, which includes Las Vegas, has about 300,000 students and 40,000 employees. It was quite a ship to captain, and I am proud of what my colleagues and I accomplished in almost six years at the helm, battling long-held systemic norms to improve learning outcomes for the students we served.

That said, once a ship that large gets moving in a certain direction, it can be difficult to change course, even with how we arrange the deck chairs. Educators, from superintendents and school boards to principals and first-year teachers working hard to lock in their curricula, invest countless hours, months, years – and in some cases even careers – to do their best. Committing yourself to that effort while also allowing for new thinking is not easy.

It wasn't until I myself changed course that I could see what was standing in the way of progress. In 2024, I became the K-12 global practice leader of Prometric, a company building the workforce of tomorrow through improvements in credentialing and skill development.

More than anything, what I've learned since assuming this role is that – if we let it – AI holds incredible potential for improving student outcomes and doing so is entirely possible for school districts of all sizes. I also learned that countries all over the world are leading with the use of AI in our schools.

Dr. Jesús Jara, former Superintendent of Clark County School District in Las Vegas, NV, the fifth-largest US school district and current K-12 Global Practice Leader of Prometric

Educator Empowerment

Firstly, we have nothing to fear. AI isn't here to replace teachers; it's here to empower them. From streamlining tasks to identifying curriculum gaps, machine learning can revolutionize education by quickly enabling educators to focus on what truly matters – teaching and supporting the needs of all students.

My passion for equitable education stems from my own history, having immigrated to the U.S. from Venezuela as a young child in 1980. I was an undocumented, bilingual English language learner in Miami-Dade schools, facing challenges that still exist today: outdated systems and a lack of personalized learning.

> **"AI holds incredible potential for improving student outcomes and doing so is entirely possible for school districts of all sizes."**

The support of my teachers and counselors – particularly my 4th grade teacher, Miss Kilbride, who taught and caringly supported me while I learned English – allowed me to survive school and eventually to thrive in the education field. Unfortunately, not every student will be lucky enough to have a Miss Kilbride of their own to positively impact their educational journey so profoundly.

My professional journey started as a classroom teacher and eventually led me to oversee Clark County schools during the COVID-19 pandemic. During this time, it became abundantly apparent that every student learns differently. For example, some may need much more time than others in particular areas of study, and while some do fine with independent learning, others require more face-to-face interaction. Unfortunately, as we lived through and came out of the pandemic, all students were engaging with inflexible curricula and assessments that had not evolved in decades, factors that contributed to significant learning loss.

Personalized learning environments are essential for meeting the diverse needs of today's and tomorrow's students. The outdated systems of uniform assessments and rigid schedules no longer align with the realities of modern education.

Addressing Stubborn Curriculum Gaps

One major challenge AI can address is the time it takes to identify and address gaps between a district's curricula and its learning standards. I was recently speaking with a superintendent and asked him, "Where are your curriculum gaps?"

"Algebra I, for ninth graders, has been a challenge," he replied. The district had tried several different strategies to close the gap but the numbers were simply not improving.

We put the district's Algebra 1 materials through Prometric's AI-powered content classification system and alignment tool, which tags learning and assessment content more accurately and meaningfully than any human or team of humans could do. Aligning curricula with state standards and student needs was previously a complex and resource-intensive process. The tool, called Finetune Catalog, leverages data and advanced analytics to help educators understand where the gaps are and how to address them, creating a more streamlined and targeted approach to instructional improvement.

District officials were floored by the results, which for the first time showed exactly where they needed to update the curriculum to align with the current standards. Changes were made immediately.

How do you keep up with ever-evolving standards and make the best use of existing content? As that superintendent now knows, the answer is AI.

"District officials were floored by the results, which for the first time showed exactly where they needed to update the curriculum to align with the current standards. Changes were made immediately."

For school leaders who are already engaging with Prometric and our Prometric Pathways, they are – in mere minutes – significantly optimizing efforts, including for overworked faculty who are often asked to spend much of their summers tagging standards and doing other work that can now be done instantaneously with AI.

In addition to saving time, automating a curriculum gap analysis also removes biases. Sometimes educators disagree on whether particular content actually meets certain standards. AI removes opinion from the process and is customizable according to actual district needs, allowing each to build and train its own personalized tool.

New Skills for Educators

AI can also help educators upskill to meet the changing demands of the profession. For example, most teachers are not trained psychometricians, the skilled people who historically have created and interpreted assessments. I earned a doctorate in education and never took a psychometric class. Using AI, I can write assessments and item banks, and be confident my work will be aligned to standards. It's exciting to influence not only what we're teaching but the ways we're measuring whether students are learning.

AI's promise also extends beyond local districts and classrooms to state leaders and elected officials, who can use these tools to audit curriculums and assessments, adapting them to changing state guidelines.

In working with Prometric, I want to give education leaders tools I didn't have just a few years ago, tools that make their work easier so they can more effectively create the change our students deserve. With AI's transformative potential, education is on the brink of a new era – one that prioritizes equity, efficiency, and innovation.

The question now is, will we seize the opportunity to reimagine education, or will we let the old systems and processes hold us back?

I, for one, have a clear vision: When we embrace change and harness modern tools, we will build a future where every student can thrive.

E+

Published December 9, 2024

Want to Try AI With English Learners? Here's Where to Start

By Lauraine Langreo

Research on the efficacy of using generative artificial intelligence tools for English-language development is nascent. But initial examinations of AI's role suggest the technology has the potential to improve instruction.

There are challenges, of course. Teachers are worried about students using AI tools to cheat and that the technology can generate inaccurate or biased responses. Plus, some English learners might be too reverent about AI responses, rather than trusting their own thinking or writing.

Despite those challenges, some teachers of English learners have been experimenting with generative artificial intelligence tools since they became easily accessible two years ago. For instance, some teachers are using ChatGPT to reduce Lexile levels—the measure for how difficult a text is—for their students.

More broadly, one third of school and district administrators say they are using artificial intelligence technologies in programs serving multilingual learners, according to a nationally representative EdWeek Research Center survey of 1,135 educators conducted in September and October. Another 40 percent said they're either "considering," "exploring," or "piloting" these tools.

With more than a decade of experience studying multilingual learners, Avary Carhill-Poza, an associate professor of applied linguistics at the University of Massachusetts Boston, spoke with Education Week about ways to use AI with English learners.

This interview has been edited for brevity and clarity.

What research is already out there about using AI with English learners?

There are some emerging studies and findings about using things like ChatGPT in classrooms, but that's a pretty narrow definition of AI. We might want to think a little more broadly and go back to things like Google Translate and Grammarly and some of the work that people have been doing over the last decade or two [thinking] about technologies that use AI and how schools and communities have really adapted those different technologies to their classrooms. The idea of using AI is not actually so new in our classrooms.

What can we learn from previous research into other AI-driven tools?

One of the things that I would say to think about is—[in] that initial moment when we become aware of something new and it feels disruptive or threatening—the way that a conversation can turn from thinking about a [tool] to thinking about a practice, thinking about an app to thinking about a practice, thinking about AI to thinking about practice.

What does that mean? Usually what that means is learning from parents and students. What are they already doing with this new technology—with AI in this case—and how does that align with or challenge the kinds of things that we're doing in school right now?

A lot of what goes into district thinking sometimes is like, "Can we get some PD for this?" And while that's really helpful, I think we want to start with what our students already know, what their families and communities already know, and move toward what we can learn from and with them about the ways that they're already using AI [and] bring that back into our classroom and our learning practices.

Probably the biggest struggle for individual teachers and districts as a whole is how to engage with, how to really learn with families and communities.

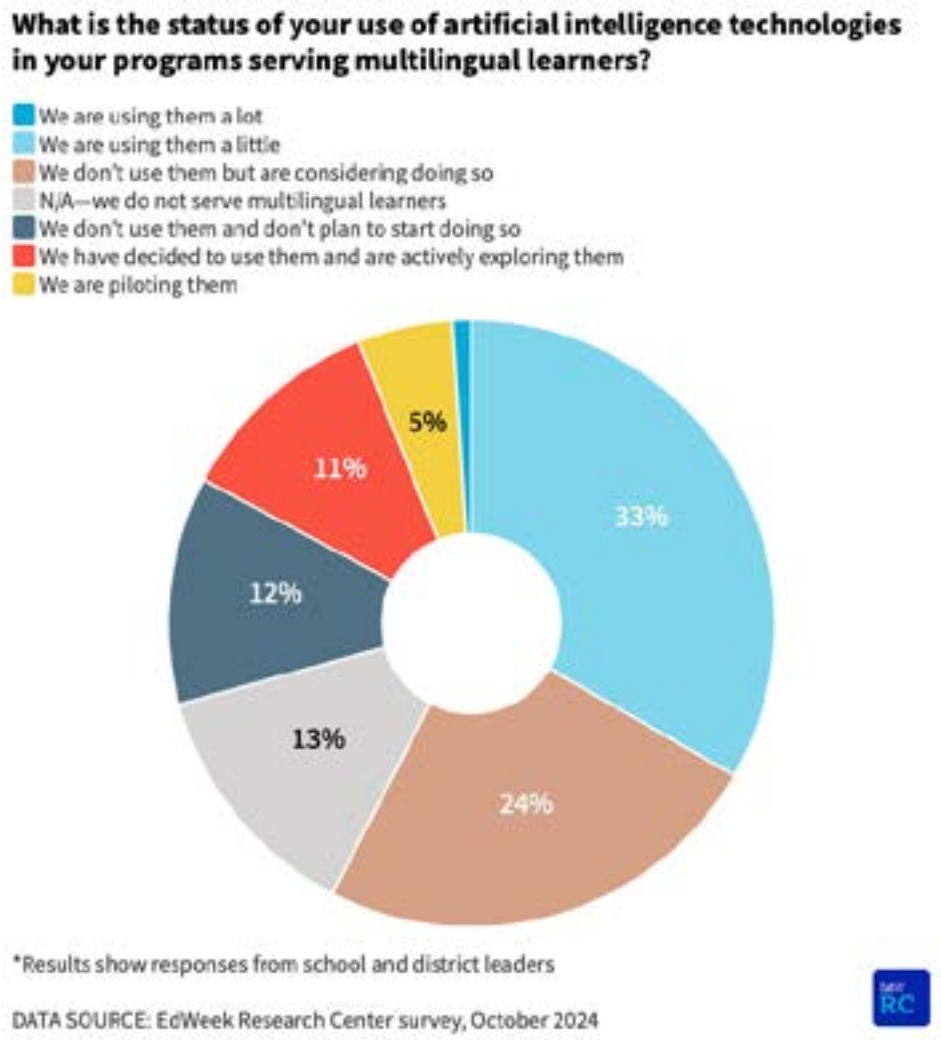
What are some ways English learners are already using AI?

I had a conversation very recently with a mom who was going to have her daughter pick some things up on her way home from school, so she was texting her this list of ingredients. The high school student [who is still learning English] was doing some quick translations [using an AI-powered translation app] into English so that she'd know what to look for and get as she was running this errand on her way home.

I have a student who's doing a dissertation project where she's interacting with a lot of students [face-to-face in their homes], and a lot of them use AI to summarize articles that they're reading for class before they take a deep dive to find details that they need for certain things. She [commented] on how efficient she saw the students working when they were at home and using AI to do this.

Some teachers are worried AI could be a crutch for students. What would you say to that?

For multilingual learners, the key point is to really think about practices that let the students bring what they know to whatever task



a teacher has, whatever learning objectives a teacher has.

If what they know could encompass an overview of an article that they're going to read, would that be helpful for the students? Would that be a way to support their learning, a part of a new or developing set of practices? If there's a way to think about what students are doing and what they're bringing to learning, it can lessen the fear that students aren't doing the work or aren't meeting expectations.

If you spend a whole class period laboriously translating your way through an article, is that the best strategy for leveraging [background] knowledge and experience? Is there a way that the AI technologies that students are already using could support learning and maybe allow them to center more the kinds of knowledge and experience that they already have?

It's really taking a step back and trying to be open to processes that might support language learning and content learning in what you might consider unorthodox, and moving past the initial sense that the technology is going to be disruptive just because it's not what you've been doing.

Do you have other advice for educators of English learners?

If you are generating some sort of text with AI, you still need to go back and edit it and clarify and proofread and make sure it's saying things that you're interested in having it say. Students who are multilingual learners can feel, sometimes, that those texts are maybe better than what they would be able to say themselves or more correct. [It's important to get] them to take it for what it is and feel comfortable using it when it's most beneficial but not feeling bound up or reverent of the texts that are generated. ■

Published December 9, 2024

AI's Potential in Special Education: A Researcher's View

By Lauraine Langreo

Matthew Marino, a professor at the University of Central Florida who studies the intersection of technology and special education, is excited about the potential of generative artificial intelligence for teaching and learning.

AI is "going to open a whole new front for education," he said.

The sentiment is shared by a majority of parents and educators of students with learning disabilities, according to a report from the Special Olympics Global Center for Inclusion in Education. The survey shows that parents and educators believe AI will make learning more accessible, inclusive, and personalized. But they're also concerned about AI's potential to decrease human interaction and leave some schools and students behind.

Marino underscores that there are ways AI shouldn't be used in instruction, especially because there still isn't enough data on how using generative AI for instruction could affect students with disabilities. Most datasets that AI tools are trained on contain a lot of information about neurotypical students, but they don't have nearly as much to draw from on students in special education, which could translate into technology that isn't as helpful for those populations.

Marino spoke with Education Week about why he's excited about AI for special education, what research is out there, and how educators can use the emerging technology.

This interview has been edited for brevity and clarity.

Could you explain why you think AI is 'going to open a whole new front for education?'

The capabilities we now have with AI are absolutely amazing. Students no longer need to struggle to write a paragraph, for example. All they have to do is create a prompt, and a large language model can write for them. I'm not saying it's a tool that's going to be used in place of learning to write, but it's a tool enabling students who have disabilities to spend more time refining their thinking than on generating basic text content. I have a student with muscular dystrophy who can't physically

Stuart Briers for Education Week

write a paragraph. It allows students like him to spend time evaluating their thoughts and organizing them in a way where they can be communicated effectively.

Why is that approach more beneficial?

A lot of times, kids will get stuck with the first task, where they have to take information that they've learned in one context and transfer the knowledge into a paper. This type of assignment is common in classrooms across the country. When students have to generate text from scratch, they often shut down and do nothing or they become a behavior problem for the teacher.

What we're trying to do is give them a venue where they can generate text information and reflect on it. We want them to develop a thought process following the scientific method. They're using the problem-solving method to analyze text that's been generated by AI.

What research is already out there on using generative AI for special education students?

There's very little published peer-reviewed research on AI and education. The reason is because of the rapid development cycles associated with AI. There's new software coming out every week, with major revisions occurring about every six months. Right now, most of the studies are exploratory case studies. There are no experimental or quasi-experimental studies because of the nature of research projects and how long they take.

By the time researchers get through the [institutional review board] approval to actually do their research, and carry out the study, the AI software is already dated. We submit the results for peer review. It's in review for six months, and then by the time it's actually published, the software is really outdated. That's a big challenge that we're going to have to work through as we move forward. The old school way we're doing research, carrying out research projects, and publishing the information has to change in order for us to stay current with what we're actually doing research on.

Some teachers are hesitant to use AI in their work or with their students. What would you say to them?

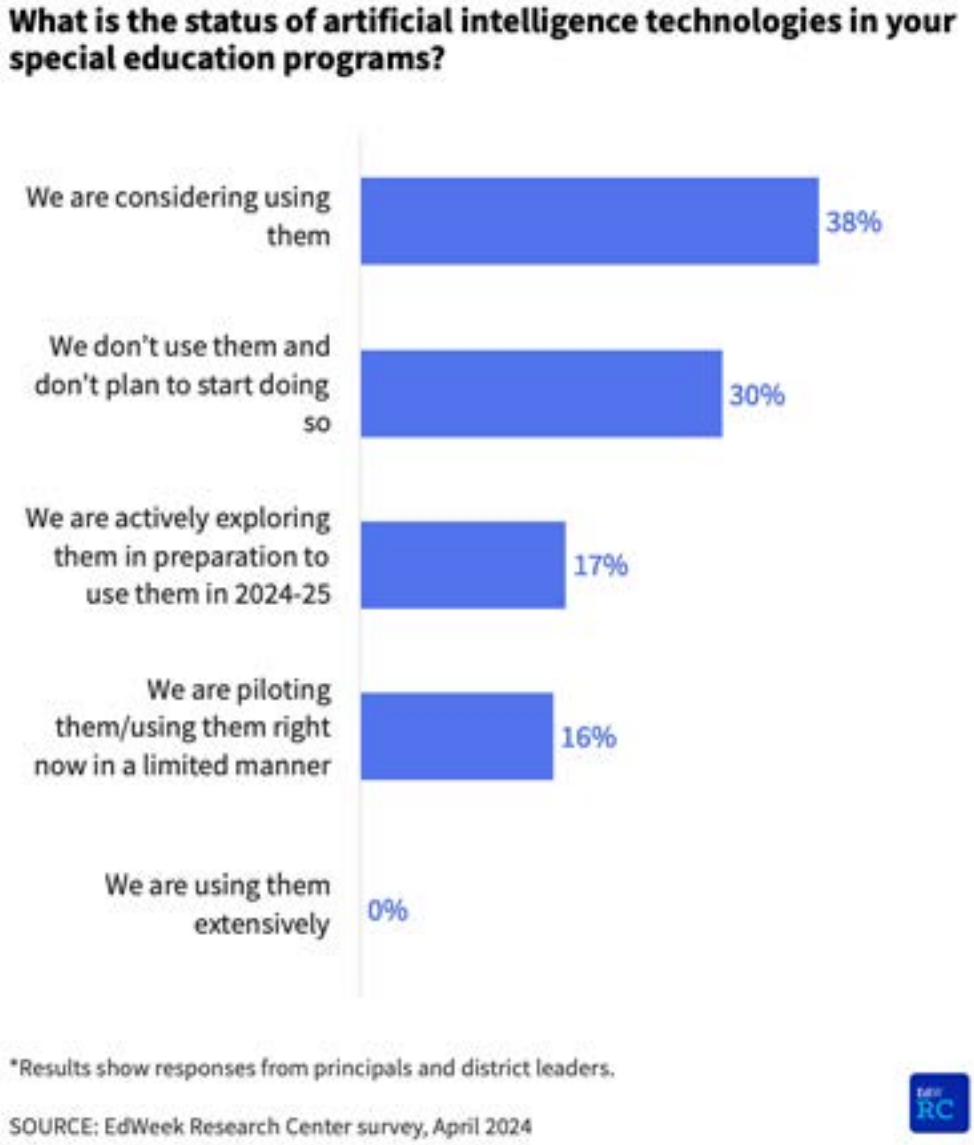
I would say I'm extremely excited about it. The capabilities of AI are absolutely amazing.

I'll give you an example. I was working with a student not long ago, and we were looking for some graphic organizers to help the student to understand the differences between a plant cell and an animal cell. After we spent some time on the internet, I started thinking, "Well, maybe I should use AI and see if AI can create it for me." So I just typed in a quick prompt and said, "Create an infographic comparing animal and plant cell organelles." Within 15 seconds, I had a beautiful graphic with everything I wanted for the student. It would have taken an additional 10 or 15 minutes to find a good graphic without the AI. The amount of time teachers can save is amazing, not only on the student instruction side but also on the assessment side.

Do you have an example for the assessment side?

I can give you an example from a special education administrator's perspective. We did a study last winter looking at a school district in the northeast [United States]. The school district was using Excel spreadsheets to collect IEP services data from case managers in the district. The district administrators were using the data to develop budget and staffing projections for the school board.

In a district where you have 100 case managers, each with 20 students on their caseload, you have a pretty big data set. Administrators can spend months synthesizing and analyzing the data. The administrators in this study were able to use a generative pretrained transformer, or GPT, called "data analyst." By just typing in a prompt, data analyst was able to take



all of the different Excel spreadsheets and combine the data into a compelling narrative with graphics to support staffing decisions. It's normally a three-month project. They did it using data analyst in three days.

Are there ways that AI should not be used with special education students?

It shouldn't be seen as a replacement for effective teachers or reason for students to not work hard. We should be using AI to help students with things like executive-function skills. That means planning and organizing their day, coming up with tasks, using the reminders features, and using text-to-speech. It's not going to replace the thought process students go through. It's a tool they will have on their phones and in their pockets for life.

Do you have any other suggestions for special education teachers looking to try AI?

Teachers should look strategically at their students and [ask themselves]: If I spend my time using artificial intelligence with the student, what are the benefits and limitations going to be and what is the return on investment?

Once they've made the decision to use AI, they should develop a plan where they implement the AI in a consistent way over time. Then they can evaluate if it improved the student's performance. It has a lot of potential. ■

OPINION

Published September 20, 2024

Can AI Be Used Effectively in Class?

By Larry Ferlazzo

A fair number of teachers, including me, have used artificial intelligence in our lesson preparation.

If, and when, to use AI with students is another kettle of fish.

What are specific ways you are using—or not using—artificial intelligence in your teaching?

What Students Say About Using AI

Sarah Cooper teaches 8th grade U.S. history and civics and is the associate head of school at Flintridge Preparatory School in La Canada, Calif. She is the author of two books, Creating Citizens: Teaching Civics and Current Events in the History Classroom (Routledge) *and* Making History Mine (Stenhouse)*:*

During the past school year, I wanted my 8th grade civics classes to be a place where students could experiment creatively with AI through large language models and image generators. I believe that AI is increasingly a helpful co-intelligence (as the title of an excellent book by Ethan Mollick describes it), and so I want students to see its possibilities, while still doing their own thinking.

As a result, in the directions for each major assignment, I included a section on how students could use AI, such as sketching out a theme for a mind map or a summary for a current events presentation.

At the end of the year, when each student picked seven out of several dozen prompts for a digital portfolio project, about a quarter responded to this one: "If you used AI in this class at all, describe what you did and how it was helpful or not helpful. Include how you might want to use AI ethically in your classes in the future."

Here are some patterns of use they described, which helped me—as much as them—imagine the many possibilities for thinking along with AI:

Clarifying Concepts: A number of students used AI to help them understand a complex idea. One student said that AI helped her understand the motives and "true tragedy" behind the 9/11 attacks for a group project on war. Another asked a large language model to help her better understand what "overcapacity" implied in a New York Times article about China's electric car factories: "While I was doing my annotations for this current event, I got confused since I did not fully understand what this quote meant, so I asked ChatGPT to break it down in simpler terms."

Creating Visual Cues: This year, I often marveled as students worked from visuals to text rather than from words to visuals, whether story boarding a PSA or selecting a Slidesgo template—definitely the opposite of my linear, linguistic approach! As one student wrote, "I have used the AI that is in Canva many times to find images ... [and] most of the images that it has made have been good enough to be on some of my projects." He also had a tip: "Canva AI should work on making the image generation look similar to what you envision the image to look like in real life."

Cleaning Up Writing: Last year Grammarly, QuillBot, and others upped their game so much that I sometimes thought a student had used a large language model to polish their writing when in fact they had just accepted Grammarly's style tips. (If this happened, I reminded the student that we want to hear their voice, not someone else's, because only they can write in their voice!) Students were grateful for AI's proofreading abilities, including "ensuring that there were no grammar mistakes and suggesting stronger adjectives." Calling on AI as editor can also be an equalizer for students who don't have access to a tutor or a parent/guardian with time and English-language expertise at home (though, of course, students still need to know how to write).

Finally, these 8th graders offered cautions and reflections. Some were fundamental: "The only thing I don't like is that ChatGPT sometimes get info wrong or doesn't know where it got a quote from" and "AI had a hard time adding quotes from the text when I asked it to, and also when I asked for more statistics from the article that were very clearly written."

Others tilted utilitarian: "I see myself using AI to help check my writing because it's easy to use and I can manipulate it with my own instructions" and "When using AI, it was difficult to find ways to utilize it where it wasn't doing all the work, rather just assisting in understanding." And still others waxed existential: "I knew AI was advancing. ... I just never fully realized its advanced, almost overpowering capability. In conclusion, AI is a valuable tool that should be used responsibly." Amen to that!

Applying the 80/20 Rule

Adam Moler is a middle school social studies teacher with experience in creating technology-infused lessons and is recognized as a district and state leader in innovative social studies instruction:

As an 8th grade social studies teacher, I have found artificial intelligence to be a powerful tool for enhancing my students' learning experience. By leveraging AI technologies, I have been able to create engaging, personalized lessons that cater to the diverse needs of my students.

One of the most significant benefits of AI is its ability to generate personalized content. Using AI tools like Claude, I can create reading materials tailored to my student's specific needs and the context of our lessons. For example, as a review near the end of our unit on the U.S. Constitution, I used AI to generate an article incorporating details from previous class activities such as the tug-of-war on separation of powers and the Oreo models representing federalism.

I prompted the AI with our unit's essential question, "How is our Constitution a model for limited government?" and mentioned the key concepts we had covered, such as popular sovereignty, federalism, separation of powers, checks and balances, individual rights, and limited government. Claude AI then generated a personalized article that connected these concepts to our specific classroom experiences.

However, it's crucial to remember that while AI can handle a significant portion of the content creation process, it's not perfect. That's where the 80/20 rule comes in: I aim to have AI generate around 80 percent of the initial content, but I always dedicate about 20 percent of my time to carefully reviewing, editing, and refining the AI-generated material. This ensures the final product is accurate, appropriate, and aligns with my learning objectives.

For instance, when using AI to create the Constitution article, I carefully reviewed the generated text to check for accuracy, clarity, and coherence. I made necessary edits to improve the flow of ideas, added examples to clarify key points, and ensured the language was suitable for my 8th graders. By combin-

ing the efficiency of AI with the critical eye of a human educator, I can create high-quality, personalized content that effectively supports student learning.

AI has also been invaluable in helping me provide differentiated instruction. When students miss class, I use AI to create review articles and activities to help them catch up. For instance, if a student misses a lesson on the Bill of Rights, I can input the key amendments and concepts into a Diffit, which generates a tailored review article and follow-up questions. I then review and edit the content, making sure it accurately reflects the material covered and is accessible to the student. This ensures all students have the necessary resources to succeed, regardless of attendance or pace.

Moreover, AI allows me to differentiate content based on students' individual needs and interests. For example, I can tailor readings to match their Lexile levels, ensuring that the material is challenging but not overwhelming. Before generating, or converting, texts to different Lexile levels, I ask AI, "What do you know about Lexile levels?" Seeing what AI knows first will lead to better, accurate results. Additionally, I can use AI to generate articles in a tone that resonates with my students, such as having an AI tool explain a concept in the same style as a popular celebrity or relate it to a topic they're passionate about, like football. By leveraging AI to create content that speaks directly to my students' interests and abilities, I can increase engagement and make learning more relevant and enjoyable for them.

Additionally, I use AI to provide targeted feedback to students. After a CyberSandwich activity where students wrote paragraphs on how the Constitution exemplifies limited government, I had AI scan their work and compare it to earlier writing samples. The AI analyzed factors like evidence use, paragraph structure, and coherence. I then reviewed the AI's analysis, verifying accuracy and adding my insights. This allowed me to track progress and identify areas for improvement, which I shared with my students through Google Classroom. By leveraging AI's capabilities and combining them with my expertise, I can provide frequent, detailed feedback to support students' growth with the skill of writing.

AI is also valuable for lesson planning. When I need engaging activities or fresh approaches to complex concepts, I turn to AI for inspiration. For instance, I used AI to adapt an escape-room activity when teaching checks and balances. I input the details and objectives, and the AI suggested tweaks to the guided notes, assessment questions, and Google form locks. I reviewed the suggestions, selecting the most relevant and effective ideas to fit my students' needs. By collaborating with AI and applying my judgment, I created a customized, interactive learning experience that resonated with my students.

While AI offers numerous benefits, it's crucial to use these tools responsibly and ethically. I always carefully review AI-generated content for accuracy and appropriateness, double-checking against reliable sources. Additionally, I use AI to supplement, not replace, my expertise as an educator. AI provides valuable insights, but ultimately, I make informed decisions about the content and activities that will best support my students' learning.

Integrating AI into my 8th-grade social studies classroom has been a game-changer. By leveraging AI to create personalized content, differentiate instruction, provide targeted feedback, and enhance lesson planning, I have created a more engaging and effective learning environment. The key is to find the right balance—letting AI handle a significant portion of the workload but always dedicating time to critically review, refine, and adapt the generated materials.

As AI continues to evolve, I'm excited to explore new ways to harness its potential to support student success and make learning more accessible and impactful. I encourage fellow educators to experiment with AI but to approach it with care and judgment. By embracing AI as a partner and applying the 80/20 rule, we can unlock new possibilities for student learning and growth while maintaining the essential human element at the heart of teaching.

'Creating Literacy Resources'

Meghan Hargrave is an experienced educator with over 15 years in the field and expertise in integrating artificial intelligence tools in the classroom. An international presenter and educational consultant, she has taught at Teachers College, Columbia University, regularly contributes to popular educational publications, and shares effective classroom strategies via social media @letmeknowhowitgoes:

Artificial Intelligence has become a key tool for creating literacy resources for teaching foundational skills. For several years, I have been working to enhance the teaching of these skills but, because of lack of resources, have found myself writing decodable texts, creating word sorts, making word ladders, and often settling for materials that "kind of" worked.

Now, AI helps me quickly generate decodable passages on needed skills and relevant topics, shared reading passages aligned with reading skills and content area topics, and multiple versions of texts to match a range of interests. Although it sometimes requires a few rounds of prompting or some revisions, AI has greatly improved our ability to create engaging and appropriate resources for students. Through the prompting, I have found that I am much clearer on what it is I am looking for and in turn have more clarity on what students need.

This said, I do not use AI as a stand-alone answer to any specific foundational-skill questions and do not fully trust it to create foundational-skill resources. I use it to get started but always analyze the output and often have to reprompt or make my own edits. It knows basic phonics, but I do not use it as a resource for teaching about phonics—it isn't the expert on r-controlled vowels or routines for teaching high-frequency words. I still rely on research-based resources for teaching these foundational skills. AI assists in resource creation but does not replace the depth of traditional educational methods.

Thanks to Sarah, Adam, and Meghan for contributing their thoughts! ■

Larry Ferlazzo is an English and social studies teacher at Luther Burbank High School in Sacramento, Calif.

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