AI in the Classroom

Can the new technology promote critical thinking without sacrificing the human touch?

BY OLIVIA B. WAXMAN

Peter Paccone, a social studies teacher in San Marino, Calif., has a new teacher's aid helping him in the classroom this year. He plans to defer to his helper to explain some simpler topics to his class of high schoolers, like the technical aspects of how a cotton gin worked, in order to free up time for him to discuss more analytical concepts, like the effects of the first industrial revolution.
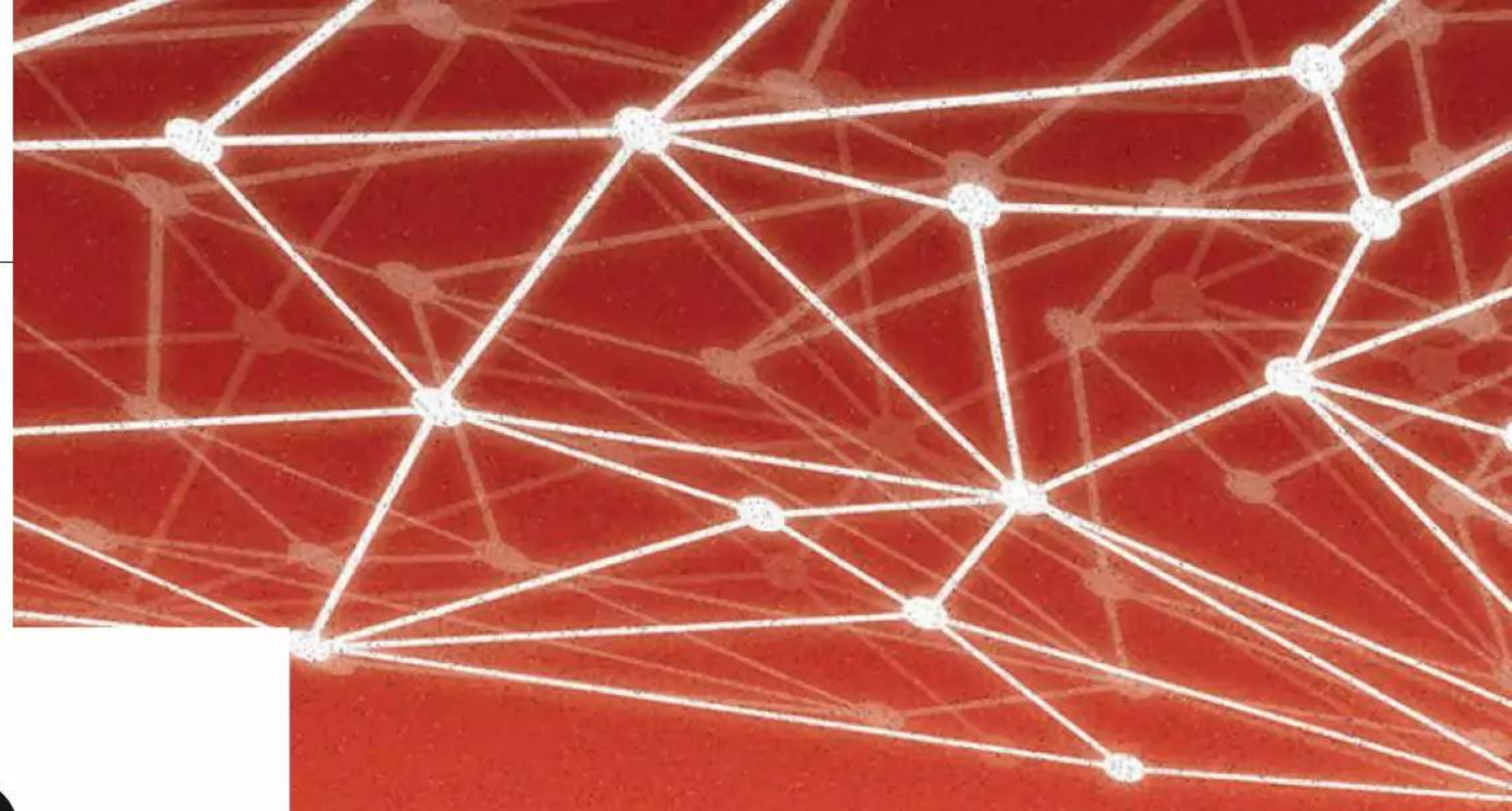
His new assistant? ChatGPT.

"What I feel that I don't have to do any longer is cover all the content," Paccone told a group of more than 40 educators in a May 2023 Zoom workshop, which he organized. If artificial intelligence is on the cusp of reshaping entire aspects of our society—from health care to warfare—the first realm that leaps to many minds is education: Asked a question online, the ChatGPT chatbot will produce an answer that reads like an essay. Indeed, both students and teachers are grappling with AI's implications for learning, homework, and integrity. Paccone is only one of many high school teachers who has been experimenting with ChatGPT in the classroom. But the tool is inspiring as much trepidation among educators as it is excitement.

In early 2023, some of the nation's largest school districts, from New York City to Los Angeles, banned access to ChatGPT in the classroom, citing "concerns about negative impacts on student learning, and concerns regarding the safety and accuracy of content" while they worked to formulate policies around it. Meanwhile, teachers desperate to figure out how to harness the tech for good congregated in Facebook groups like "chatGPT for teachers" (about 374,000 members) and "The AI Classroom" (more than 29,000 members).

"The majority of the teachers are panicked because they see [ChatGPT] as a cheating tool, a tool for kids to plagiarize," says Rachael Rankin, a high school principal in Newton Falls, outside of Youngstown, Ohio.

But Paccone and a growing group of educators believe it's too late—and a bad idea—to keep AI out of their classrooms. Randi Weingarten, President of the American Federation of Teachers, a major teachers union, believes the panic about AI is not unlike the ones caused by the internet and graphing calculators when they were first introduced, arguing ChatGPT "is to English and to writing like the

calculator is to math." In this view, there are two options facing teachers: show their students how to use ChatGPT in a responsible way, or expect the students to abuse it.

MATH RAPS AND SHAKESPEARE TRANSLATION

As teachers wrestle with whether to use AI in their classrooms, they're also learning about the pernicious ways that abuse can take place.

At another Zoom teacher training workshop that TIME observed in July 2023, hosted by Garnet Valley School District in Garnet Valley, Penn., education consultant A.J. Juliani ran through various AI apps that students are using to cut corners in class. Photomath lets students upload a picture of a math problem and get detailed instructions on how to solve it. Tome can turn notes into a narrative, perfect for essay writing and preparing for presentations. And Readwise can highlight key parts of PDFs so that students can get through readings faster.

"Many of them are just using it to do the work because they're bored," Juliani said. "They're not engaged. They don't care. And we have to own up to that."

Many of the more than a dozen teachers TIME interviewed for this story argue that the way to get kids to care is to proactively use ChatGPT in the classroom. A July 2023 Walton Family Foundation survey found 73% of teacher respondents had heard of ChatGPT, and 33% used it to "help with planning lessons" and 30% to come up with "creative ideas for classes."

Some of those creative ideas are already in effect at Peninsula High School in Gig Harbor, about an hour from Seattle. In Erin Rossing's precalculus class, a student got ChatGPT to generate a rap about vectors and trigonometry in the style of Kanye West, while geometry students used the program to write mathematical proofs in the style of raps, which they performed in a classroom competition. In Kara Beloate's English-Language Arts class, she allowed students reading Shakespeare's *Othello* to use ChatGPT to translate lines into modern English to help them understand the text, so that they could spend class time discussing the plot and themes.

Teachers are also using ChatGPT to generate materials for students at different reading levels. Aileen Wallace, who teaches a class on current events in Falkirk, Scotland, said the tool could instantly produce simplified versions of readings on the causes of terrorism for 14-year-olds who either read at lower reading levels than the rest of the class or have been learning English as a second language.

To be sure, ChatGPT doesn't always get things right—but teachers are finding that provides its own way to engage students. Some are having students fact-check essays generated by the program in response to their prompts, hoping to simultaneously test students' knowledge of the topic and show them the problems with relying on AI to do nuanced work.

In Panama, International Baccalaureate teacher Anna May Drake had juniors and seniors critique a ChatGPT-generated essay comparing George Orwell's *1984* and Margaret Atwood's *The Handmaid's Tale*, while in the Detroit area, Sarah Millard, a ninth-grade honors English teacher, had students critique a ChatGPT-generated essay on Shakespeare's *Romeo and Juliet*. "My students have never been so engaged in writing," Millard says. "They wanted to beat the computer" and were "tearing apart" the AI-generated essay.

Teachers are even finding that ChatGPT is a big time-saver for their own homework. Larry Ferlazzo, who teaches English, Social Studies, and International Baccalaureate classes in Sacramento, calls it a "miracle" and has had ChatGPT help write college recommendation letters for some of his students. He says it did it "10 times better" than he would have alone.

Debate Partner & French Friend

Generative AI has been making inroads across the grade levels and subject matters. Among some innovative uses, look to:

LANGUAGE LITERACY
■ **Storytelling** Educator and author of *The AI Infused Classroom* Holly Clark developed an exercise for students of her second grade class to pick elements for a story, from conflicts to main characters, and then feed them to ChatGPT, *EdWeek* reports. "You are a children's book author," Clark instructed them to prompt the AI. "…write a very short story for an audience of second graders, using these elements."
■ **French, Anyone?** Sean Michael Morris, vice president of academics at Course Hero, says ChatGPT is great for learning a foreign language at any grade level. "I can take a sentence, such as 'How are you today' in French," he tells TIME, and it "responds and I have to read that in French."
■ **Writing** Peter Stone, a computer scientist at the University of Texas at Austin, uses the chatbot to help non-native English speakers improve their written expression. He asks his students to submit both their original work and a polished version produced as output from generative AI. "They are required to both do their own original thinking and improve their clarity of expression," he tells TIME.

CRITICAL THINKING
■ **Skeptical Mindset** Eamon Marchant, science department chair at Whitney High School in Cerritos, Calif., is alerting students to bias and other fundamental flaws, like hallucinations, generated by the tech. The problems "do not scale away," he tells

'THERE'S A TIDAL WAVE COMING'

While many educators agree that a ban on ChatGPT in the classroom is not the answer, they differ on how much it will change schools. Some think it will be a revolution. "There's a tidal wave coming for education," says Dan Fitzpatrick, an author and keynote speaker on AI in education and administrator of "The AI Classroom" Facebook group. "Our schools could really find themselves irrelevant in the next few months to a few years."

Others believe it may become a useful tool, but the basics of schooling won't change. "I've lived through probably nine hype cycles of AI and education where visionaries proclaim that this is the big breakthrough—and then it isn't," says Chris Dede, a Senior Research Fellow at Harvard Graduate School of Education who is an expert on the history of educational technologies. "Generative AI is certainly not, in my opinion, some kind of enormous breakthrough that's going to transform education."

There are real concerns about ceding too much instruction to the program: Weingarten and others fear it will promote educational inequities, further dividing classrooms into students whose families have the resources to afford the high-speed internet connection that eases access to ChatGPT and students whose families do not. There are also worries about biases in the data AI uses to craft its answers to users' prompts.

"Much of the information that's online, that ChatGPT is trained on, is going to be predominantly of western perspective, and what's going to be less represented are the perspectives, knowledge, and experiences of underrepresented communities," says Ezekiel Dixon-Román, Director of the Edmund W. Gordon Institute for Urban and Minority Education and Professor at Teachers College, Columbia University.

And it will be no small challenge for teachers to figure out how to use the technology to develop students' critical thinking skills without sacrificing the connections that can be the product of human-to-human teaching—an even more urgent challenge when it comes to students who mentally checked out during the pandemic. When it comes to getting knowledge to stick, there may be no substitute for human relationships. To many teachers, that's reason enough not to fear the extent of the disruption on the horizon.

"I've been to former students' weddings and baby showers and funerals of their parents," says Millard, the high school English teacher in Michigan. "I've hugged my students. I've high-fived my students. I've cried with my students. A computer will never do that. Ever, ever."—*Updated excerpt from* TIME, *Aug. 8, 2023*

TIME. He wants his students to know what AI excels at, and what is best left to more traditional means.

■ **Art of Collaboration** John Camp, who teaches ninth through 12th grade humanities at New England Innovation Academy in Marlborough, Mass., likes to see teamwork and enjoys a mix of perspectives. That's why his classes use Google's Bard, he tells TIME, to "review three versions of Bard's response to the prompt." Morris adds that students can use it to research potential thesis statements for an essay on *Hamlet*, for example, and then compare them: "It's not writing the essay for them, it's helping direct them."

■ **Debate Coach** The tech makes a solid debate prep partner by modelling what a competitor might say and strengthening students' counterarguments.

GIVING EDUCATORS A HAND

■ **Gaining Perspective** "One of the interesting uses I've seen is teachers just going into ChatGPT and asking, 'What is the best way to teach this?'" says Morris. Elizabeth Delaney, who teaches engineering at NYC's Basis Independent Schools, uses generative AI to "expand my knowledge as an educator or introduce new ideas. You give it a lot of information and it can give you a lot of ideas, but not all of them will be good!"

■ **Planning Lessons** Nneka McGee, chief academic officer for the San Benito Consolidated Independent School District in San Benito, Texas, tells TIME she enjoys generating images and slide decks with the AI software Curipod, which allows her to draw on interest hooks, bullet points, and questions, all in service of building a lesson plan.

■ **Grading Tests** Jennifer Turner, an algebra teacher in New Jersey, saves hours when the app Bakpax grades her students' tests, she tells the *New York Times*. She pays those hours forward with more time for the students, helping them see the true beauty of math. —*Alexandra Frost*