



# WHAT EDUCATORS NEED TO KNOW ABOUT AI

## Q&A WITH JUSTIN REICH

BY SUZANNE BOUFFARD

**T**he emergence of text-generative artificial intelligence tools, like ChatGPT, presents both opportunities and challenges for schools. What do teachers and

leaders need to know about these tools, and what role should they play in professional learning?

*The Learning Professional* discussed these issues with Justin Reich, a learning scientist whose work focuses

on the future of learning in a networked world. Reich is director of the MIT Teaching Systems Lab, which engages teachers and leaders in collaborative learning about how to create and maintain active and student-centered

**The rhetoric about AI is often disempowering or frightening. But in 10 minutes, you can help educators understand what the systems are actually doing, and when they see how it works, they tend to find it quite empowering.**

learning experiences. He is the author of the books *Failure to Disrupt: Why Technology Alone Can't Transform Education* and *Iterate: The Secret to Innovation in Schools* and the host of the TeachLab Podcast. He is also an associate professor of comparative media studies/writing at MIT and a former high school history teacher.

**When you speak to educators about AI, you take the time to explain how the technology works. Why is that important?**

The rhetoric about AI is often disempowering or frightening. But in 10 minutes, you can help educators understand what the systems are actually doing, and when they see how it works, they tend to find it quite empowering.

To understand ChatGPT and similar tools, the most important word is “predict.” What text-generative AI does is, given a sequence of words, it predicts what the next word would be. That prediction is based on huge amounts of text that developers have fed into the programs from around the Internet. These tools don’t think, reason, or imagine. They don’t have brains. Sometimes the tool anthropomorphizes itself — for example, saying, “I’m sorry” — but it does not think or feel.

When people understand that these systems have no capacity to understand, that they are just predicting sequences of words, it demystifies the technology and

it also helps people understand how and when to use it and when not to.

**If you were in charge of a district’s professional learning, what else would you teach educators about AI?**

Many educators have concerns about cheating, and we need to address that. But I frame this differently, in a way that I think is more useful: What do we do when students use AI to bypass cognition and learning? Cheating is like an accounting problem and an ethics problem. But bypassing cognition is a learning problem.

Before AI came along, educators had developed a series of tasks and exercises that provoked students to do useful cognition that led to learning. And now we have this machine that can do a bunch of that work for them. Bypassing that cognition is a problem.

But we have decades of technologies that help students bypass cognition, and we have learned to work with and around them. We have encyclopedias, calculators, Google Translate, Course Hero, and the list goes on. We have figured out when and how to incorporate them and also identified times when it is appropriate to wall them off. For example, math teachers have had tremendous success turning to students and saying, “We’re not going to use calculators for this part because it’s actually quite useful to memorize 3 times 7.”

We need to learn and adapt with AI the way we have with those previous technologies. We’re going to need to do a lot more observing of students engaging in activities that, in the past, we might have had them do at home, like writing essays. And we’re going to need to rethink a lot of our assignments and activities, maybe even intentionally incorporating AI. Across the curriculum, we’ll need to look at what we’ve been doing and ask ourselves: What is it that I’ve been asking people to do? What happens if they ask ChatGPT to do it? Is it going to generate the kind of thinking that I want them to do or bypass it?

Writing policies about cheating and plagiarism is important, but the most important thing is creating time and space to figure out what to do and how to modify our practices when AI allows students to bypass learning.

**Many schools are currently banning students’ use of AI or blocking access on campus. What do you think of this approach?**

Every educational community I’ve ever been a part of has people who are energized by exploring new things. AI is a great new thing to explore, for students and educators. So I say, let them explore it.

Plus, when has banning a new technology ever been successful? Temporarily walling it off to engage in certain learning tasks is effective, but

outright bans rarely are. A ban is usually a great way to teach your students how to use VPNs and how to deceive you. In 2009, I wrote an Op-Ed calling internet filters knee-high fences because they trip up adults, but students just leap right over them.

**What roles should text-generative AI play — or not play — in designing and implementing professional learning?**

It's important to remember the process that leads to the design of good professional learning. The best professional learning happens when educators come together and agree on what they need to learn; find high-quality, existing curricular materials and learn to apply them effectively; work together in small groups to adapt the materials for their local context; and continue to refine, implement, and reflect. That doesn't come from plugging a prompt into any technology

tool, whether ChatGPT or Instagram or Google.

That doesn't mean AI isn't useful at all. Computer scientists sometimes use a process they call rubber-ducking: talking through a problem with a rubber duck, because the act of thinking out loud helps generate solutions, even if you're not interacting with anyone else. So if you use ChatGPT as your "rubber duck plus," that can be helpful. But you have to sift through the responses and edit them and modify them so that you are the one ultimately driving the learning design.

A lot of people offering AI-powered professional learning advertise it as providing personalized learning based on the user's interests and deficits. But that's not an effective way to think about improving teaching and learning, which is a more orchestral process. Schools that improve collectively identify a few things everyone will

work on that are focused enough to have a shared language and foundation but capacious enough for everyone to work on in the ways they need to. When we accept that the goal is for the entire school community to be working together on improvement, the use of tools like ChatGPT isn't clear.

**You have said that you have equity concerns about AI tools. Why is that?**

One way to think about different types of technology tools is to divide them into adoption technologies and arrival technologies. Most educational technology is in the adoption category — schools go through a planning process, they assess the products, and they purchase and implement them. But text-generative AI tools are an arrival technology, meaning you don't plan for them or purchase them — they just arrive at students' and educators' fingertips. You can access ChatGPT

**nwea** Professional Learning

Is your PD getting you where you need to be?

Attend sessions designed and led by experienced educators to help your team turn learning evidence into action.

Discover more at [NWEA.org/professional-learning](https://www.nwea.org/professional-learning).

©2024 Houghton Mifflin Harcourt. NWEA is a registered trademark of Houghton Mifflin Harcourt in the US and in other countries. All rights reserved. FEB24 | WELTSK7071



from Microsoft's Bing search engine for free — it's as simple as that.

We often think about the equity implications of adoption technologies because some schools have more resources than others to buy the tools and invest in professional learning to support them. But arrival technologies cause inequities, too. I have been conducting interviews with teachers, and one of the things I see is that rich schools have the bandwidth to deal with AI tools and use them effectively. Poor schools have a million other things to deal with. Educators in underresourced schools tell me they would love to spend a day learning how to incorporate ChatGPT, but it's too far down their list of priorities and urgent issues.

We should be wary of the notion that these tools will automatically democratize education. Just because something is free doesn't mean it's going to be used effectively and equitably by all.

### What advice do you have for educators about choosing when to use and when not to use AI?

It's important to remember that AI tools' performance is highly uneven across tasks, even across the same types of tasks. And no one really knows why. We don't even know why it works as well as it does. There is no computer scientist on earth who can tell you exactly why predicting the next word in a sequence will reliably come up with sensible prose or images.

This is a very different situation than with past technologies. When we invented internal combustion engines, we knew how they worked and that they would go about 8 mph. Sometimes they might go 7 or 9 mph, but they didn't go 120 mph in reverse. When you don't really know how a technology works, that's problematic for a lot of reasons. For example, it's a problem for novices who can't tell the difference between accurate responses and nonsense. It's also very difficult to regulate

a technology when no one has a good explanation of how it works.

I also advise people to be skeptical of claims that AI tools and products are going to transform education by personalizing it. The idea is that kids are going to sit in front of their computers and learn by asking questions about math to a chatbot. But they're not, because talking to a computer is boring, just like reading a math textbook or watching a math video is boring. The reason students learn algebra is because they like their teachers and they care about learning with their peers. Kids (and adults) are really not very good about learning independently; they really need support from an instructor. We can do a lot online, but we learn best in relationships with other people.

**Suzanne Bouffard (suzanne.bouffard@learningforward.org) is editor-in-chief of *The Learning Professional*.** ■

The advertisement features the Avanti logo on the left, which includes a stylized 'A' icon. To the right of the logo is a circular award seal that reads 'WINNER 2024 TOP EDTECH PRODUCTS DA District Administration WINNER 2023'. Below the logo, the text reads 'Professional development created by teachers, for teachers'. A paragraph describes the platform's offerings: 'Avanti makes it easy for your teachers to take control of their learning. With hundreds of brief, on-demand videos featuring classroom-tested strategies, teachers can quickly find solutions to their daily challenges.' A section titled 'Give your teachers access to:' lists three bullet points: 'Videos of proven teaching strategies that can be learned in five minutes or less', 'Downloadable implementation and planning guides', and 'Access to live streams with experienced teachers'. A QR code is located at the bottom left, with the text 'LEARN MORE My-Avanti.com/ProvenStrategies' next to it. On the right side, a laptop displays the Avanti website interface, showing a video player and a 'Recommended Strategies' section with three video thumbnails. At the bottom right of the laptop, the 'Solution Tree' logo is visible.