

News and Perspectives

Reckoning With AI in Primary and Secondary School Education: Impacts on Learning and Development Remain to Be Seen

Simon Spichak, JMIR Correspondent

Abstract

As AI rapidly makes its way into elementary classrooms, understanding the potential impact on children's learning and development has become more pressing. In this *News and Perspectives* article, JMIR Correspondent Simon Spichak reports on what experts are saying and doing about the potential benefits and risks.

Key Takeaways:

- While further high-quality research on the impact of AI on K-8 education is needed, experts are raising concerns that it may lead to cognitive offloading and overreliance by both students and educators.
- To ensure careful adoption of AI, legislators are requiring schools to have AI policies and unions are offering training.

AI is changing education. Students are [writing essays](#) with help from chatbots. Teachers are using these tools for lesson planning, [grading assignments](#), and administrative work. And [school boards](#) are partnering with tech companies to pilot chatbots for students while teachers' unions are [training educators by the thousands](#).

Despite its rapid adoption, however, there is still [little research](#) looking at the impact of AI on K-8 education and the results vary depending on the educational context, how AI is used, and the outcomes being measured.

"We don't know very much, and I'd say what we know is probably more cautionary than reassuring," says Mary Burns, MS, MA, EdM, researcher at the Education Training Foundation who also coauthored a recent [Brookings Institute report](#) on the impacts of AI on education. "The risks are disproportionately accrued to younger children, and the younger you are, the greater the risk."

How AI Is Changing Teaching

Educators around the world are already using ChatGPT and other generative AI tools.

[Jennifer Chen, EdD](#), a leading early childhood education researcher at Kean University, is developing a [framework](#) to guide purposeful and ethical implementation of AI in educational settings.

"Rather than replacing their work, AI assists with routine, administrative, and instructional tasks, giving educators more time to invest in what they see as the heart of teaching: cultivating caring relationships, providing individualized support, and engaging in the uniquely human dimensions of teaching and learning that technology cannot replace," Chen says.

But overreliance on these tools to develop a curriculum and lesson plan, Burns worries, could lead to alienation from one's work. "When I was designing activities for students, you know, I'm actually thinking about my students," says Burns. She thinks about the strengths of individual students and whether assignments or projects would suit them. "To me, the lesson instructional design is the most creative part of teaching."

Chen also cautions that AI-generated plans may contain factual errors, historical biases, and other perspectives that may need to be reviewed or revised by educators.

"AI can be a powerful tool for supporting teaching, but it should augment educators' expertise—not replace their professional judgment, creativity, or relationships with students," says Chen.

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[The framing of] panic and falling behind that's pushed onto these education systems, I don't think lends itself to kind of thoughtful and meaningful and purposeful integration.

Mary Burns, MS, MA, EdM

The Impact on Students

While experts have suggested that AI [could enhance learning through personalization](#) and [novel teaching methods](#), they've also raised concerns that it may [pose risks](#) to children's cognitive development, creativity, mastery of school subjects, and social and emotional development. However, they also raise the urgent need for more high-quality research on the effects of AI in children's education and development.

Burns worries that students will use AI chatbots to cognitively offload the mental effort of completing assignments and miss out on learning. "You have to know how to learn to do basic skills that, as an adult, we might eschew and say, 'Well, that's ridiculous. That's a waste of time.'"

In her interviews, some kids would say they don't want to read a book when AI can summarize it for them. "What we're seeing in schools is the kids are offloading their skills and their knowledge before they've even unloaded it."

Many students are also using chatbots as companions, though some [experts worry](#) that chatbots prioritize engagement over well-being. Burns said that while previous media developed for kids by the Public Broadcasting Service sought insights from experts and psychologists to develop appropriate programming, that isn't the case for these generative AI tools, which are frequently marketed to young learners.

Teaching AI Literacy

Sara Baldassar, MEd, a Cleveland, Ohio, grade 6-8 science and social studies teacher, is heading into her 28th year of teaching. She says that students sometimes don't realize they're interacting with AI. They don't know, for example, that the results at the top of a Google search are AI-generated.

"I'm really, really adamant about making sure that my kids recognize when AI is being used because that's part of being a good digital citizen," she says. "Being able to go, 'hey, wait, this is not true, this is not real, this is AI-generated.'"

Although educators and experts have also raised concerns that these tools will fuel more cheating, a [2024 survey](#) suggested that cheating behaviors may have remained fairly stable among high schoolers since ChatGPT's release. "I don't know that I've necessarily seen an increase in that kind of behavior," says Baldassar. "Definitely, they're using it more than I am comfortable without having any kind of digital literacy training."

Because of their broad-ranging impact across many employment sectors, Baldassar believes that students will need to learn to use these tools.

Keywords: artificial intelligence; education, primary and secondary; child; cognition; learning; educational technology; regulation, artificial intelligence; academic performance; AI

The Rush to Adoption

Generative AI rolled out before teachers and school districts had guidelines and training in place, which [may have led](#) to educators unknowingly inputting sensitive information into public models.

As a result, some school districts, like Baldassar's, moved to completely ban AI. New legislation in Ohio requires school districts to have an AI policy in place by [July 1, 2026](#). Baldassar, who sits on the Cleveland Teachers Union, helped develop a policy for her district that would train staff and work toward building digital fluency in students.

The American Federation of Teachers (AFT) created the [National Academy for AI Instruction](#) in 2025 to help teachers learn about AI so that they understand the risks and potential benefits. Rob Weil, MA, CEO of the academy and director at the AFT stated over email that the academy has already trained 12,000 educators, with a focus on preparing them to use AI safely, responsibly, and effectively. "Educators value learning not only how to use AI, but when not to use it," says Weil.

The academy has received some criticism for the [US \\$23 million in funding it received from Anthropic, OpenAI, and Microsoft](#). "The funding, I suspect, is for these companies to make further inroads into the education market," says Burns. "However, having a union lead the AI trainings engenders a lot of trust—though for many educators, it may signal capitulation or being co-opted by big tech."

Weil says that they value their relationships with these companies but emphasizes that the academy is independent and educator-led.

"We will work with independent researchers to study broader impacts on teaching and learning," says Weil. For them, successful implementation means ensuring educators make better decisions about AI, reduce their workload, and protect students, while also ensuring that the tech strengthens rather than replaces teaching.

Burns is concerned that these courses approach AI through an adoption framework, leaving little room for those who want to abstain due to legitimate concerns about the technology.

Implementing these tools as quickly as possible also doesn't make sense to her, especially if AI is here to stay. The framing of "panic and falling behind that's pushed onto these education systems, I don't think lends itself to kind of thoughtful and meaningful and purposeful integration."

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