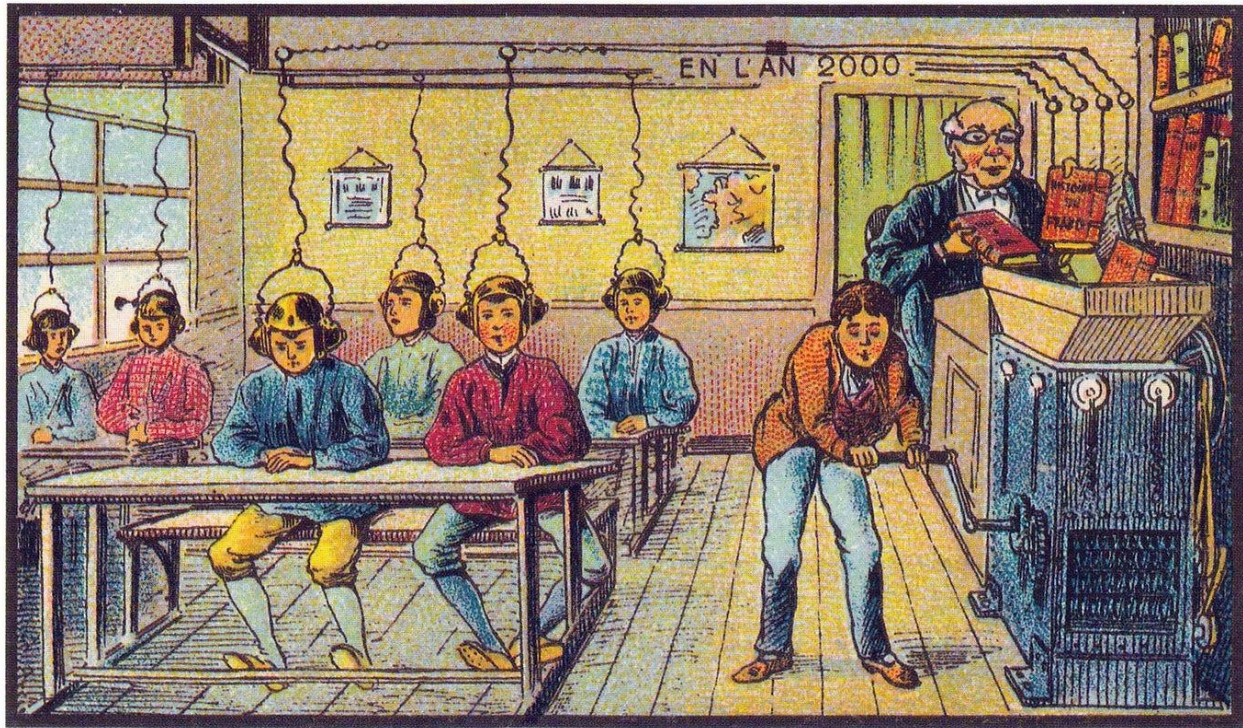


Sal Khan and Bill Gates Are Wrong About AI

What can we learn from a century of failed ed-tech hype?

[George Dillard](#)



At School

A French postcard from 1900 predicting what school would look like in 2000 ([public domain](#))

If you listen to Sal Khan, we're on the verge of a profound transformation of education.

Khan, the founder of Khan Academy, a nonprofit site designed to help students with their schoolwork, believes that generative AI will [give](#) every student access to "world-class personalized learning." He foresees a future in which every student will have their own individualized tutor available 24/7, helping them to master their studies. The AI will plan lessons for teachers, provide learning plans for each student, create assessments to check student learning, and grade those assessments.

[Bill Gates](#) loves the idea! He imagines a middle school in the not-too-distant future:

Picture this: You're a seventh-grade student who struggles to keep up in math. But now, you have an AI tutor like the one Sal describes by your side. As you work through a challenging set of fraction problems, it won't just give you the answer — it breaks each problem down into digestible steps. When you get stuck, it gives you easy-to-understand explanations and a gentle nudge in the right direction. When you finally get the answer, it generates targeted practice questions that help build your understanding and confidence.

And with the help of an AI tutor, the past comes to life in remarkable ways. While learning about Abraham Lincoln's leadership during the Civil War, you can have a "conversation" with the 16th president himself...

When the time comes to write your essay, don't worry about the dreaded blank page. Instead, your AI tutor asks you thought-starters to help brainstorm. You get feedback on your outline in seconds, with tips to improve the logic or areas where you need more research. As you draft, the tutor evaluates your writing in real-time — almost impossible without this technology — and shows where you might clarify your ideas, provide more evidence, or address a counterargument. Before you submit, it gives detailed suggestions to refine your language and sharpen your points.

Gates goes on to describe the benefits for the teachers of this "superhuman teaching assistant" that can handle "routine tasks like lesson planning and grading."

It will not surprise you that Khan has unveiled his own chatbot named [Khanmigo](#) — which, unlike the rest of Khan Academy, is not free to students, though it is cheaper than most "pro" AI subscriptions — to do many of these tasks.

What an exciting future! Teachers will be liberated from drudgery, and students will have access to a personal trainer for their minds!

Assuming AI continues to develop as it has, it may revolutionize education. But I would be shocked if its effects mirror the rosy predictions of Khan, Gates, and company. Every new information

technology of the last century has been accompanied by optimistic predictions about its educational potential, only to fall far short of utopia.

Before Bill Gates promised students liberation through AI, another tech tycoon, Thomas Edison, predicted that motion pictures would transform education. Edison, of course, stood to gain from this assertion — he had invented several key movie technologies.

For centuries, Edison claimed, students had been wasting their time reading books — but those days would soon end. In 1913, a reporter asked him about the “educational value of pictures,” and the innovator [waxed](#) lyrical:

“Books,” declared the inventor with decision, “will soon be obsolete in the public schools. Scholars will be instructed through the eye. It is possible to teach every branch of human knowledge with the motion picture. Our school system will be completely changed inside of ten years.

“We have been working for some time on the school pictures. We have been studying and reproducing the life of the fly, mosquito, silk weaving moth, brown moth, gypsy moth, butterflies, scale and various other insects, as well as chemical chrysalization. It proves conclusively the worth of motion pictures in chemistry, physics and other branches of study, making the scientific truths, difficult to understand from text books, plain and clear to children.”

When Edison’s 10-year window came and went without movies replacing books in schools, he simply [extended](#) his timeline: “I think motion pictures have just started and it is my opinion that in 20 years children will be taught through pictures and not through textbooks.”

This turned out to be far from true. Movie technology is useful for some things — sometimes students get more out of seeing footage of a historical event or a scientific process than they do from reading or hearing about it. But it has not come close to transforming the classroom.

Readers of a certain age will no doubt remember the thrill of the filmstrip projector or TV cart being wheeled into class for a “movie day.” But the source of our excitement came from the fact that, when the lights went off and the screen went on, we could turn our brains off for the rest of class.

Edison was wrong: movies were, at best, a nice occasional addition to a traditional curriculum and, at worst, a way for lazy teachers to kill time in class.

Edison conceded that one limitation of motion pictures was that people couldn't afford projectors in their homes; students would have to watch movies in auditoriums or movie houses. The radio, on the other hand, was a technology that people could install in their homes. Surely this would bring about new frontiers in education.

Herbert Hoover certainly thought so. As Commerce Secretary in 1922, he wrote an article in [*Popular Science*](#) explaining where he thought “future developments of the radio-telephone” were likely to take America. He, too, was starry-eyed, writing that

We are witnessing, indeed, the dawn of a new day in communication. It is a dawn glowing with the promise of profound influence on public education and public welfare.

Colleges, churches, educational and lecture foundations, and government departments will almost certainly find in the future that radio broadcasting has become a vital part of their work. The home in which a radio set is being installed may confidently look forward to the receipt from the air of an ever increasing quantity of important and interesting information...

Hoover's dream of an engaged public listening to high-minded lectures over the airwaves came as true as Edison's dream of educating children with movies. Though the radio certainly allowed people better access to some forms of news and information, people mostly used it to listen to entertainment programs and popular music.

Eventually, what Edison thought impossible — a motion-picture screen in every living room — became possible through television.

As U.S. Education Commissioner [Earl McGrath](#) said in 1952, “where radio uses only the ears, television uses both ears and eyes.” He foresaw a magnificent future in which “Through the use of television, educational institutions will be able to bring the greatest teachers, the finest artists, scientists, and philosophers into schools and homes.” Universities began to [dream](#) of beaming courses into homes to satisfy what *Life* magazine called “the hunger of our citizenry for culture and self-improvement.”

Commercial stations did produce educational television, especially for little kids. “Ding Dong School” was one of the early educational shows for the preschool set:

However, it soon became clear that stations could make more money with other forms of TV. “Ding Dong School” was [cancelled](#) and replaced by “The Price is Right.”

Educational TV mostly ended up on public broadcasting after this, and shows like [Sesame Street](#) certainly did help generations of kids learn their numbers and letters. But the optimism of people like Earl McGrath over television’s potential as an educational medium mostly fell flat. The machine that came to be known as the “boob tube” or the “idiot box” became more of a way to zone out than to learn.

A proponent of technology in education might argue that movies, radio, and TV are *passive* media while real learning is *active*. Interactive technology will be the key to transforming learning for the better.

Maybe, but it hasn’t quite happened yet. Interactive technologies have affected education, but the changes that came with each new innovation have been anything but ambiguously good.

Classroom computers and computer labs in the 1980s were expected to make learning more fun and interactive. I enjoyed my time in the computer lab in elementary school, but mostly because

we got to play Oregon Trail (I suppose I can thank educational technology for my knowledge of the dangers of dysentery, if nothing else).

The home PC was marketed as an educational tool. That's certainly how I persuaded my parents to buy me a Commodore 64, which I then used to play video games all the time.

The internet was going to connect students to a world of ideas and information. They wouldn't have to waste their time learning "content" because they could just do their own research online. While a few students have become admirable internet autodidacts, far more have fallen down misinformation rabbit holes or simply learned to subsist on a diet of informational junk food.

Portable technological devices in schools — laptops, Chromebooks, iPads, or students' own smartphones — were going to unlock students' ability to be creative. No longer would they be passive learners; now they'd be able to conduct sophisticated inquiries.

Unfortunately, there's very little [evidence](#) that any of this technology has actually helped children learn. Confronted with a generation of screen-addled, attention-deficit young people, schools are now trying to figure out how to [limit](#) or even [ban](#) the use of the tech devices that they once trumpeted as the wave of the future.

New technology has transformed education, but never in the ways that its most ardent proponents have promised.

Yes, well-crafted television shows, used in moderation, help little kids learn important things. But television, on the whole, likely limited the intellectual growth of more people than it has helped.

Yes, internet-connected devices in schools have allowed students to research more effectively and create compelling work. But these devices have also unleashed an epidemic of distraction that makes it more difficult for kids to focus on and engage in intellectual tasks.

Just as very few students are watching academic lectures on their living room TVs, I doubt that most students will use AI in the way that Khan and Gates envision. Some of the uses that they propose

for AI are just plain odd — why would you chat with a fake “Abe Lincoln” when you can engage with the real man’s actual writings? And I would imagine that, for every student who uses their personal tutor to effectively drill them in math, many more will just use their AI companions to do the work for them. It’s not a coincidence that “[student learning platform](#)” — AKA [cheating website](#) — Chegg is one of the first companies to be eviscerated by AI.

What will the advent of AI do to the classroom? In 1925, an anonymous teacher wrote a little [poem](#) explaining how they felt about Thomas Edison’s technological predictions:

Mr. Edison says

That the radio will supplant the teacher.

*Already one may learn languages
by means of Victrola records.*

The moving picture will visualize

What the radio fails to get across.

Teachers will be relegated to the

Backwoods

With firehorses

And long-haired women;

Or perhaps shown in museums.

*Education will become a matter
of pressing the button.*

*Perhaps I can get a position
at the switchboard.*

That teacher’s prediction that they would be made obsolete never came to pass — these new technologies didn’t transform the classroom so much as add a dimension to it.

I'd imagine that Khan's and Gates' predictions about AI's effect on education will be similarly wrong, and so will those of the doomers who see an AI-fueled educational dystopia ahead. If I had to guess, I'd say that AI will change education, but not as profoundly as the tech elite seem to think, not necessarily for the better, and almost certainly in ways that we can't foresee right now.

By the way, following Bill Gates' advice, I asked Khanmigo to do the "routine task" of planning a lesson for me on the causes of World War I. It gave me a combination of unhelpful suggestions (find some primary sources on the causes of World War I) and plain-vanilla ideas (break the students into groups and have them discuss the sources). It's exactly what I would have done on my own if I was feeling lazy, uninspired, and uncreative.

It turns out that if you consider lesson planning a routine task that can be done by a machine, the machine will turn lesson planning into a routine task. This is part of the problem with the AI merchants. They see learning as a rote task, a ladder to be climbed, a process to be made more efficient.

But schools are supposed to be making human beings better, not maximizing widget production. Think back to your own education. Were your best teachers the ones who most efficiently streamlined your learning process and leveled you up the quickest? Or were they the ones who inspired you, made you laugh, or helped you to see the world from a different angle? Were the things you were most proud of in school the tasks you found the most shortcuts for or the ones you had to struggle with?

Learning is a messy and deeply human endeavor. No technology, no matter how promising, will ever take the place of the human connections and human work at the core of all good education.