

Beyond the Industrial Revolution education model: Sal Khan on training and skills in the 21st century

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The founder of online-learning not-for-profit Khan Academy shares what an era of automation and artificial intelligence means for education.

Online learning promises to bring education to anyone with an internet connection. At the same time, the adoption of automation and artificial-intelligence (AI) technologies will transform work as people increasingly interact with ever-smarter machines. The skills students learn today may not be useful in the workplace of the future.

In an era where students learn through their devices, what role do schools play? How will education need to change to keep up with the new demands of work? McKinsey spoke with Sal Khan, founder of Khan Academy, to hear how education is shifting toward a dynamic new model.

Interview transcript

What is Khan Academy?

My name's Sal Khan. I'm the founder of Khan Academy, which is a not for profit with a mission of providing a free world-class education for anyone, anywhere.

In a traditional model, everyone moves together lockstep. Some kids get it, some kids don't. They get gaps, those gaps become debilitating, and they hit a wall. They think, "I'll never be an engineer," or "I'll never be a cancer researcher."

By giving them online tools, we're allowing students to learn at their own time and pace and then remediate when necessary. Essentially, it's a free personal tutor for everybody. Plus, we give teachers the information of, like, when they need to do more actionable intervention.

From a teacher's point of view, we're almost like a teacher's assistant. Khan Academy provides virtual tools that can enable that individual learner who might not have access to a school. In the context of school, we empower the classroom educators.

What is the goal of Khan Academy?

The whole point is to level the playing field. How do we democratize education? The SAT is a good example of that. For decades, there's been at least a perception, and likely a reality, that it's unfair. The criticism is that if someone can afford expensive test prep, or if someone can afford a private tutor, they might have an edge.

We've now partnered with the SAT, the College Board, to create what we call world's best test prep. It's made in collaboration with the test makers and it's been vetted by the test makers. We're not trying to teach you how to game the exam. Yes, we do some test-taking strategies and familiarity, but it's mostly about how to remediate if students are having trouble with a question to make sure they learn that concept. The best way to perform on the SAT is to really learn the material. And by the way, they're also more likely to perform well in college if they do that.

What is the future of education?

To understand the future of education, it's interesting to think a little bit about the past of education. If you were to go back 500 years, very few people got an education. But those that did, say a prince, a member of the nobility, tended to get a pretty good education.

They would have a personal tutor or oftentimes an army of personal tutors. And they would adapt to the prince. If the prince is having trouble with a concept, the tutors wouldn't say, "Well, the curriculum says we have to move on." They say, "OK, let's make sure you really understand that, because you're going to be king one day. Let's make sure you've really mastered these ideas."

As you get into the late 18th and early 19th centuries, the Industrial Revolution is happening. A bunch of countries said, "Hey, we need to think about educating more people." It was a massive revolution, and a very positive one. Countries like the United States, Germany, Japan, and the UK were asking how they could provide free mass public education. This was a new idea. And they said, "Well, we can't afford personal tutors. We can't give them the education that the duke's child got. But what if we use some of the principles of the Industrial Revolution?"

Principles such as, we apply process; we move people at a set pace through it. Some of the "product," which would be the students, will end up ready to be doctors, lawyers, or engineers. Some of them could do these types of jobs. And, we need a lot of labor in the factories. People need to know how to read manuals and whatever else.

As a result, we saw huge gains. We went from low literacy rates to near-universal literacy rates in much of the developed world. It's no coincidence that these were the countries that were the first to develop.

That was fine for the Industrial Revolution. But now, we still have that same education model. The structure of the workforce is fundamentally changing because of automation, AI, and those technologies. You won't need as much physical labor. You won't even need this kind of white-collar information processing filling up these skyscrapers right now. All of that's going to be automated.

So the world we're going into must be a mastery-based world, where students have to be able to have the agency to fill in those knowledge gaps as necessary. What happens in universities today is that if you sit in that chair for three hours a week, you get three credit hours, and you go to the next class.

Instead of it rewarding seat time, we need to ask, Does the student know it yet? If you know it, here's your proof. Show that to the world. And you'll get jobs and you'll go to grad school. If you don't know it yet, it doesn't mean you're not smart; keep working on it, and you might know it eventually. This type of learning won't stop when you're 18 or 21. It's going to be a continuous process.

Where does Khan Academy fit into the future of education?

A big part of why Khan Academy exists is to try to solve this problem of providing people with a way to learn the skills they need to be happy and productive citizens. And then connect the skills to work, so that there are opportunities for them.

One of the issues is that we've somehow confused time with actually knowing things. And I think we need to get away from that. We always talk about the cost of education in terms of dollars, but we don't talk about the cost of education in terms of lost time and potential. A lot of the discussion around training and skilling revolves around very specific skills. For example, some people need to learn to become a data scientist, and that's great. You can get a very good job if you're a data scientist. But the reality of most of the jobs, including many of the 21st-century jobs, they will require more of the core skills, such as, you need to communicate well. You have to have good interpersonal skills. You have to have good analytical, critical-thinking skills.

We are well positioned to solve that need. We already have millions of people learning on Khan Academy. How do we allow them to prove it to the world that they know that material? How do we take that proof and allow it to be a signal to higher education and employers, so that they say, "Yes, this is someone I'd want to hire."

We're not trying to create a completely parallel system. We're trying to determine how we can play well with the existing system. Over five or ten years, there will be alternate paths that might be mixing and matching between kind of the new and the old.

How is Khan Academy innovating education?

I've always dreamt of starting a physical school even before Khan Academy. And about five years ago, we said, "Hey look, Khan Academy's out there. We'll hopefully reach hundreds of millions or billions of students, letting them learn at their own pace and helping classrooms supercharge." But, even in that very positive scenario, it might not fundamentally change what happens in most classrooms. Wouldn't it be great if we could show what would happen if you could, from first principles, create a classroom that assumed a world where students can learn concepts at their own time and pace?

As a result, we started a lab school. It's now for ages five through 16. We're going to have our first graduates in a couple of years. Students' progress on their academics is at their own time and pace. It's independent of their independence, where they're developing their social-motion skills, their regulation, and their ability to collaborate.

Their credential, their graduation transcript, is not going to say that this student has a 3.4 GPA [grade point average] and show her classes. It's going to show her competencies. These are things that she showed mastery in, evidenced by this work she did. Here's her portfolio of creative things that she's done. Whether it's her writing, maybe it was speeches she's given, of an app she wrote. It will show what her peers think of her, and what the teachers think of her. We're trying to pioneer that, and we want to open-source everything that this school does. ▣

Sal Khan is the founder of Khan Academy. **Rik Kirkland**, a partner in McKinsey's London office, conducted this interview.