

A young girl with dark hair and a pink patterned jacket looks towards a white robot. The robot has a friendly face with large eyes and is holding a tablet. Pink cherry blossoms are draped around the robot. The background is a blurred city street at night with lights.

# Artificial intelligence has real potential for education

## Optimistic emerging view sees machine-human partnership.

Artificial intelligence (AI) is the major topic in transportation, industrial and healthcare fields, but one area that cannot be minimized is education. Younger and future generations have to prepare for a career where they will work in unison with smart technology. The best route is to integrate AI, not just into the work and professional environments, but also into the education and skills learning process itself.

Skill assessment is the most straightforward application of AI in education. Today, people still do the majority of skill level judgment, whether it's an aptitude test at a temp agency or an essay-based submission for a university. The tables are turning quickly, though: For example, Quill and other AI-based software that can quickly write a journalism story<sup>1</sup> - so analysing qualities like writing strength and sentence structure are already in AI's capabilities.

The role for people may be just training the software to understand particular patterns and needs specific to a situation.

To understand our educational future, we can look towards chatbots. Conversation-based guidance has been around for years, but just recently chatbots have become popular within mobile apps and consumer-facing websites.

As we become more used to talking with AI, we can expect us to accept - if not expect - communication-focused AI within all standardized educational environments.

In fact, it's already happening. Software like Cognii's Virtual Learning Assistant provides skill assessment under the guise of a tutor or friend - essentially instruction through a chatbot.

A friendly word or voice is comforting to adults, as seen in the popularity of the chatbot-based communication tool Slack, but reliability is even more crucial when it comes to children and young adults who thrive most in peer-based children.

The youngest generations are more likely to learn from someone they consider an equal or near-equal, rather than someone they relate to less, even if that peer happens to be a piece of software.

Preschool through to 12th grade may be the place where chatbot education truly blossoms, and our educational future will likely be closer to a jovial Siri than to a sterile HAL, the malevolent computer from Stanley Kubrick's motion picture '2001: A Space Odyssey.'

<sup>1</sup><https://www.theguardian.com/technology/2014/sep/12/artificial-intelligence-data-journalism-media>

And while concerns grow over software taking over human jobs, people may be the only thing that can actually guide the AI toward actual effectiveness. From photo recognition to grading curves, software must learn acceptable standards and, most importantly, update constantly to current industry norms. We are the ones to set the standards, so the hands-off approach to educational AI isn't on the horizon.

A more realistic view is to see AI as a partner with humanity and, ideally, a protector of humanity as well. AI has proved to be a useful tool for training and simulations where real-life training entails high costs or risks. For example, AI is used to train air traffic controllers 'to build operational confidence within a cooperative decision-making environment.'<sup>2</sup>

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While having the simulated process alone wouldn't be enough to prepare controllers for their hands-on careers, it could protect trainees from risky experiences before they were adequately prepared. The same philosophy could be applied to a number of fields, from

interrogating criminal suspects and handling hostage negotiations, to managing forest fires and navigating tricky environments.

The educational system is now in the R&D (and often financial burdensome) phase that will lead to potentially significant savings in the future. Luckily, it's not alone: The biggest tech companies are investing billions into fields like 'personalized learning' and 'virtual classrooms,' all of which focus on making AI an integral part of the educational process.

Contrary to the hardware brain stereotype, a good AI setup can ideally soften the rigidity we have in our current system.

To quote a recent Bill Gates interview: 'Depending on what your math score or your reading or writing score is, if it's low enough, then you get placed in the remedial class, and they re-teach you everything. They don't tweak the results you got and say, 'OK, you're missing this part or this part.' It's just a binary 'You're OK, go ahead' or 'You have to get in the class.' And so that's one of the reasons we have such high dropout rates in higher ed.'<sup>3</sup>

A wise AI would be able to pick up on the nuances and details missed by teachers understandably focused on the big picture or by current software that is too 'binary' to register the unique needs of an individual student.

It is unclear if AI will ever replace the human teacher, but it will absolutely make a smart guide, simulator and assistant.

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<sup>2</sup><http://ieeexplore.ieee.org/document/47738/?reload=true>

<sup>3</sup> <http://www.theverge.com/2016/4/25/11492102/bill-gates-interview-education-software-artificial-intelligence>

