US Schools Are Leaving Students Ill-Equipped to Compete with Artificial Intelligence

We have long known that the robots were coming, but now that they are here, the mismatch between our modern education system and the technology-fueled workplace is glaringly apparent. As robots expertly perform routine tasks and increasingly assume broader workforce responsibilities, we must ask ourselves an important question: What is our key human differentiator?

The Power of Creativity

[According](#) to Boston University professor Iain Cockburn, who just published a new [paper](#) on the impact of artificial intelligence, the human competitive advantage lies in optimizing "what we can do better than machines, which is imagination, creativity, judgment." In the paper, Cockburn and his colleagues suggest that it's possible the robots will catch up to us soon in these realms, but they are not there yet. They [write](#):

> Instead, recent advances in both robotics and in deep learning are by and large innovations that require a significant level of human planning and that apply to a relatively narrow domain of problem-solving (e.g., face recognition, playing Go, picking up a particular object, etc.). While it is of course possible that further breakthroughs will lead to a technology that can meaningfully mimic the nature of human subjective intelligence and emotion, the recent advances that have attracted scientific and commercial attention are well removed from these domains.

If human imagination, creativity, and judgment are our primary tools for competing successfully with today's robots, then it would make sense for current education models to focus on cultivating these qualities. The sad fact, however, is that most schooling is stuck in a 19th-century system of command and control, memorization, and regurgitation that may successfully train young people to be robotic workers but not innovative thinkers.

It's Time to Adapt

Recognizing the inevitable effects of automation, artificial intelligence researchers have been calling for dramatic changes in the education of our youth since computers first appeared. One futurist was Seymour Papert, a renowned mathematician who became co-director of the MIT Artificial Intelligence Laboratory in the 1960s.

Papert was a critic of education models based on top-down instruction and passive learning. He believed that "the model of successful learning is the way a child learns to talk, a process that takes place without deliberate and organized teaching." So firm was his vision of the ways technology could facilitate authentic learning, Papert foreshadowed the end of conventional schooling. In his 1980 book, *Mindstorms: Children, Computers, and Powerful Ideas*, Papert [writes](#) that "schools as we know them today will have no place in the future."

Of course, Papert's vision hasn't emerged. Other than the ubiquity of computers, most present schooling looks remarkably similar to schooling in the 1980s, and passive learning and a teach-and-test approach to education endures. American public school students now take [more than one hundred](#) required standardized tests from preschool through high school graduation—a number that has skyrocketed in recent years. At the same time, their creativity scores are [plummeting](#). College

of William & Mary professor Kyung Hee Kim [discovered](#) that American creativity scores have been falling precipitously since the early 1990s, with elementary school-age children experiencing the sharpest drop in creativity.

We should all be alarmed. If human creativity is our key competitive advantage against robots, and that creativity is declining, the forthcoming workplace disruption and job losses that will accompany increased automation will be more severe than they otherwise should be. Some educators suggest doubling down on efforts to foster creativity. John Maeda, the former president of Rhode Island School of Design, [said](#) in an interview:

> *I wouldn't say [creativity] can be taught in the normal sense of adding knowledge and wisdom to someone. I would say instead it can be re-kindled in people—all children are creative. They just lose their capability to be creative by growing up.*

But it's not a consequence of growing up that causes creativity to decline: It's our antiquated system of forced schooling that was designed to crush creativity in the name of conformity. As I spotlight in my upcoming book, *[Unschooled: Raising Curious, Well-Educated Children Outside the Conventional Classroom](#)*, young people who learn without school, or in other non-coercive learning environments, retain their natural creativity and curiosity. We don't need to rekindle creativity; we need to stop destroying it.

To compete with robots, we need an education model that nurtures human imagination and ingenuity. Forced schooling is ill-equipped to do this, but models of learning without conventional schooling are ideally positioned to take on the pending robot challenge.

[1] Papert, Seymour Papert, Mindstorms: Children, Computers, and Powerful Ideas, 2nd ed (New York: Basic Books,

1993), 8,9.

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