

Creating Innovators: Why America's Education System Is Obsolete

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America's last competitive advantage — its ability to innovate — is at risk as a result of the country's lackluster education system, according to research by Harvard Innovation Education Fellow Tony Wagner.

Taking the stage at Skillshare's Penny Conference, Wagner pointed out the skills it takes to become an innovator, the downfalls of America's current education system, and how parents, teachers, mentors, and employers can band together to create innovators.

American schools educate to fill children with knowledge — instead they should be focusing on developing students' innovation skills and motivation to succeed, he says:

"Today knowledge is ubiquitous, constantly changing, growing exponentially... Today knowledge is free. It's like air, it's like water. It's become a commodity... There's no competitive advantage today in knowing more than the person next to you. The world doesn't care what you know. What the world cares about is what you can do with what you know."

Knowledge that children are encouraged to soak up in American schools — the memorization of planets, state capitals, the Periodic Table of Elements — can only take students so far. But "skill and will" determine a child's ability to think outside of the box, he says.

Over two year of research involving interviews with executives, college teachers, community leaders, and recent graduates, Wagner defined the skills needed for Americans to stay competitive in an increasingly globalized workforce. As lined out in his book, "The Global Achievement Gap," that set of core competencies that every student must master before the end of high school is:

- Critical thinking and problem solving (the ability to ask the right questions)
- Collaboration across networks and leading by influence
- Agility and adaptability
- Initiative and entrepreneurialism
- Accessing and analyzing information
- Effective written and oral communication
- Curiosity and imagination

For his latest book, "Creating Innovators: The Making of Young People Who Will Change The World," Wagner has extended his studies to address the problem of how we teach students these skills. He has come to the conclusion that our country's economic problems are based in its education system.

"We've created an economy based on people spending money they do not have to buy things they may not need, threatening the planet in the process," he says. "We have to transition from a consumer-driven economy to an innovation-driven economy."

In an effort to discern teaching and parenting patterns, Wagner interviewed innovators in their 20s, followed by interviews with their parents and the influential teachers and mentors in the students' lives. He found stunning similarities between the teaching styles and goals he encountered with these influential teachers at all levels of education and concludes, "The culture of schooling as we all know it is radically at odds with the culture of learning that produces innovators." He identified five ways in which America's education system is stunting innovation:

1. Individual achievement is the focus: Students spend a bulk of their time focusing on improving their GPAs — school is a competition among peers. "But innovation is a team sport," says Wagner. "Yes, it requires some solitude and reflection, but fundamentally problems are too complex to innovate or solve by oneself."

2. Specialization is celebrated and rewarded: High school curriculum is structured using Carnegie units, a system that is 125 years old, says Wagner. He says the director of talent at Google once told him, "If there's one thing that educators need to understand, it's that you can neither understand nor solve problems within the context and bright lines of subject content." Wagner declares, "Learning to be an innovator is about learning to cross disciplinary boundaries and exploring problems and their solutions from multiple perspectives."

3. Risk aversion is the norm: "We penalize mistakes," says Wagner. "The whole challenge in schooling is to figure out what the teacher wants. And the teachers have to figure out what the superintendent wants or the state wants. It's a compliance-driven, risk-averse culture." Innovation, on the other hand, is grounded in taking risks and learning via trial and error. Educators could take a note from design firm IDEO with its mantra of "Fail early, fail often," says Wagner. And at Stanford's Institute of Design, he says they are considering ideas like, "We're thinking F is the new A." Without failure, there is no innovation.

4. Learning is profoundly passive: For 12 to 16 years, we learn to consume information while in school, says Wagner. He suspects that our schooling culture has actually turned us into the "good little consumers" that we are. Innovative learning cultures teach about creating, not consuming, he says.

5. Extrinsic incentives drive learning: "Carrots and sticks, As and Fs," Wagner remarks. Young innovators are *intrinsically* motivated, he says. They aren't interested in grading scales and petty reward systems. Parents and teachers can encourage innovative thinking by nurturing the curiosity and inquisitiveness of young people, Wagner says. As he describes it, it's a pattern of "play to passion to purpose." Parents of innovators encouraged their children to play in more exploratory ways, he says. "Fewer toys, more toys without batteries, more unstructured time in their day." Those children grow up to find passions, not just academic achievement, he says. "And that passion matures to a profound sense of purpose. Every young person I interviewed wants to make a difference in the world, put a ding in the universe."

"We have to transition to an innovation-driven culture, an innovation-driven society," says Wagner. "A consumer society is bankrupt — it's not coming back. To do that, we're going to have to work with young people — as parents, as teachers, as mentors, and as employers — in very different ways. They want to, you want to become innovators. And we as a country need the capacity to solve more different kinds of problems in more ways. It requires us to have a very different vision of education, of teaching and learning for the 21st century. It requires us to have a sense of urgency about the problem that needs to be solved."

Wagner is not suggesting we change a few processes and update a few manuals. He says, "The system has become obsolete. It needs reinventing, not reforming."