

**panorama**



# Schools must prepare for innovation

**Tony Wagner** is a senior fellow at the Learning Policy Institute in the United States. He participates in international conferences as an educational communicator and is a successful author in the field of educational innovation. He has been a school teacher, school principal and university professor. He holds a PhD in Education and was the founder and co-director of the Leadership for Change group at Harvard University's Graduate School of Education, as well as an expert advisor at Harvard University's Innovation Lab. His books include educational 'bestsellers' such as "The Global Achievement Gap" (2008), "Creating Innovators: The Making of Young People Who Will Change the World" (2012) and "Most Likely to Succeed: Preparing our Kids for the Innovation Era" (2016).

# It is necessary to teach the skills of an active, informed citizenry that is prepared for lifelong learning

by Ana Moreno Salvo

## INTERVIEW WITH TONY WAGNER

**Y**ou have dedicated your entire life to improving education. In your book, "The Global Achievement Gap", you argue that the current education system has become obsolete and does not need to be reformed but reinvented. Could you tell us what you mean by that?

When I became aware of the concern of employers and others about young people's lack of skills, I wanted to try to understand what skills were important in different work environments, and for citizenship. I began interviewing a wide variety of executives, from Apple to Unilever, along with the military, civic leaders and university educators. And I realised that even students graduating from our best schools lack the skills that these people were telling me were critical. The global achievement gap is the gap between what our best schools teach and assess and what students need in order to work, learn and be citizens.

**What are the 'survival skills' for the twenty-first century that you identified 12 years ago? Are they still valid today?**

The seven survival skills emerged from the interviews. I heard the same kinds of things in all of them: the ability to ask good questions, the critical thinking needed to be able to ask them, the ability to communicate effectively, the ability to take initiative, etc. Some were intended to educate a large number of people with a few basic skills. Others were supposedly for young people going to university who are supposed to have some sort of higher knowledge. But the problem is that none of these skills are taught to children at

**Achievement gap: difference between what is taught at school and what students need**

either the most basic or advanced levels. The fact that assessment takes place with multiple-choice, computer-scored questions means that the skills that matter the most are not assessed. You can't assess critical thinking or creativity or imagination or initiative or good character, for example. It simply does not prepare all students for twenty-first-century work, learning and citizenship.

Just last year, an article was published in the journal of the World Economic Forum on these seven 'survival skills', their relevance and importance. Would you do anything differently now if you were to write it again? I didn't talk much about character qualities at the time, because I assumed they were nothing new. For thousands of years, we have been teaching the importance of certain character qualities, whether through philosophical, religious or ethical systems; the importance of empathy, of thinking carefully about



the consequences of our actions on other people, and so on. If I had to rewrite the book, I would certainly talk about character education or civics education, because it is becoming increasingly clear to me that some children are growing up without any moral grounding, and more and more young people are not going to any church or synagogue. So I think schools have to talk about those universal ethical principles that are common to all major religions and philosophical systems, to expect children to behave at a higher level and to teach them to solve conflicts peacefully. You can call them life skills if you want, but they are the things I would write more about.

**Could you tell us how to educate for innovation, why it is so important and what we need to change in schools to do it effectively?**

After writing the book, I continued to talk to leaders in many different

settings and realised that there has been a swift evolution in what has been called a knowledge economy. Peter Drucker coined the term in 1969, more than 50 years ago. The idea of the knowledge economy is that you have a competitive edge if you know more than the person next to you. And the more you know, the greater your competitive edge. Knowledge has become a commodity. However, the world simply doesn't care anymore how much our children know, because Google knows everything. What matters to the world is what our children can do with what they know. And that's a profound change, because we actually don't know how to do it. Well, we know how to do it, but we are not teaching the skills of creativity or creative problem-solving, just to cite two of them.

When I started to see that we really had an innovation economy, I needed to understand what innovation was. And I discovered that there are actually two very different

types of innovation: one is about bringing new possibilities to life. Take the iPhone, for example. That's the kind of high tech that people talk about a lot. But there is another type of innovation that is perhaps less glamorous but just as important as these technical advances, if not more so. And it is the ability to solve local and global problems creatively, whether in government, for-profit or non-profit organisations, developing countries or in developed countries. All of these things really create spheres of opportunity for young people who are properly prepared to make meaningful contributions and earn a very good living. So the upshot is that there are more and

**What matters to the world is what our children can do with what they know, and that's a change**

more employers who don't care whether or not a young person goes to college. When Google started, they said, okay, let's find the smartest people in the world. How are we going to do it? We'll choose those with the highest test scores and the best grades, and we will interview them with intelligent questions. They did it for years, over the long term. A decade ago, Laszlo Boch, Senior Vice President of People Operations at Google, Inc. tried to analyse whether this strategy was appropriate. And he realised that what they had been doing to select, hire or promote people was worthless. He saw that the skills you need to succeed in a competitive academic environment, that is, a university, are totally different from the skills you need to succeed in the innovation economy. So what is Google doing right now? Google is using structured interviews, where it asks questions such as: tell me about a situation

## Job skills are the same skills needed for active, informed citizenship and lifelong learning

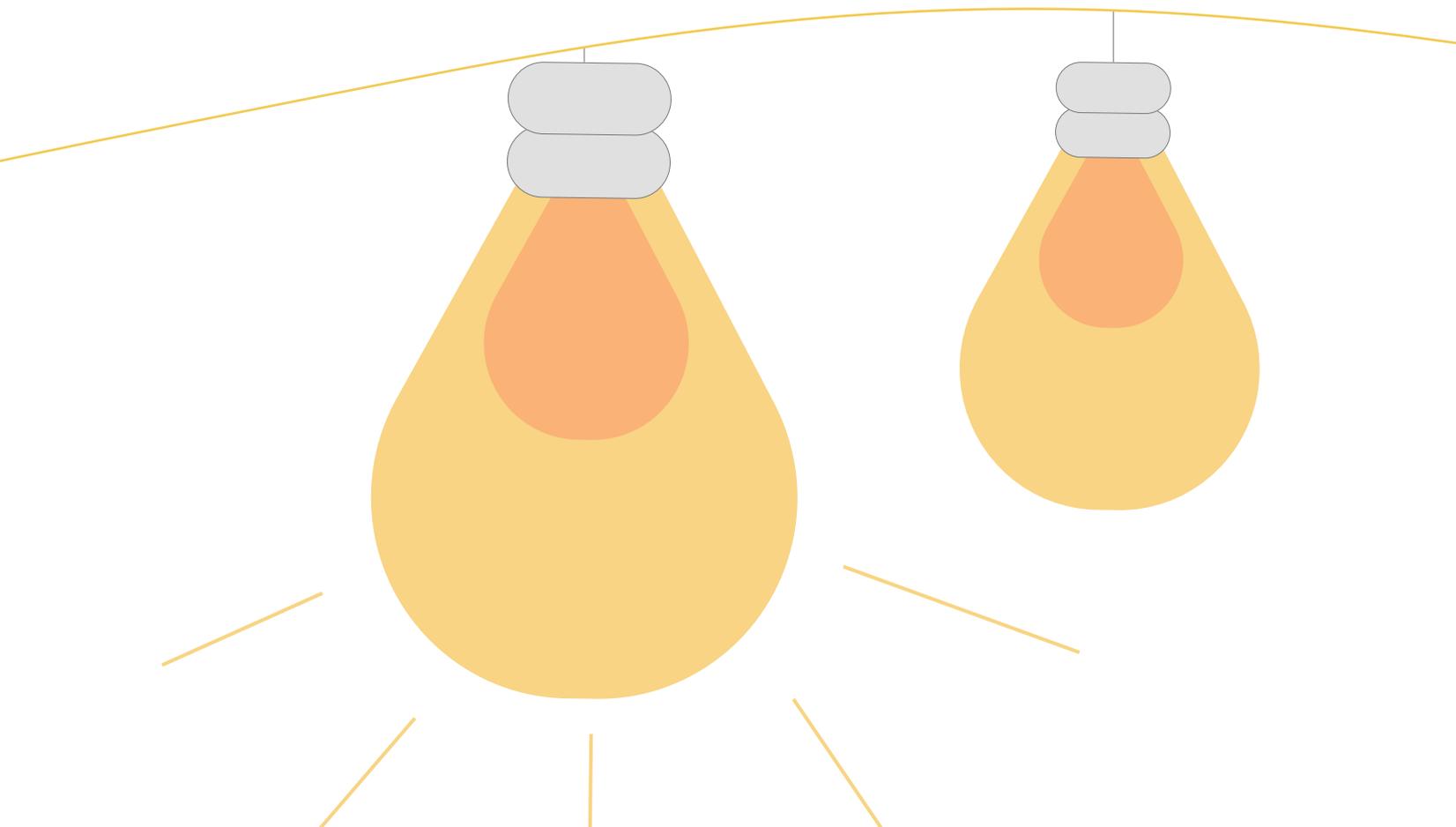
where you tried to solve a complex problem, tell me about a time when you worked with a team to solve a problem, tell me about a time when you failed. A growing number of companies are moving in the same direction.

In the age of innovation, knowledge is necessary but not enough. And in fact, due to the changing nature of knowledge, it is quite often better if you acquire the knowledge you need to solve a problem at that particular moment. That is, if you are working on a problem, you have to try to understand it, and that's when you

acquire that knowledge, rather than acquiring it in advance just in case. The age of innovation demands a radically different preparation for young people to thrive and succeed, and not just in the workplace. The skills needed for work today are those needed for active, informed citizenship and lifelong learning. Competencies are converging for the first time in human history. All too often, we only talk about job skills, but when we look around at the world today, we very clearly see the problem entailed by not thinking enough about how we are preparing young people for citizenship, for civic life.

### Could you describe what a young innovator should be like and give us some examples?

In my book "Creating Innovators", I made in-depth profiles of eight young people, an equal number of women and men. Some were



first-generation immigrants, while others had families that had been here for many generations. One of the young people I interviewed was the project manager of the first iPhone and had dropped out of college. Others were innovators in the arts, and yet others were innovators as social entrepreneurs trying to solve social problems. They were curious about the world around them. They asked very good questions, were thoughtful, had the ability to take initiative and, perhaps most importantly, had the ability to bounce back from what seemed like failure. In schools, on the other hand, the more mistakes you make, the lower your grade. Mistakes are penalised. Whereas in the world of innovation, if you make a smart mistake, you are rewarded because you will learn from it. All of these young people I interviewed had that ability. They were willing to take the initiative, and when something

didn't work, they learned from it and kept moving forward. Another thing I would add is that they were very intrinsically motivated.

They really wanted to stand out in the world, to make their mark on it in the sense that Steve Jobs put it. And when I went back to try to understand what their parents and teachers had done to create these kinds of character traits, I came to the conclusion that one pattern that both teachers and parents had encouraged was play. The goal is to explore new interests in the hope that a young person will discover a passion, because that's the real

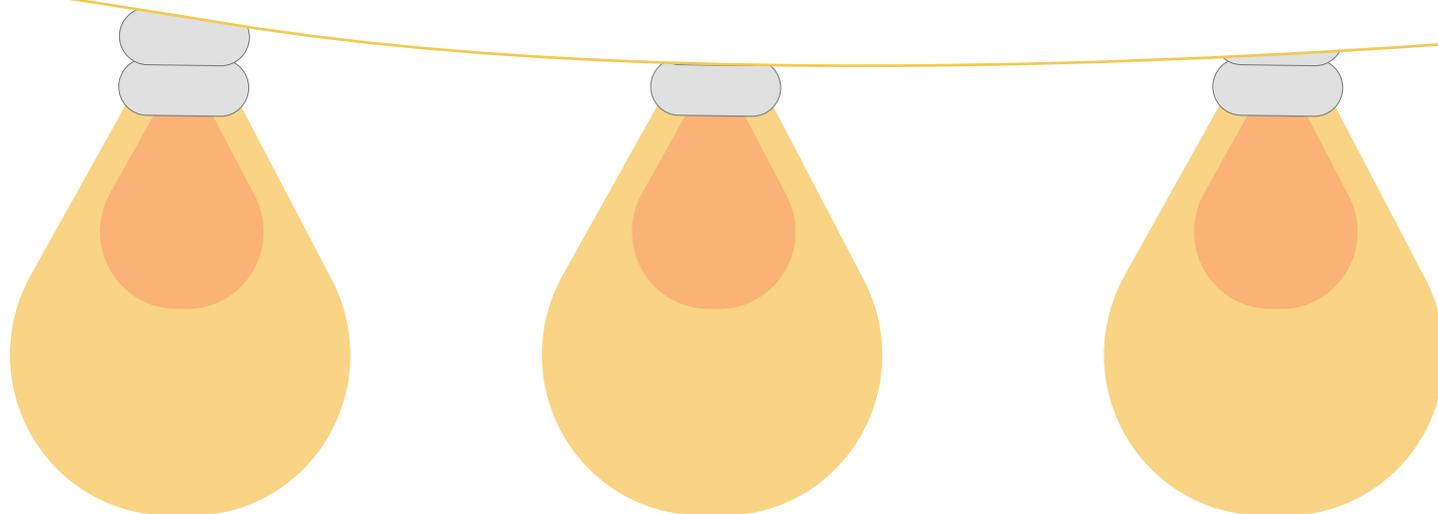
**Playfulness, passion and purpose are elements that make a difference in young innovators**

driver of innovation. They evolve, but they all do so with a deeper meaning, a purpose. Play, passion and purpose were common elements in the way these young people had been educated by their parents and teachers, which had made a difference in their lives.

**What would you say to teachers who want to start educating students for innovation? do you think they need special training to do so?**

I think universities do a very good job preparing teachers almost everywhere, but there are notable differences. Teachers teach the way they have been taught. So if you sit in a master class for most teacher training programmes and are graded in a conventional way, that's all you know and can do, because you haven't learned anything different.

Today we have many tests or standardised tests of knowledge and



skills which tell us absolutely nothing about work, citizenship or readiness for learning. This is another reason why educators and business leaders need to work together, because together they can help policymakers understand that very different types of assessment are needed. Teaching for the test, especially if they are poorly written, is a downward spiral for education everywhere. The first step is to clarify which results matter. It's not about test scores, or getting into the most prestigious universities. Let's ask ourselves, what is our education R&D budget? I advocate creating funds, either at the school level or by regions, so that teams of teachers can apply for money to develop new curricula or new forms of assessment, visit other schools or learn good practices.

Currently, what we find in schools is what I call 'random acts of excellence'. These are individual teachers who go off in a corner and maybe do really good things, but they hide them because it doesn't pay for them to share it, or they don't have the time to. We need to reward educators who take initiative, who are willing to experiment and accommodate mistakes.

When you create those conditions for innovation in schools, based on teams and constant learning, you see rapid improvement, real change. Instead of being a culture of rewards and punishments, a culture of compliance, a culture of passivity, it becomes a culture of innovation, so that the school is the incubator of the skills that are needed in the world at large. That's part of the reason I talk about

**Student progress should be measured in terms of increasing competence or mastery**

'reimagining schools' or reinventing schools rather than reforming them, because the traditional scheduled egg-box structure where kids change classrooms every 45 minutes and teachers don't have time to innovate, create or collaborate makes for schools that will always be stuck in the past.

In the United States and Great Britain, teachers spend about 1,200 hours a year in front of students. They collaborate, learn, develop assessments and grade together to find out how students are doing, rather than relying on computer-scored tests. And at the core, it's about thinking differently about what makes a good educator and what conditions are needed to support high-quality learning for both educators and children.

**Finally, in another of your successful books, "Most Likely to Succeed", you lay out the keys to creating an education system that meets the needs of the twenty-first century. Could you give us some key points and why you consider them so important?**

We need to see that no matter what classes students take, they are progressing toward developing real skills: critical thinking, communication, collaboration, creative problem-solving, developing a capacity for civic life. In fact, I am working on a new book with colleagues on a mastery-based approach to learning, because I believe it is also the solution to the traditional achievement gap between underserved and middle- or upper-middle-class youth. Disadvantaged youth start two to three years behind in school, especially if they have not received early childhood education, but they are expected to catch up and be in the same place 12 years later. We need to understand that each young person needs his or her own individual educational plan and needs to be

**Curiosity is at the core of what I believe we need to cultivate and develop in our young people**

treated as a unique individual, and that progress should be measured in terms of increasing competence or mastery. Every student should have a digital portfolio that follows them through school. All students should have a time to present and defend their work on a regular basis, with performance standards as indicators of proficiency. Students' work is simply incomplete until they meet that standard. Some may need more time, and others may need a little more help. But all students can meet that standard, and some can far exceed it.

I would end with one last easy thing that every educator reading this article can put into practice tomorrow: have every child keep a question journal, a curiosity journal, in which they periodically write down a question they find interesting, or an interest they want to explore or a concern they have about the world. An interest, a concern, a question: write them down in a sentence and then periodically sit down with that child. Parents and teachers can ask the child to circle the question, interest or concern and then give the child time and space to pursue that interest or try to answer that question or explore that concern. What we are trying to do with this type of exercise is to keep curiosity alive. So curiosity is at the core of what I think we need to cultivate and develop with our young people. Not just because of the things that happen in front of them, but because of the world around them.

