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Alex Beard has worked in education for a decade. After starting out as an English teacher in an inner-city comprehensive, he completed his MA at the Institute of Education before joining Teach For All, a growing network of independent organisations working to ensure that all children fulfil their potential. He is the author of *Natural Born Learners* (2018), which takes readers on a dazzling world tour of the future of learning.



The future of education

Children have always been told to listen to their elders. But what if the adults don't know what's going on? Mass automation of jobs, rising global inequality and climate breakdown mean coming generations face an uncertain future – rapid technological change means grown-ups can't easily prepare them for it. So what should kids learn to thrive in the digital era?

Lesson one is that the future of intelligence isn't artificial, but human. In the cyborg olympics, robots have long been faster, higher and stronger than us. Now they're becoming smarter too – at things like playing chess, analysing x-rays and making sense of big data. But this isn't the end of human minds – our brainpower has always grown in interaction with new technologies.

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After IBM's Deep Blue defeated Garry Kasparov at chess in 1997, a new type of advanced chess was created. In these tournaments, the most powerful computers and top human grandmasters were defeated by teams of amateur humans who had learned to coach multiple laptops to win the games. Used thoughtfully, artificial intelligence can augment our human potential.

Lesson two is for kids to learn to learn things for themselves. Each of us is quite literally born to learn, our organic, unruly brains primed to reach out into the world and grow in concert with the tools, environment and society in which we're immersed. Psychologists call human infants 'scientists in the crib' and it's vital to ensure that passion for learning isn't lost in childhood.

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This begins with a love of learning. In Finland – as at top schools in the UK – all children experience a wide range of subjects throughout their school years and have the space to explore them free from the pressure of high stakes exams. The country tops global indexes for human capital development and happiness, proving that the future belongs not to the know-it-alls, but the learn-it-alls.

Our third lesson is to get creative. An Oxford Martin report on the automation of jobs ranked 702 current occupations by their likelihood of surviving the robot takeover, from no. 1 recreational therapist to no. 702 telemarketer (proving you should hang-up on that cold call, as robots have no feelings. Yet). The researchers were clear on one thing: excelling in the future means growing our capacity to create.

We're starting to understand how. Cognitive scientists now know that there are two distinct brain activities that result in creativity: divergent thinking depends on freedom, play or daydreaming and results in insight and imagination; convergent thinking means long periods of focused attention, hard work and multiple drafts – the famous

10,000 hours of deliberate practice. Kids should explore – then exploit.

Lesson number four is to do it together. Tackling those great challenges of the future will require ever more sophisticated approaches to collaboration among the generations to come. Collective intelligence is visible already in our technology – an iPhone contains such a wide array of sophisticated technologies and processes that no single person today is capable of understanding how it all works. We must cultivate it.

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That means practicing collaboration – and finding our individual place. At High Tech High in San Diego, I observed a class that was like a futuristic design lab. A few kids experimented with biodegradable seed pods. Others planned a documentary. A final group were building drones from scratch.

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Together they would tackle and raise awareness of the effects of climate change on a National Park.

We now live in a world in which everything is running out. As the fuel, land, water and clean air dry up, we're left with just one inextinguishable resource – human imagination and ingenuity. For our species' kids to face the future with confidence, it's vital that we recognise this is our most precious inheritance, and invest everything we can in cultivating it.

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