

The future of education

How do we best educate the students of tomorrow? What we teach our children – and how we teach them – will impact almost every aspect of society, from the quality of healthcare to industrial output; from technological advances to financial services. Our Global Agenda Council experts join the debate to offer various visions of how education may evolve, and how governments, educators, employers and students will need to adapt to keep pace with the bewildering array of possibilities that will shape all of our futures.



Anant Agarwal
Chief Executive Officer, EdX, and a Global Agenda Council alumnus



Tan Chorh Chuan
President, National University of Singapore and a Member of the Global Agenda Council on the Future of Jobs



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The impact of technology

Rapid and dramatic developments in technology, the internet and online learning have outpaced projections from just a few years ago. And while the concept of internet-enabled study is hardly a new phenomenon, Massive Open Online Courses (MOOCs) could be the spark that ignites significant changes in the way the world teaches and learns. That's the view held by Professor Anant Agarwal, CEO of edX, the online learning destination founded by Harvard and MIT.

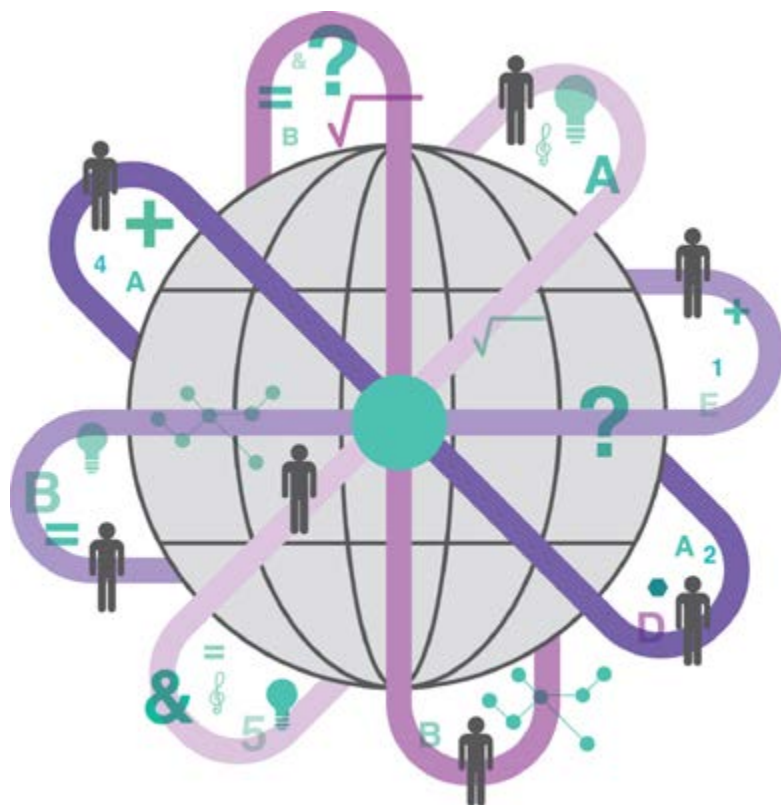
"We're seeing a revolution in education as we speak," says Professor Agarwal, "Technology is casting a spotlight on the innovation of massively open courses, of dynamic new study options that are available to everyone, regardless of background or location."

Flexible, mass stream and open-source learning, he argues, will revolutionize the landscape of education. "In the future, you could go to university having done the first year of content online. You could then come and have the campus experience for two years, before going on to get a job in industry where you become a continuous learner for the rest of your life."

Professor Agarwal believes that this flexibility, combined with instant online feedback, will vastly improve learning outcomes. But this dynamism also extends beyond a mere expansion of study options.

The evolution of MOOCs will not only have a profound effect on how we teach in the future, but who we teach, says Professor Agarwal. MOOCs and their technology could be used to 'virtualize' education on a mass scale, delivering low-cost learning opportunities to developing countries that have skipped what he calls the "landline generation" – countries such as India and Kazakhstan, and Africa's emerging economies where mobile phones are the primary form of communication. It is, he says, much easier to connect thousands of people to the internet and provide them with subsidized tablets, than to build hundreds of bricks-and-mortar campuses.

Professor Agarwal believes that open source MOOCs will adapt organically and democratically to the specific needs of the developing world. The use of the open source model will promote universal access to study materials, setting each MOOC in competition with itself as well as anyone else who wishes to challenge and modify its platforms.



“When something is this powerful and this game-changing, we need to be steering it as a non-profit venture, and even move beyond the concept of non-profit. It should be a platform that everybody can take, and evolve in the way they see fit. Why should any one organization be in charge of it?” he says.

Increasing globalization

Not everyone is convinced that access to MOOCs will prove to be a universal solution to the world’s education challenges. Technology and online learning have exponentially extended the reach of the humble classroom – but this a trend that Professor Tan Chorh Chuan, President of the National University of Singapore, approaches with some caution.

In Professor Tan’s view MOOCs distributed by well-established universities, while undoubtedly having a positive impact, fail to take into account the heterogeneous nature of education. And this is particularly true in the context of developing countries.

“There is unlikely to be a panacea in terms of a form of education which would meet different needs worldwide,” says Professor Tan. “Another disadvantage is that you could end up disempowering local education institutions.”

He envisions a more symbiotic approach: “For example, a MOOC provider could work with a number of universities in Africa or in India in order to customize or contextualize the learning materials. They could also work directly with the educators so that face-to-face components could be developed.”

As technology continues to replace routine jobs, education must adapt, says Professor Tan. Modular and online learning will play a significant role in this, but are no substitute for a holistic learning experience.

Outside of developed countries, he feels that branch campuses and partnerships with more established institutions can offer several benefits. “This kind of internationalization in situ provides a new and quite interesting way in which higher education capacity and quality can be built up in the developing world.”

The unification of standards – a question of governance

If education is set to become increasingly globalized, who should govern the models that are used in the future? And should we be looking to build a universal set of standards, one that can be co-opted by universities, industry, MOOCs and other online learning platforms?

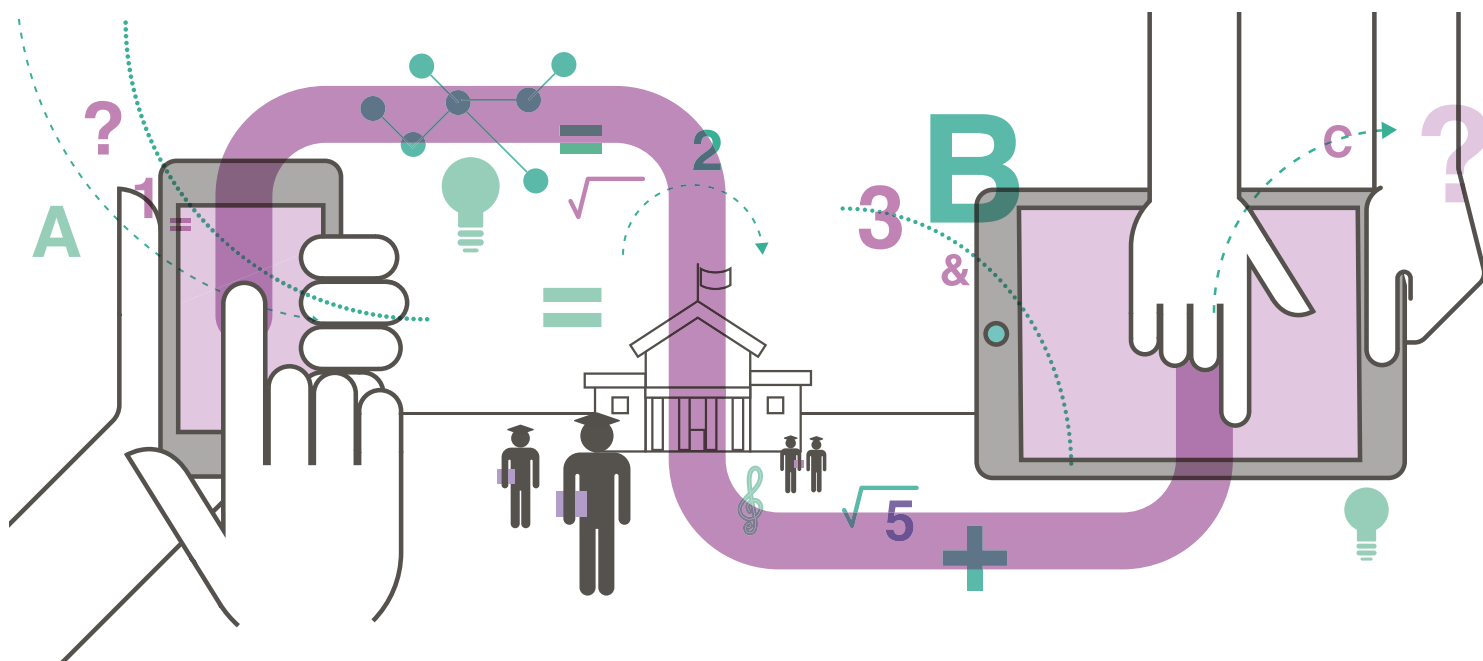
Professor Tan warns against establishing such a hegemony. He argues that diversity of educational models, even within a given country, is something that should be encouraged: differentiation helps to equip educators with more resilient ways to adapt to the unpredictability of education in the future.

“I think adaptation is very important,” he says. “I would also say that experimentation actually allows us to learn more and more about what works and what doesn’t. We still don’t know enough about learning psychology and how people best acquire knowledge in a very rapidly-changing environment. I think trying to standardize that might actually have a negative impact on education.”

Dr Shirley Ann Jackson, President of the Rensselaer Polytechnic Institute, envisions a new model – what she calls the “New Polytechnic” – of working and learning that is required in this “data-driven, computationally powered, globally networked era.”

Dr Jackson believes that the future of education will be a collaborative effort, with universities, businesses and governments working more efficiently together to “use and link the capabilities of advanced information technologies, communications and networking”.

“The way we connect and are connected by communication devices, medical devices, security devices and more has resulted in an explosion of data,” explains Dr Jackson. “Data is the new natural resource of the 21st century. The great challenge and opportunity is how to mine, manage, preserve and protect the data to ensure it is being harnessed to its full potential.”



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– Shirley Ann Jackson

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“The aim of the ‘New Polytechnic’ is for educational institutions to work across disciplines, sectors and regions to harness the advanced technologies, the communications networks, and global interconnectivity to address our global challenges with energy security, water, health, environmental and national security, and the linked challenges of climate change and sustainability – animating and supporting strong economic systems and financial markets,” she says.

At Rensselaer, changes are already underway to realise Dr Jackson’s vision, which, she says, will equip the next generation with more intellectual agility. So while the internet itself will benefit from more structuring, students, she argues, must be taught to be adaptable. They must develop what she calls “multicultural sophistication” and they must have a global view.

Dr Jackson believes it is vital to harness this approach to build a strong innovation ecosystem.

The internet, Dr Jackson notes, is the new library. As with online platforms such as MOOCs, connectivity is required for students to reach their full potential.

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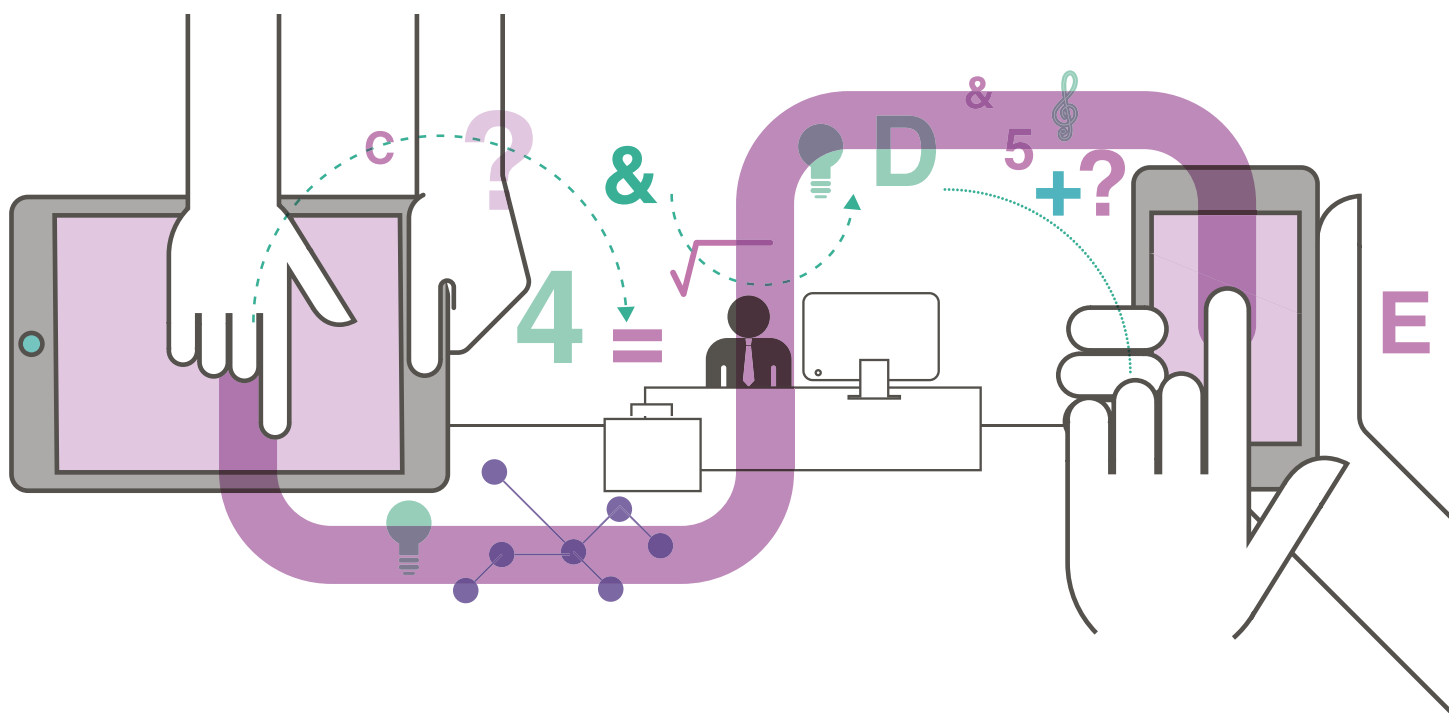
about addressing the great challenges of our time,” she says. “In emerging economies, which is where a lot of these challenges play out, if one wants to try to think about a data-driven approach, then one has to think about what barriers exist. Is there broadband access? Is there even electricity?”

In this manner, even the most advanced of educational ideas may be anchored to more prosaic facilities and needs.

A different approach: Will commoditization benefit education?

Of course, education should be seen as a need in itself. Technology has undoubtedly made the world a smaller place and, in the 21st century education is rightly considered a basic human right. Unfortunately, this classification doesn’t negate the need for financial backing; somewhere along the chain, educators, researchers and platforms must be funded.

Dr Jackson is somewhat cautious, however, about initiatives that bow to the needs of industry for specific skills training, without providing a broader education. She believes that education cannot purely be demand-driven,



as these demands are subject to constant change; locking people into a specific skills framework will leave them poorly prepared to adapt to these changes.

Dr Mona Mourshed, Senior Partner with McKinsey & Company, believes a more radical approach to education must be adopted if the world is to keep pace with future demand for skilled workers. We are, she posits, migrating towards the curation of education – an environment of accelerated learning, based upon a modularized approach. She echoes Professor Agarwal's theory that the students of the future will spend less time on traditional campuses.

"I think universities will no longer be four-year experiences," she says. "Furthermore, I believe that vocational options will no longer necessarily be a two-year experience. We will be talking about eight to twelve weeks of experiences to attain particular skills. Then in the workplace, as you get ready to take your next step, you get the next module. This process can be regarded as a partnership between the employer and the education provider."

Dr Mourshed believes that competency-based assessments to acquire what she terms "just-in-time skills", acquired via informal learning,

will allow people to access education wherever and whenever they like. This modularization will disrupt traditional attitudes towards current educational models.

Furthermore, Dr Mourshed's vision of a modular, skills-based education suggests that industry – rather than traditional institutions – will play a greater role in driving standards, and thus funding education in the future. This will not stem from a desire, on the part of employers, to shape education policy; rather, it's about responding to the need for individuals to have more diverse skills.

"Employers are changing the reality of education on the ground," says Dr Mourshed. "They are giving jobs on the back of that, so I think it's more the case that policy will follow these experiments."

So, will universities disappear? "No, of course they won't. But we will increasingly see a share of the student population opting for a very different education experience."

Education, she says, must not stagnate if we are to get young people to a higher level of productivity at a faster rate than has traditionally been the case.

The changing, but recognizable, face of future education

Education is constantly adapting to societal needs, and this transformation will undoubtedly gather momentum in the years to come. Technology, MOOCs and industry will all play a unique role in this evolution, and while traditional institutions may face challenges in the future, it's likely they will still form the bedrock of learning and influence how the world teaches and learns.

The answer, in Dr Jackson's eyes, lies in finding a sense of balance. While the future she envisions for education will certainly be more technologically driven, it must still be so organic, interactive, and experiential as to allow students to mature and be creative, too.

"Technology is not going to replace students in a lab or classroom doing actual physics or biological science experiments, and studying living things," she says. "It is not going to replace the socialization and the maturation that they go through as part of their studies.

"We do not want to take an existing narrow, restricted education model and simply replace it with another one. That's something we should always remember." ■