

The Future of Learning

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مركز الاقتصاد والتمويل الإسلامي
كلية الدراسات الإسلامية
جامعة حمد بن خليفة
HAMAD BIN KHALIFA UNIVERSITY





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Introduction

Dr Emad El-Din Shahin, Dean of the College of Islamic Studies, Hamad Bin Khalifa University, began by thanking Mr Imran Sayeed for accepting the invitation to deliver a public lecture at a very short notice. He had just concluded a business trip for Pakistan where he had consultation meetings with top leaders on the very issue of integration of entrepreneurship and technology into Pakistan's education system. Dr Emad mentioned that Dr Imran focuses on progressive approaches towards integrating disruptive education strategies into the educational system and that this might make some in the audience question what has CIS got to do with disruptive technologies and integration and entrepreneurship. He explained that, CIS prides itself with three features which makes the college unique:

- Integration or combination of solid and strong foundation in Sharia sciences with social sciences
- Interdisciplinary approach where most of the faculty comes from very diverse backgrounds such as finance, economics, art, architecture, business, engineering, history, sociology and political economy.
- Innovativeness

Mr Imran Sayeed started by acknowledging that this was his first visit to Qatar and that he was amazed at the focus on education and the creation of a knowledge-based economy in Qatar. I was born in Pakistan and I did my schooling in Dubai where I spent most of my time but I never visited this region. The topic for the lecture was one of the three topics which he teaches in entrepreneurship & innovation program at Sloan School of Management. The lecture was divided into three parts:

- In the first part, he discussed the issues facing the learning and education market today.
- In the second part of the lecture, he spoke of the mega trends in the market.

- He concluded the lecture with a discussion on the opportunities for Qatar in this space.

Issues facing the learning and education market today

He began his presentation highlighting some of the issues facing the learning and education market today. The biggest issue is that there is a huge mismatch between the needs and the availability. Education has virtually remained unchanged over the past 200 years – it's the same industrial factory model that was created back when the industrial revolution started so that you could churn out a lot of people to work on the factory floor; an industry model where an entire class of students is taught exactly the same thing and in the end they all need to appear for a basic exam and just pass it in order to go on to the next level. There is no personalization, no looking at what the student aptitude or need is, a one size fits all or 'Mass-customization' model which churns out students for the factories like 'cogs and gears'. It is based on a system of learning that is tied to a physical place such as a school, tied to a time (from 8 pm in the morning to 3 PM say) and tied to a particular teacher. There is no reliable way of measuring student competency. There are tests but they don't measure how effectively a student is learning. They measure only the ability to take the test. On the flip side, the educators don't know whether or which of the strategies are working well or not. Lastly, there is limited access to digital content. Most of the time the educators don't know about it or can't get it. They may not have the budget for it sometimes, for example. Even if they can get it, they may not know how to integrate it, there are multiple issues with that.

But meanwhile, the needs of society have changed dramatically. Everyone needs a lot more information, even to do their job or even a class assignment. There is an interesting statistic that an average person today has access to more information at his fingertips than what the richest person in the world did before

1992. The work is evolving rapidly which means that constant learning is required. Changes due to digital disruption and such other phenomena are affecting every industry and demand to constantly keep learning. The students today need a richer and more immersive environment to keep them engaged instead of a monotonous learning mechanism in which you have to come to the same classroom regularly and listen to the same person during the same time. Clearly there is a huge mismatch between what we need versus what is available.

Mega trends

A few trends have been emerging in the market in order to address the gap which was just discussed. In particular, the following six trends were discussed during the lecture:

- Personalized and Adaptive
- Scalable and Accessible (MOOCs)
- Social and Collaborative
- Fun and Engaging (Games)
- Leveraging the latest technology and business models
- Separation of Learning and Credentialing

Personalized learning means a method that draws on observation to create a tailored student experience designed to increasing learning success. It can include competency-based learning, and adaptive learning. Adaptive is one way of providing personalized learning. It is a data-driven, and in some cases, non-linear approach to instruction and remediation, adjusting to a learner's interactions and demonstrated performance level and subsequently anticipating what types of content and resources, learners need at a specific point in time, to make progress.

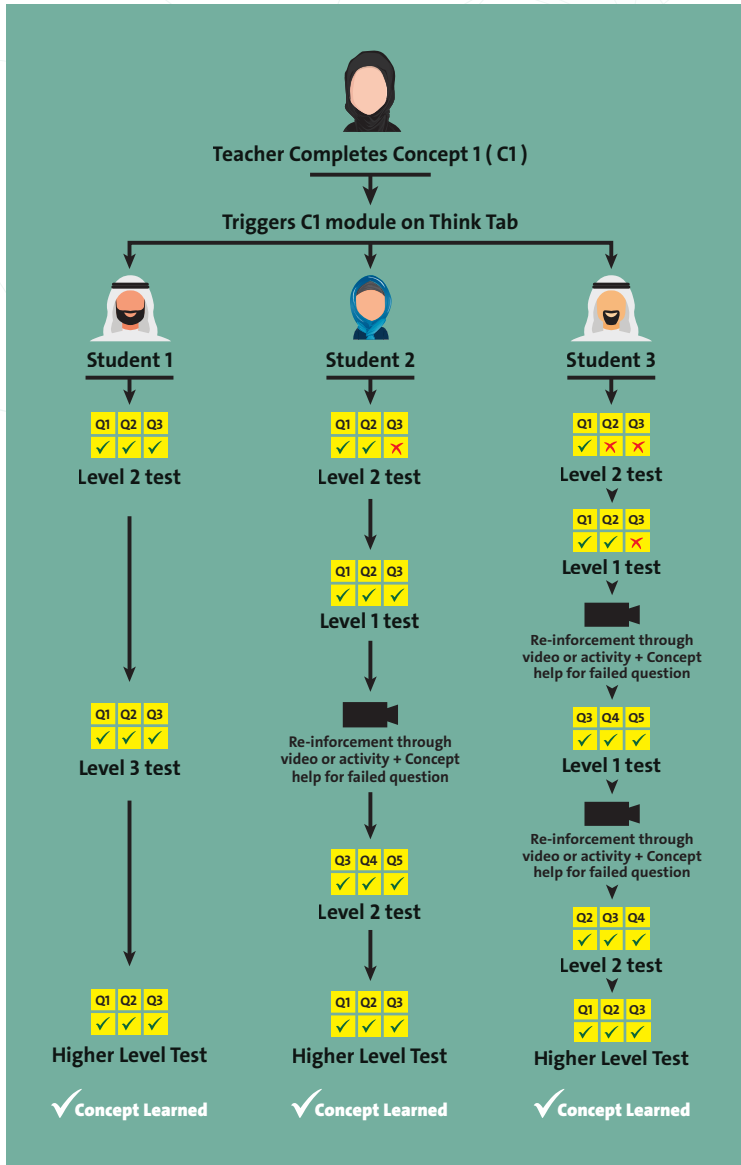


Fig 1: Illustration of adaptive learning

As an example, consider the case illustrated above of three students who start off at the same level. The first student breezes through different tests, goes over a lot faster. The second student stumbles at level 2 with one of the topics and he can go back to level 1 so that the process reinforces his concepts through videos and activities and ultimately takes him forward. Student number 3 is weaker. So, he is struggling with several topics, both in level 2 and level 1 and needs a lot more intermediation and reinforcement of concepts. The point is that the system adapts based on what the person is learning, what they are comfortable with and changes the education path that compensates for that weakness and remedies it.



Fig 2: Leading Adaptive learning vendors

This is fairly well known in the industry and there are various products in the market such as Knewton, Smart Sparrow, Aleks, Carnegie Learning, knowre, dreambox learning, learn that word, Hobsons and Brightspace, that help with adaptive learning at all stages of education. There are a good number of success stories on the effectiveness of adaptive learning technique. One such case is that of Clemson University which uses Knewton software for teaching pre-calculus. For the same course, using the software, there were able to reduce the faculty from 2 to 1, the number of grad assistants from 8 to 5, the weekly classroom meetings from 6 to 2 and still were able to increase the pass rate by 50-70%.

The speaker then spoke on the scalable and accessible learning techniques. MOOC- mass open online courses have become very

popular in recent times with over 80 million students and 800+ universities offering 10,000 courses in 16 different languages. He recalled the incidence at MIT when for their first time, a second year course from the engineering department was made available online and the President announced to his surprise that more students had successfully completed that course than had graduated in the 150 years of MIT. That is the power of these MOOCs.



Fig 3: Top MOOC platforms

Since they have been around for 6-7 years, the MOOC platforms have steadily matured. Some of the top MOOC platforms available today are Coursera, Udacity, edX, Canvas Network, NovoED, iversity, Open2Study and Future Learn. Each of these particular platforms is different either in the form of content or the target users or otherwise. Coursera is the largest, EdX has got Harvard and MIT universities while Udacity focuses on executive education. These platforms allow access to the top courses from the world's most prestigious universities. They have also started certification services, so you don't just get a pass, you get certified too for a fee. We now also have a concept of nano degrees which provide customized content for industries or corporations. You can get nano degrees in Electrical repairing or LEED certifications, for example. The variety of ways that you can use MOOCs has become a lot more sophisticated and a lot more useful as well.

The third topic discussed within the mega trends was social learning and collaborations. There are, at least, 100+ free collaborations tools available which allow users to collaborate on lessons, on students, on teachers, on subjects etc. You can also collaborate on different mediums – audio, video, graphics. One such example is ‘Skype in the classroom’ which is used by 500,000 teachers and students in 191 countries with almost 200 new teachers signing up every day. A teacher who wants to conduct a class on floods can login to ‘Skype in classroom’, search for topic on floods and for instance, log into a particular classroom and hear from the students in that class what it was like to be in the flood itself versus just talking about it. This kind of an interactive learning can enable collaboration with another classroom halfway around the world, for instance and significantly enhance the overall learning experience.

Next, the speaker discussed about making education fun and engaging. There are several educational games available by subject, by age group and by game type. Just at the kindergarten level, there are games available on topics as diverse as algebra, geometry, measurements, money, number sense, with increasing levels of difficulty. Another way to make education more fun and enjoyable is through gamified education wherein game elements such as progression, competition, rewards and recognition are added to the existing learning system. Duolingo which uses this concept has reached about 120 million users in 23 languages around the world. It is an amazing way to learn a new language, allowing users to compete with new friends, earn points and obtain rewards. It is so much more fun learning than just sitting and learning a new language by rote.

He then illustrated the effectiveness of gamified learning process through a couple of his personal examples. The first one was from one of his experiences in the corporate world. When he was at NTT Data, they had 75,000 people in 45 countries and one of the things which they needed to teach the employees was leadership which can typically be done in one of two ways – have them all come to a classroom which becomes very expensive when you have that

many people across 45 countries or do a computer based training. The latter is generally known to be a very ineffective method. Instead they decided to create a leadership game that was based on the user taking on the persona of a Samurai and execute various activities involving assembling a team, negotiating with them, problem-solving, goal setting, risk mitigation and communicating effectively – while having fun, playing the game. About 750 people were taken in one team across US, UK, Canada and India and made to play this game while another 750 people did the traditional HR based leadership program. This exercise was done for about 9 months at the end of which it was found that the group of people who used the game had 50% more people graduating to team league level versus staying at the divisional contributor level, had 25% less attrition, gave 30% more referrals (friends who wanted to join the company) and generated 20-30% more new ideas versus the traditional pool. This story was covered in the InformationWeek, in the Forbes magazine and got the Learning in Practice award.



Fig 4: 'Learning games' at 'Teach the World' foundation

The second example was from his experience in 'Teach the world' foundation. The foundation started using games on lost cost tablets to provide literacy for kids in places such as the remote parts of mountains or the Rohingya refugee camps in Bangladesh, where education is otherwise not accessible. It is a simple model. The kids are brought into a room, not necessarily a formal classroom and are given these tablets to play education games for 2 hours a day. When their progress was measured over a period and compared with that of the kids who were in traditional programs, studying about 5 hours a day, it was found that these kids were scoring 250% higher on standardized English tests and 230% higher on math – just 2 hours a day with no teacher. This model has now been tested this in 5 different environments - in 2 different countries and the next plan is to launch the model in Africa. There is an interesting story of why the girl in the picture appears sad. It was the first time that she was ever exposed to a tablet and within just an hour of being exposed to any sort of technology for the first time, she figured out how to take a selfie. The reason she is looking sad is because the facilitator argued that taking a selfie was against the class rules. The kids learn these stuff so quickly on their own and that really demonstrates the power of this technology.

The next topic was about leveraging some of the latest technologies. Technologies such as AI, machine learning and big data have all been used in the adaptive and personalized learning and educational games. Another interesting area is virtual and augmented reality, one of whose several applications is an app developed for iPad and iPhone which gives details of the place or thing, which the instrument points to - a great way to experience a city just by holding the phone. The speaker has been working on developing similar systems for Hajj and Umrah experience where the user for instance, can point to Mount Uhud and see the details of the battles which happened there thereby enhancing the hajj and Umrah experience instead of just going with the flow. The reason why this kind of a learning is important is that the human brain remembers only 10% of what you read and 20% of what you hear while it remembers 90% of what you do or simulate. Another

example of the application of technology is the use of double robotics. Basically, it is an iPad on wheels which can be remotely controlled using a phone or other such device. The speaker had this deployed at his centers at NTT and so, while sitting in Boston, he was able to give tours to the innovation Centre in India or Japan to his customers. He could show them his face, talk to them or turn around as if he were there, just without his body. This could be used, for example, when students are sitting in Qatar and they want to get a tour of the Louvre museum where there are double robots available - they can log in and guide the robots to get a full personalized tour of the Louvre museum. Yet another beneficiary could be a kid with a disability or a kid who cannot come to class because he has some problem - they can still be a part of the class and have a full experience. The possibilities of using technologies in applications such as these are endless.

The speaker then spoke about the opportunity to leverage some of the business models. The first one he spoke about was the sharing economy model for which Uber is an excellent model. He shared the example of his friend's venture in Pakistan in which he was able to overcome the problem to scarcity of full time qualified English teachers by using the Uber model. He created a platform through which a lot of socialite ladies who have had education from top-tier universities but are averse to long-term teaching commitments, were able to take smaller commitments on a sharing basis. This way, he could get access to the best qualified English teachers around and create win-win model. The speaker and his team are working on a similar idea for an Islamic learning Centre in Boston. One of the challenges with that Islamic Centre is that there is a shortage of trained people who understand Hadeeths and seerah. However, there is sufficient availability of potential teachers who have a lot of knowledge of these hadeeths, but are not formal teachers. Using the economy sharing model as above, the number of potential faculty has increased from just one or two people once a month to around 20.

Another interesting business model is the 'success-based learning'. Mission University (now acquired by WeWork), used

this concept in their one-year analytics program, offering it to students solely on success-based fee without having to pay anything upfront. If the students were able to secure a job with a minimum annual pay of USD 50,000, within the first month of program completion, they were required to share 15% of their salaries for 3 years. The program had 100% placement within the first two weeks and the following year, they received 4000 applications for 100 available slots. Success-based models can also be used for offering vocational training courses.

Crowdsourcing is another interesting business model which can be used. Wikipedia is an excellent example of successful implementation of this model. It has about 28 million users with 122,000 regular editors contributing to the content. Slideshare is another successful application which offers tons of presentation templates, attracting about 78 million visitors a month. Both of these are harnessing the power of crowdsourcing in order to create digital content.

The last topic within the mega trends which the speaker spoke of, was the separation of learning and credentialing. As discussed earlier, formal learning today is tied to a specific time, person and place. However, in reality, people learn all the time in a variety of non-traditional ways. However, the learning part is to be separated from the credentialing part. The challenge is in finding a way to ensure that the learning that takes place outside the classroom can still be quantified or accepted as proof when the person wishes to apply for a job or go to teach or otherwise. Credentialing allows certification of that learning. For example, there are now programs in universities such as the University of Wisconsin and San Jose State which provide university degrees without having to take a single formal class. The student has the freedom to learn from wherever he wants, from books or elsewhere. As long as the student passes their credentialing program, he will get the degree. The concept of nano degrees, available from places like Udacity, was already discussed earlier. Overall, people are recognizing that there are several different ways of learning and that you need to separate the learning process from credentialing.

Finally, the speaker spoke about the opportunities in Qatar. He appreciated the fact that Center for Islamic Studies at Hamad Bin Khalifa University seemed to be among the few places in the world that have teaching based on applied principles and employ an interdisciplinary approach. He advised using the concept of MOOCs to scale the program reaching out to a lot more number of potential beneficiaries around the globe. Also, since Qatar Foundation was hosting the branch campuses of some of the best universities in the world including Virginia Commonwealth University, Weill Cornell Medicine, Texas A&M University, Carnegie Mellon University, Georgetown University, Northwestern University, HEC Paris, and UCL, there is an opportunity to create a tighter integration between those programs and their parent universities' counterparts using the collaboration tools and double robots which were discussed earlier, so that the students at the Qatar campus feel no distinction between the two options. With respect to the K-12 program of the Qatar Foundation, he said that the Foundation has ample resources to create a lab school that can test these models at scale and share their findings with the world to become a thought leader in this space. For instance, it can find which of the models work best for kids with learning disabilities or for people who want to provide retraining to their workforce. These schools, whether in the US or Europe or anywhere else for that matter are unable to do these things on a scale due to the teacher unions - teacher unions are extremely powerful and offer a very strong resistance to any attempts to introduce changes in the education space. Qatar has an opportunity to catapult itself to be a leader in future technologies or future learning models throughout the world - and that would be quite a remarkable feather in the cap.

On the cultural side, VR-based immersive experiences, can provide remote access to some of the landmark places in Qatar. The last thing which the speaker discussed was the application in vocational training. Qatar offers a lot of vocational courses in areas such as mechanics, electrical, plumbing etc which can be taught a lot more effectively using either artificial reality or virtual reality. For example, the students can practically try out some

of the electrical procedures without getting. This is a far more effective way of learning and while some leading universities are trying to do that, Qatar has the opportunity to really define that. The speaker mentioned that he had just scratched the surface and that there were plenty of possibilities in Qatar.

The speaker summarized the opportunities for Qatar stating that Qatar has positioned itself as a Centre for knowledge in the Middle East and beyond and by leveraging some of these technologies and business models, it can increase the world-class faculty available and the quality of education, create global thought leadership and branding and provide new revenue streams.

Disclaimer & conclusion

Before ending, the speaker wished to make a disclaimer. He said that the technologies, models and tools which were discussed will give the right results only if they are built on the right foundation. There are three pillars which make up this foundation:

- Strong grounding in ethics and collaboration
- Encouraging ability to question
- Inculcate love of learning

The kids and the students, more than anything else, need to have a strong grounding in ethics and collaboration. Today, the kids are told that they need to get an 'A' at any costs which provides them the incentive to cheat in their examinations. They are constantly being told that it is all about them. Most of the time, they are tested at an individual level. They are not encouraged to collaborate. In the real world, however, most of the important and complex tasks get done through collaboration.

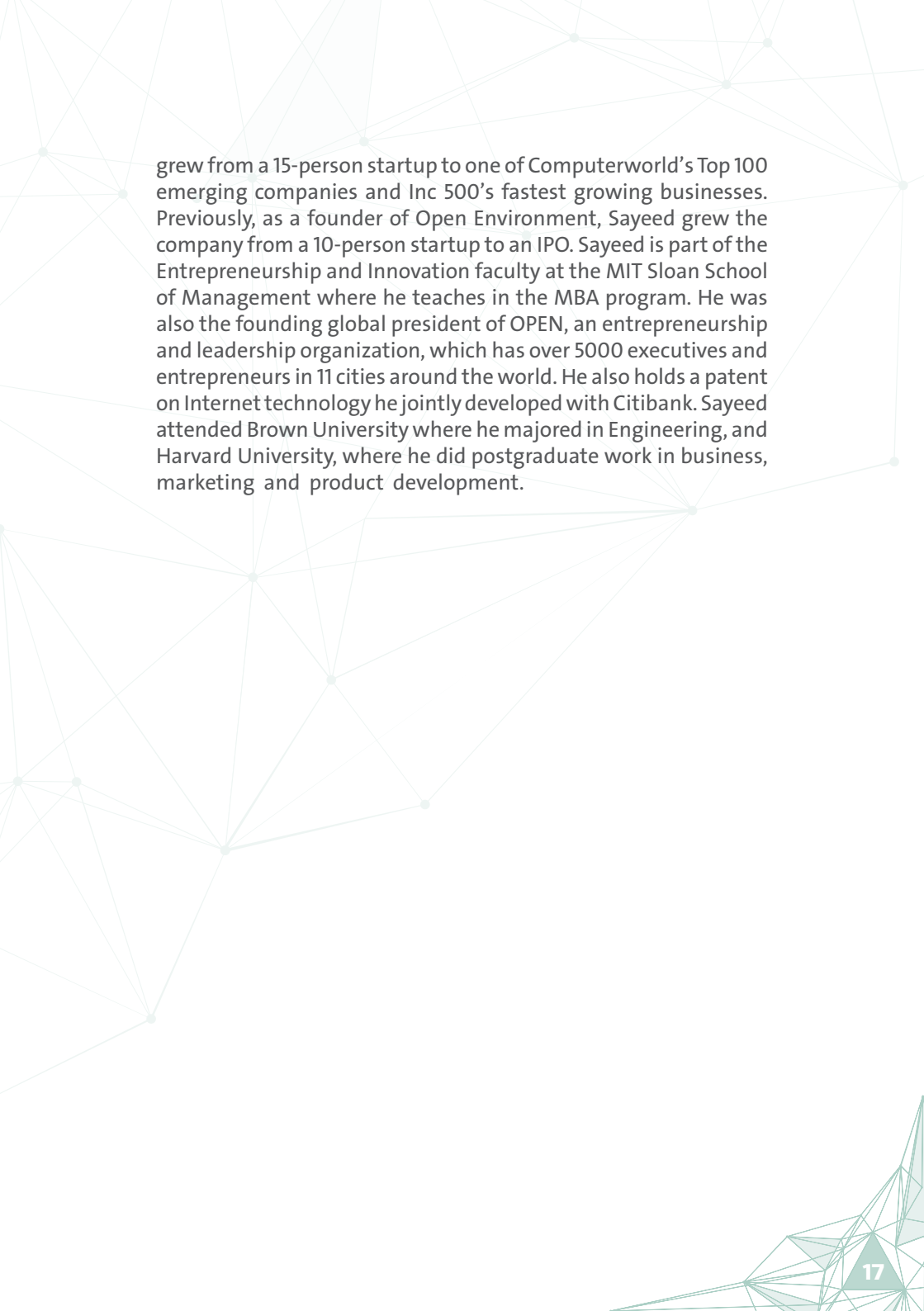
The second foundation which he spoke of was encouraging their ability to question. The 3-year-old toddlers ask the craziest questions because they naturally have the tendency which

is either shut down or subdued by the society while the best innovations in the world have happened when people have questioned conventional wisdom.

The third foundation which he mentioned was inculcating a love of learning. Kids are naturally passionate, they want to learn, and they like exploring. The stressful manner of assessments and learning removes the love of learning from their hearts and they begin to look at learning as a burdensome activity. The prevalent systems and practices take away the three foundational elements, ethics and collaboration, a love of learning and the ability to question and make the kids unlearn them. Unless we can go back and create those foundations, none of what has been discussed is going to work. On the other hand, if this is done and then combined the discussed techniques, the sky is the limit and there are amazing possibilities.

Speaker's biography

Mr Imran Sayeed is a visionary, high-impact executive and respected thought leader who was recognized in 2013 by Computerworld as one of the Premier 100 IT Leaders. He is a Senior Lecturer at the MIT Sloan School of Management and is the Co-Founder and Chief Development Officer at Teach the World Foundation, a non-profit that promotes a scalable approach for children's literacy using low-cost tablets and educational games. Mr. Sayeed served as the Chief Technology Officer for NTT Data, Inc., the sixth largest IT services company in the world with \$ 16 Billion in revenue, and part of NTT Group, the world's largest telecommunications company with \$130 Billion in revenue and 220,000 employees. In this role, Sayeed worked with the leadership to help define the technology strategy and direction for the global organization. Sayeed came to NTT through its acquisition of Keane, where he led a 7000 person technology consulting organization and before that netNumina, a boutique technology strategy and consulting firm that he founded and



grew from a 15-person startup to one of Computerworld's Top 100 emerging companies and Inc 500's fastest growing businesses. Previously, as a founder of Open Environment, Sayeed grew the company from a 10-person startup to an IPO. Sayeed is part of the Entrepreneurship and Innovation faculty at the MIT Sloan School of Management where he teaches in the MBA program. He was also the founding global president of OPEN, an entrepreneurship and leadership organization, which has over 5000 executives and entrepreneurs in 11 cities around the world. He also holds a patent on Internet technology he jointly developed with Citibank. Sayeed attended Brown University where he majored in Engineering, and Harvard University, where he did postgraduate work in business, marketing and product development.

