How Technology Developments are Driving Change in Higher Education

Video Presentation Transcript

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Abstract

This presentation focuses on the key technology developments globally and their implications for both the institution and student. The presentation will note developments in massive open online courses (MOOCs), open education resources (OER), increased access to devices and other technology applications and will identify emerging trends for institutions and students.

Introduction

Never before in history has higher education been so vital in the economic and social development of countries. And never before have opportunities to reach so many learners – millions globally – been so abundant, or the chance to accelerate learning been so possible.

This makes the role of higher education institutions … like the ones represented at this Dialogue … more important than ever. As the Asian Development Bank puts it: higher education institutions "operate as incubators of the innovation and creative thinking needed for an economically competitive society."[1]

UNESCO (United Nations Education, Scientific and Cultural Organisation) has identified higher education as being critical to addressing the sustainable development goals - in reducing poverty, improving health, empowering women and protecting the environment.

UNESCO's Director-General sums it up this way: "The evidence is unequivocal: education saves and transforms lives."[2] It may seem obvious on one level how education in general, and higher education in particular, benefits people: It equips individuals with knowledge, competencies and skills that are needed in the labour market.

But consider this, from the World Bank, in its Education Strategy 2020: Not only do "investments in quality education lead to more rapid and sustainable economic growth and development" … but "Educated individuals are more employable, able to earn higher wages, cope better with economic shocks, and raise healthier children." [3]

There is also much data these days to show that providing higher education to women is one way of enhancing gender equality and empowerment. In Sub-Saharan Africa, for example:

- women with no education in the region average 6.7 births ;
- those with primary education average 5.8 births, and
- those with secondary and higher education average 3.9 births.[4]

And higher education not only influences women's choice of family size: it gives them better job options, increased confidence, greater health and safety and empowerment.

All of this makes the provision of higher education – and the job of higher education institutions – at once exciting and a little daunting.

So, what are the global developments that are influencing higher education?

In all countries, labour market needs are rapidly evolving. Automation and digitization of industry, agriculture and the knowledge economy are changing what is taught, how it is taught and when and where learners are likely to want to be taught.

According to a study from Oxford University, "47% of occupations are at risk of being automated in the next few decades."[5] This means that as many jobs change and others become obsolete, it will be essential for higher education to also change to meet new knowledge and skill demands.

[1] Asian Development Bank's Report 2011 on Higher Education across Asia
[2] University World News 2014. Higher education and the post-2015 development Goals, Wichara Kigotho: http://www.universityworldnews.com/article.php?story=20140925153653680
[3] World Bank 2011. World Bank Strategy 2020 – Learning for All. Investing in People's Knowledge and Skills to promote Development. http://siteresources.worldbank.org/EDUCATION/Resources/ESSU/Education_Strategy_4_12_2011.pdf
[4] UNESCO 2014. Sustainable Development Post 2015 Begins with Education - http://www.unesco.org/new/en/media-services/single-view/news/unesco_sustainable_development_begins_with_education/#.VEQ71018PIU
[5] The Economist, June 28, 2014. Higher Education – Creative Destruction. http://www.economist.com/news/leaders/21605906-cost-crisis-changing-labour-markets-and-new-technology-will-turn-old-institution-its.

At the same time, of course, graduates consistently need to upgrade their skills and companies need to top up their human capital.

A 2013 OECD report[6] points to the importance of higher education, especially in light of the 2008 economic crisis that hurt many countries. The data illustrates a not-so-surprising fact: that a great deal of the economic and social hardship caused by the crisis fell chiefly on less-educated individuals. The unemployment gap between well-educated young people and those who left school early widened during the crisis. Across the OECD countries, on average only 5% of the population with a tertiary education level were unemployed, while 13% of those without an upper secondary education faced unemployment.

The implication here is clear: a person's education and field of study, especially at the post-secondary education level, will determine the level of risk she or he faces during times of economic and social crisis.

Coming back to the World Bank and its Education Strategy 2020, I quote:

> *"The stunning rise of the middle-income countries, led by China, India and Brazil, has intensified the desire of many nations to increase their competitiveness by building more highly skilled workforces."*

The value of higher education is also driving up the *demand* for higher education is exploding. From 150.5 million student's worldwide seeking tertiary education in 2007, demand grew to 165 million in 2012. It is expected to reach 263 million by 2025 – just 10 years away.

Rapid advances in information and communications technology (ICT) and other related developments are now constantly changing job profiles and skills demanded by labour markets. Yet, these advances also offer possibilities for increasing access, accelerated learning, improving the quality and management of education systems.

In a recent publication, the NMC Horizon Report: 2015 Higher Education Edition, the experts agree on two long terms trends of technology adoption in higher education over 5 years, 'advancing learning environments that are flexible and drive innovation, as well as increasing the collaboration that takes place between higher education institutions'[7]. The report further focuses on the issue of measuring learning and the proliferation of open education resources in the three to five year time-frame. In the short terms, they focus on increasing use of blended learning models and how learning spaces are redesigned. In all of these trends, technology is a key driver.

From Massive Open Online Courses (or "MOOCs") and Open Educational Resources, to mobile technologies, flipped classrooms, learning management systems and the proliferation of educational apps, these developments have radically changed how we understand both teaching and learning.

Let me say a few words on MOOCs, as this seems to be the most relevant and impactful technology development that is influencing higher education. It has also created debates on the nature of learning and teaching using technology.

[6] OECD 2013. The Education at a Glance Report.
http://www.oecd.org/general/searchresults/?q=The%20Education%20at%20a%20Glance%202013%20Report%20
[7] http://www.nmc.org/publication/nmc-horizon-report-2015-higher-education-edition/

MOOCs offer the opportunity to increase access to high-quality education and access to global leaders in fields of study, all with minimal to no costs. Nevertheless, we have yet to see successful business models emerging to take on more MOOC development.

But there are some down-sides of MOOCs too. As UNESCO has summed it up, they can be: (1) costly and time-consuming to produce, (2) most participants are already well-educated, and (3) only about 5% of registrants actually complete their courses.[8]

For motivated learners who have appropriate technology and Internet bandwidth, MOOCs provide an opportunity to participate in global learning and possibly to earn credits from globally renowned institutions.

Yet, what about those learners who lack the technological and bandwith requirements? Several MOOC providers are looking at ways to address these barriers.

COL , for example, has run MOOCs with various partners in the developing world with a view to research and understand the opportunity this kind of learning platform offers. In a recent COL publication, authors Sandi Boga and Rory McGreal[9] note that: "MOOCs as a type of globally-networked learning environment could become a very useful delivery model in the developing world – but not necessarily when tied to a specific platform."

Setting up the MOOC is also a challenge – COL has been testing the development of a portal for some of the MOOCs offered by COL so that they can all be accessed via a single page (www.mooc4dev.org). A partner institution can use this portal to configure its own MOOC platform in a short time (less than an hour) and customize it for immediate launch. The platform comes with a student management system, forums for discussions, audio and video streaming, learning analytics and repositories for content and assessment questions.

Most important is the advanced integration of Twitter and Facebook with this platform. Learners can access all the discussions via the Twitter or FB accounts and can post their queries/comments directly from these social media spaces. Thus, we are bringing mobile devices and MOOCs even closer as most Twitter and FB access in the developing world takes place using mobile devices.

MOOCs are also likely to increasingly offer credentials of economic value, such as college credits, badges or certificates of competency. Then, if employers begin to consider such credentials for hiring and promotion decisions, we anticipate that participants will be more willing to pay fees to cover the costs of MOOCs production, which will help ensure the sustainability of MOOCs into the future.

Underpinning the MOOC model are Open Educational Resources

An important component of effective MOOCs is the availability of the course materials and learning resources as Open Educational Resources – or OER for short.

[8] UNESCO Bangkok 2014. Can MOOCs Help Democratise Access to Education by Fiona Hollands. http://www.unescobkk.org/fr/education/ict/online-resources/databases/ict-in-education-database/item/article/can-moocs-help-democratize-access-to-education/

[9] **COL 2014. Introducing MOOCs to Africa: New Economy Skills for Africa Program – ICT by Sandi Boga and Rory McGreal.** http://www.col.org/resources/publications/Pages/detail.aspx?PID=472

COL recognises and promotes OER as central to its agenda of learning for sustainable development. COL has adopted the widest definition of OER, describing them as: "materials offered freely and openly to use and adapt for teaching, learning, development and research."

While OER are mainly shareable in digital formats (both online and via offline formats such as DVD or CD-ROM), COL does not see them as just being synonymous with online resources, online learning or e-learning. Rather, in COL's view, OER can also be in printable formats.[10]

The term OER was first used at a UNESCO meeting in 2002. An early manifestation of OER was the Massachusetts Institute of Technology's Open Courseware initiative, in which teachers placed their lecture notes online for free use. The UK Open University's Open Learn followed by placing existing self-instructional materials, in online format. Another step forward was the Virtual University for Small States of the Commonwealth, or VUSSC, where the capacity is built to develop courses collaboratively using free authoring tools.[11]

In 2007, leaders of the OER movement met in Cape Town, South Africa, to endorse what has become known as the Cape Town Declaration. They called on all educators to participate actively in this movement based on the belief that all taxpayer-funded resources should be OER. COL and UNESCO have been working for several years now to promote the development and use of OER and jointly convened the World OER Congress in 2012.

There are other technology trends that are influencing higher education, too.

Of these, developments in mobile learning (mLearning) are especially potent.

In many developing countries, the availability of Internet services may be very low, but the use of mobile devices is very high – and growing. In fact, it's spreading so much that, as Silicon India recently reported using data from the ITU, 'the number of active cell phones will reach 7.3 billion by 2014. In other words, there will be more in-use cell phones than there are people on the planet right now'[12]. Put another way, 80% of the world's population will be accessing the Internet via their mobile device[13]. This has implications for the use of mobile phones for learning in higher education.

In a survey of mobile phone learners, completed in 2012, noted the following:

- 100% would complete more training in the mobile format,
- 99% believe the format and presentation would enhance their learning,
- 75% praised the convenience and time management benefits while
- 45% spent more time in training with no loss in compensation[14]

The key question – will higher education institutions use this trend to increase access to learning, identify different teaching methods and develop quality content for this platform?

[10] COL. Policy on Open Educational Resources. http://www.col.org/progServ/policy/Pages/oer.aspx
[11] COL 2013. Ten years of OEL: The Road Ahead by Professor Asha Kanwar. http://www.col.org/resources/speeches/2013presentations/Pages/2013-10-02.aspx
[12] http://www.digitaltrends.com/mobile/mobile-phone-world-population-2014/
[13] http://elearninginfographics.com/10-mind-blowing-mobile-learning-statistics-infographic/
[14] *ibid*

Conclusion

Globally, as labour markets respond to rapidly changing economies and just as rapidly changing needs and expectations of society, so the pressure is mounting on higher education to keep up.

Technology is at once opening doors to much more extensive opportunities for many more people seeking knowledge and skills development, AND driving significant changes in both the teaching and the learning processes.

We also see technology reshaping the form of higher education institutions. Developments such MOOCs, OER and mobile phones offer major avenues for addressing the needs of citizens in every nation to obtain high-quality learning opportunities that are either free or at very reduced costs. The outcome is greater global equity in access to learning.

All of these factors have implications for higher-education institutions in both developing and developed countries. Across Southern Africa, institutions like those present have been analyzing the changing education environment and developing strategies to respond to it.

I would like to conclude with a few points on why the technology enabled changes I have outlined should be positively embraced:

- The changes are inevitable and therefore it is important to understand how to turn the challenges into opportunities. This requires gathering data, doing careful analysis and developing strategies.
- Higher-education institutions have unique opportunities to engage in partnerships with industry, government, NGOs and other bodies to better understand the needs of learners within the economy and society.
- Technology offers many ways to improve teaching, increase independent learning by students, and widen access to global resources (via MOOCs, OER, etc.). Perhaps, most important of all, though, it offers a means for a greater number of people wherever they are in the world to gain the skills and knowledge they need to live productive, satisfying and meaningful lives.