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10 PREDICTIONS FOR ONLINE LEARNING IN 2020

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> "Prediction is very difficult, especially about the future."
> - *Neils Bohr, Danish physicist and Nobel Prize winner*

Despite Neils Bohr's cautionary note, we boldly (and perhaps foolishly!) explore ten patterns and trends likely to dominate online learning around the world in 2020, and capture them as predictions about the future.

One challenge is, as the well-known Canadian science fiction author William Gibson pointed out, "the future is already here … it's just not very evenly distributed". This is especially true between the global north and the global south, between those who have access to advanced technologies and those who do not, and between those who are able to afford access to education and those who cannot.

Given the rate at which social and economic inequality is growing – the top 1% secured 82% of all wealth created in 2017 around the world – we need to be cautious about over-reaching and "universalizing" developments. Yet some things are clear: significant change is occurring, especially in the global north, which will impact the way we think about higher education all over the world. Many responsive innovations are occurring in Africa, India, the Small Island Developing States (SIDS) and Asia, which provide clues as to how we can all improve our approach to learning.

As new institutions emerge – Woolf University, the world's first new "Oxford tutorial style" university based on video learning and blockchain technology opened in 2019, the Ekurhuleni Applied Technology and Science University in South Africa opens in 2020 and the UAE soon opens the world's first university dedicated entirely to artificial intelligence studies in Abu Dhabi - they each take advantage of emerging trends and patterns to rethink both curriculum and pedagogy. China will open a new university in each week of 2020 and has done so since 2016. China has the advantage of building a new institution "from scratch", while many others have the challenge of rebuilding their institution "in flight".

10 PREDICTIONS FOR 2020

1. **Colleges and Universities Expand Online and Flexible Learning as a Strategic Response to Demand for Access to Education**

   As governments around the world reduce per capita funding in higher education, despite the rising costs of offering quality learning, universities and colleges will continue to expand online and flexible learning as a strategic response to ongoing demand for access to education.

   In Canada, online registrations are growing at approximately 10% per year, while face-to-face registrations are flat, with Ontario leading online registration growth at 14%. In the United States, registrations in online programs and courses quadrupled over a fifteen-year period.

MOOC registrations are also continuing to grow, stimulated by growth in India, Asia and Africa, and by the launch of MOOC-based degrees and nanocredentials. This growth is aided by a focus on reskilling the workforce in the light of changes in the nature of work as a result of technology.

In Singapore, for example, all adults are provided with a $500 SkillsFuture learning account (automatically replaced when used) so they can reskill and engage in lifelong learning, which many residents use for short, online courses.

2. Colleges and Polytechnics Lead the Nanocredentials Surge

Many jurisdictions are encouraging their colleges and universities to look at micro-credentials, which can be stacked and transferred into more substantial degree and diploma programs.

For example, New Zealand wants to encourage the more widespread use and availability of micro-credentials and included them in their national qualifications framework. Nanocredentials are part of the fabric of continuing educational offerings around the developed world since 2012, and are now a growing feature in fast growth economies.

Some micro-credentials can be transferred into degree programs – a nanodegree from edX or from Athabasca University, for example, can be transferred into an MBA. Whether we are looking at very short courses which lead to the award of a digital badge, such as those available in Australia, Germany, United Sates, Canada, Malaysia, and many other countries, or whether we are looking at something much more substantial – graduate level work leading to a diploma or certificate – we can expect a significant growth of modular, stackable credentials.

This growth is aided by an increasing number of credentials offered by MOOC providers, especially FutureLearn, Coursera and edX. UNESCO provided a valuable roadmap as to how an ecosystem for credentials can be built and sustained. We can expect colleges and polytechnics to lead the way.

3. Companies and Colleges and Universities Partner to Deliver Workplace Learning for Credentials, Including Diplomas and Degrees

As companies struggle to find employees with the skills they are looking for, more look to workplace programs and strategic partnerships with colleges and universities to deliver programs at work.

Examples enabling those in work to secure full recognition of their knowledge and skills include:

- AT&T has a MOOC-based program offered in partnership with Georgia Tech and Udacity;
- Shopify recruits students straight from high school and enrols them in a Dev-Degree program offered in partnership with Carleton University and York University in Canada;
- In the United Kingdom, Airbus is just one of many employers offering degree apprenticeships where apprentices develop the capabilities and skills they require for their technical work, but earn a degree at

the same time all in the work place;

- In the United States, the University of Wisconsin is also offering qualifications (including degrees) based on capability and competency assessment, as does Western Governors University; and
- Recent developments also see work-based learning and accreditation growing in China.

4. 5G Stimulates the Development of Immersive Simulations, Games and Learning Experiences

Very few parts of the world will have access to 5G broadband, and even fewer will be able to afford the initially expensive 5G handheld and related devices.

Countries such as Argentina, Australia, China, Finland, Norway, Russia, South Africa, South Korea, Taiwan, Singapore, and some cities in the United Kingdom, United States and Canada are either experimenting now or will shortly do so (in early 2020). Others will soon follow.

Given the speed at which downloads / uploads can occur in 5G and the power of 5G, this is a transformative technology. In addition to enabling the widely anticipated Internet-of-things (IoT), 5G will also stimulate development of immersive simulations, games and learning experiences. XR technologies, which embrace artificial intelligence, virtual and augmented reality, 3D printing and all of the power of Hollywood special effects, will be used to build unforgettable learning experiences.

Many of us will not see these in 2020, but the pioneers will see 2020 as a landmark year for 5G-enabled learning and demonstrations of possibilities, even in remote and rural communities, which will whet the appetite.

5. Technical and Vocational Education Make Growing Use of Open Educational Resources (OER) and Practices

As higher education becomes increasingly expensive, governments and educators seek to find ways of improving access to education by lowering the costs of learning.

One big cost for students is textbooks. The more widespread adoption and use of Open Educational Resources (OER) in textbooks (or complete OER-based textbooks) and materials, strongly advocated for by UNESCO, the Commonwealth of Learning and ICDE, reduces the cost-burden for students.

The OER World Map provides a starting point for exploring developments around the world and the OERu is enabling OER use globally, though adoption rates are lower than many advocates hoped for. Local and regional initiatives abound, not least those in Canada at eCampusOntario, BCcampus and in Manitoba.

There is also a growing number of OER resources for technical and vocational education, which are used around the world. Major publishers are now offering leases for learning materials in an attempt to lower costs. Adoption in the global south is higher than in the global north.

6. More Ethical and Privacy Issues Emerge as Artificial Intelligence is More Widely Deployed

There was more hype than action related to artificial intelligence (AI) in higher education over the last two to three years, but in 2020, AI starts appearing in more and more settings in colleges and universities around the world.

Appearances include:

- Chatbots taking the form of characters and personas support student learning;
- AI-enabled adaptive learning engines;
- AI-generated course materials; AI-enabled counselling and career advising;
- AI-enabled assessment generation and marking; and
- The use of analytics for student selection and intervention.

Part of the reason for the anticipated growth is the cost of deployment is falling and the ease of use is improving. Given the challenges with the nature of the algorithms, which drive some of these services (see Algorithms of Oppression and Privacy International's analysis), we are likely to see a growing number of concerns about data-security, privacy and legal challenges to "AI-enabled decisions".

7. Video-Based Peer-to-Peer Learning Networks Expand

There are growing uses of peer-to-peer learning in corporate training and development, including mentoring and coaching programs and programs targeting skills enhancement through peer teaching.

Peer networks are also used extensively in education systems for leadership development and improving professional practice. Increasingly, video-based peer networks are emerging with a variety of different instructional uses: self-reflection, collaboration, coaching, self-assessment and evaluation, and skills capture.

Powerful in project-based learning, especially where teams are based in different parts of the world, video improves engagement and can provide fast access to experts all over the world. With so many low-cost or free video platforms available and reliable, we can expect use to grow, especially given the video capabilities of many handheld devices.

8. Artificial Intelligence Triggers a Reimagining of Assessment

In 2014, Pearson published an important paper *Preparing for Renaissance in Assessment* by Peter Hill and Michael Barber. It suggested that while many would focus their energies on emerging pedagogies, the real work to be done was to rethink and reimagine how learning might be assessed, both in terms of assessments aimed at improving learning progress (formative assessment) and assessment aimed at establishing learning achievements (summative assessment).

With the arrival of assessments enabled by artificial intelligence and suites of AI-enabled technologies, such as TAO and Assess, how and when we assess students is changing. As more faculty members identify ways of

engaging in authentic assessments of learning – more self-assessment, peer assessment, assessments by potential employers, more simulation-based assessment – we can expect to see the anticipated renaissance appearing.

The growth of systems to support capability and competency assessment, such as Valid-8, is of particular importance in 2020.

9. **Personalized Learning Boosts Engagement and Produce Strong Learning Outcomes**

Different students who enrol in the same course may be assigned different materials by the learning platform or learning management system (LMS) to support a more efficient path to completion, based on their profile, performance and behaviour.

The LMS tracks both their knowledge and skills through testing and AI interactivity and "calls up" appropriate resources, matched to their learning materials preferences (video, audio, text, games, simulation).

Deploying personalized learning through adaptive engines built into LMS and through behavioural analytics can boost engagement and produce strong learning outcomes. All of the major LMS have adaptive engines and their use will increase, as students seek more flexible routes to completion.

In addition, there are "add on" platforms that can support AI-enabled personalization – Realizeit and Brainly are two examples currently deployed.

10. **Content Aggregators Make it Easier for Learners to Find and Engage with Learning Materials**

Solutions are available to dynamically aggregate content from millions of sources around the world to provide high quality, relevant content for student use and learning in one place.

Faculty members identify the topics, keywords, and sites they want their solution to scour and the curation solution produces a live stream of all the latest and most relevant content. Over time, students and academic peers can rate this content for quality, relevance, accessibility or other criteria and the system begins to filter out "poor" content and find more quality content similar to the highly rated content.

Such solutions use semantic analysis, collaborative rating and social ratings to continue to find and curate content. These content aggregators then plug this stream into a learning platform to make it easier for learners to find and engage with learning materials.

Commonly used solutions include Curata, Quuu, FlipBoard, Feedly, elink.io and Ahref. As communities of practice around specific fields of study grow, content curation and sharing becomes a key sustaining feature of these communities, all to the benefit of learners.

Some readers may be surprised we are not predicting the "death" of the LMS or the collapse of MOOCs. This is because neither of these things will happen. LMS continue to function and grow and MOOCs are now finding their way to profitability, in part through the offer of micro-credentials, nanodegrees and

full degrees.

Others may be surprised we are not predicting the more widespread use of blockchain technologies, despite a growing number of deployments in Europe, Canada and the United States. This is because this is a background technology that has yet to catch the imagination of administrators and overcome the objections of registrars and their counterparts in finance. The most important blockchain developments are likely to occur in China, which is seeking to lead the world in innovative applications of artificial intelligence and related technologies deployed at scale.

Given the continued reduction in per capita investments in higher education around the world, despite growing demand for access, commercial interest in education is growing. Worldwide, education is a $6.5 trillion industry. The focal points for private investment are in technologies for learning, assessment and reporting, analytics and learning systems. However, many companies have yet to find a sustaining business approach to education, which yield strong returns on investment, as Pearson and others have found to their cost. While some private education players struggle in North America, developing economies appear much more attractive markets.

Finally, we can also expect continued innovation on a small scale across education systems around the world. Whether these relate to new approaches to pedagogy, new deployments of technology to support student services or new kinds of institutions, innovation is a characteristic of higher education and it appears in pockets everywhere. We track some of these developments in our Pockets of Innovation Series.

Many of these developments are aided by the growing and extensive collaboration between institutions. Collaboration is the "DNA" of the knowledge economy, something we practice in Ontario through Colleges Ontario, especially OntarioLearn, and Contact North | Contact Nord. Bilateral collaboration on course development and multilateral collaboration on delivery are becoming more common features of the higher education landscape in many parts of the world. This is likely to strengthen, as institutions seek to achieve scale in their online learning delivery.

What will be interesting is to see what breakthroughs in approaches to pedagogy occur in 2020 – we hint at some above.

Keep us posted to what you see happening – contact us here.