

Smart Education for the Future

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Professor Asha Kanwar
President & CEO, Commonwealth of Learning (COL)

Distinguished Colleagues, thank you for the invitation to be part of this virtual Summit. This has been a challenging year for everyone. What can we learn from our experiences and build smart education for a more equal, safe and resilient future?

But first a word about my organization the Commonwealth of Learning. COL is an intergovernmental organisation that works in 54 Commonwealth Member States which span all regions of the world.

Our mission is to help Commonwealth Member States and institutions to use distance learning and technologies for expanding access to education and training.

In this presentation, I will begin by highlighting the key issues that emerged during the pandemic. I will then look at some of the potential futures of education that lie ahead and conclude with the essential elements that need to be part of smart education for the future we want.

The pandemic disrupted the entire education system at all levels with lockdowns and closures that affected over 95% of the learners worldwide. What were the challenges?

During the pandemic, the greatest challenge was related to digital infrastructure—lack of access to devices, connectivity, electricity. Teachers were not prepared for the sudden transition to online learning. Existing inequalities in both developed and developing countries were further exacerbated.

In a survey conducted at Stanford University, 16% of the undergraduate students did not have access to the internet for half the time and 60% of students from low-income homes did not have a private space for study.

Over 63 million teachers were impacted by COVID19. Even in OECD countries there is evidence that only 60% of teachers had some training in ICTs.

The vulnerable are most impacted in crisis situations. It is estimated that the numbers of school dropouts will increase with 11 million girls not likely to return.

A study in the Netherlands, records a learning loss of about 3 percentile points with higher losses among students from less-educated homes.

The only silver lining has been the global acceptance of distance and online learning. What would have taken years of advocacy happened within a matter of days. And a recent study in the UK found that the majority of HE students rated the quality of online learning as excellent. Is this the foundation of smart learning in the future?

Futurist Wendell Bell identifies three types of futures: preferable futures, probable futures and possible futures. Let us consider each of these.

First, the preferable future points to a more desirable state. Sustainable Development Goal 4, which aspires to ensure equitable access to quality education and lifelong learning for all by 2030 is the global community's preferable future. Five years down the line how close are we to this future? Trends indicate that even the slow progress achieved before the pandemic is likely to be further set back.

SDG 4 aspires to leave no one behind. 15% of the world's population suffers from some form of disability, yet only a fraction has access to education at any level. Similarly, gender parity in education continues to elude us.

Even before the pandemic there was a learning crisis where many children were going to school but not achieving the required learning outcomes. Half the 10-year-olds in low- and middle-income countries were unable to understand a simple written sentence. What would be smart education for the preferable future—one that is based on equity, inclusion, and lifelong learning for all?

Second, the probable future is what is more likely to happen based on current trends. Developments in technology will continue to drive changes in the way we teach and learn with technology adoption further accelerated due to the pandemic.

AI is being mainstreamed in education. Intelligent Tutoring Systems use AI techniques to simulate one-to-one human tutoring, provide timely feedback, all without the presence of a human teacher. Machine Learning helps to analyse and summarise the discussions in online courses so that a human tutor can guide the students towards fruitful collaboration. AI-powered systems can offer personalized assistance to learners.

Chatbots are already proving to be fairly effective teaching assistants—right from Georgia Tech to the Open University of Malaysia.

Assessment has been a great challenge during the pandemic. AI-based assessments can constantly provide feedback to learners, teachers and parents about how the students learn, the support they need and the progress they are making towards their learning goals. In South Africa, mobile based assessments were used to reach those in the most remote shanties. What would be the smart ways to assess and evaluate?

The third is the possible future—something visionary that may or may not happen. The climate crisis is one of the defining issues of our times. Over the past 40 years, the number of climate-related disasters globally has tripled, a trend that is expected to continue.

The education sector, from primary to tertiary, contributes to both direct and indirect emissions, with an impact on environmental degradation and associated economic costs.

The Open University, UK compared the carbon emissions of ICT-enhanced and face to-face courses and found that distance teaching models had significantly lower environmental impacts (Caird et al. 2013; Caird et al. 2015). COL conducted a similar study in Botswana and found that the average carbon footprint of the face-to-face group is nearly three times greater than that of the distance learning group. Is distance learning an element of smart and resilient education?

The pandemic has taught us to prepare ourselves for all three futures. All these are global challenges—achieving education for all, harnessing the potential of technology and mitigating the impact of climate change. What will be smart education for the future that can address these challenges?

One solution suggests itself from the past, when open universities were established to increase access to higher education. In the Commonwealth countries, there are 31 open universities which cater to nearly five million students every year. China has a national open university and several state open universities which reach millions of learners. Since purely online options do not work for everyone, the blended approach of open universities can address the issues of access to reach our remotest learners.

Smart education must also provide a high-quality learning experience. The ultimate objective of QA is to ensure not just access to quality learning but also to student success that leads to opportunities for livelihoods. This means going beyond looking at completion and retention rates to supporting graduates to become employable—that is equipped with the skills that can lead to employment or entrepreneurship—in short, skills that prepare our students for the uncertain future that lies ahead.

Smart education must also be affordable. As research tells us, there is no significant difference between the effectiveness of face to face and online provision. On the other hand, there are significant cost savings as this study by Insung Jung shows. While face to face costs per participant were USD 6.7, the same training was offered online at USD 3.7 with comparable outcomes.

Research also indicates that people with disabilities prefer distance learning because it is convenient for them as they can study at their own pace, place and time. Distance learning offers content in various formats so learners can read, listen or watch lectures. Distance learning is more affordable as it costs significantly less than campus-based instruction and offers a degree of anonymity—where students with disabilities can interact with professors and peers without feeling discriminated

In order to mitigate the impact of climate change, smart learning must promote the four R's: reduce carbon emissions; raise awareness on disaster preparedness; reskill for a greener future and build resilience for the education sector.

Smart education must harness the potential of technologies to increase access, improve quality, reduce costs, support inclusion all with a low carbon footprint.

Smart education must draw on the experience and expertise of high quality open and distance learning.

To sum up, smart education is about the 5Es – Education that is enjoyable, engaging, efficient, effective, and ethical. First, enjoyable learning helps the retention and transfer of knowledge to long-term memory. Second, making learning engaging requires pedagogy as well as innovative applications of technology. Third, learning needs to be efficient in terms of time and resources. Fourth, Smart Education must be effective and lead to livelihoods and responsible citizenship. Fifth, smart education is ethical, for it addresses issues of privacy, cyber security, and equity.

On that note, let me thank you for your kind attention.