

Disruptive Change in an Age of Disruption



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It is a pleasure to be here in person at the 5th International Open and Distance Learning and I must thank the Rector and the organising team for the invitation. As a distance educator, I have long been familiar with the pioneering role of Anadolu University, where it has been a model for many open universities in the world, but this is the first time I'm at Eskişehir. I have always been impressed with the role of Anadolu University in leading research in open and distance learning. It is an honour today to speak on 'Disruptive Change in an Age of Disruption'.

I will first look at what we understand by disruptive innovations and the implications of these for teaching and learning. This will lead to a discussion of three disruptive changes that we are experiencing—the Covid-19 pandemic, the phenomenal developments in technologies and the climate crisis—and the disruptive innovations that are emerging as a response. In conclusion, I will outline how open universities must refresh, rethink and redesign their policies and processes for innovative transformation.

Let us first look at ODL as a disruptive innovation.

Clayton Christensen defines disruptive innovation in business as a process whereby a smaller entity with fewer resources is able to successfully challenge established players and displace incumbent businesses by addressing a specific need that had hitherto not been addressed.

What are the characteristics of disruptive innovation? First, it is a process not a product or service. It is usually regarded as having lower quality in the beginning. It takes time to challenge and disrupt established businesses or organisations. New models emerge as a result. But we must also remember that all disruptive innovations do not succeed.

This diagram shows how disruptions take place in business. The new product enters the market at the bottom to satisfy the needs of low-end customers. This need is not being addressed by the existing dominant players in the market. The new entrants improve their performance and quality over a period of time and eventually dislodge the dominance of the big players.

Using Christensen's disruptive innovation model in higher education, we find open and distance learning (ODL) as the innovation at the bottom of the pyramid that continues to challenge

mainstream face-to-face higher education. Campus institutions have become mainstream over 900 years of existence and the state, students and parents continue to sustain the demand for them. However, ODL began to cater to those who were left outside mainstream higher education. ODL as an innovation is now manifesting itself as online and blended learning and MOOCs, especially during the pandemic. This is when the boundaries begin to blur between campus and ODL institutions.

Disruptions emerge when mainstream providers fail to cater to the needs of a learning society. These are supported by innovations in technology and give rise to a new breed of providers. As we have seen, distance and online learning have grown and evolved over the last fifty years, keeping pace with and taking advantage of the various technologies.

We live in a disruptive age, where change is happening faster than ever before and in more unpredictable ways than we can imagine. Three years ago, no one could have predicted the pandemic or foreseen its magnitude. Developments in technology are changing the ways in which we teach and learn and the ways in which we work. We are encountering the increasing impact of the climate crisis in our daily lives.

As we know, Covid-19 has caused the biggest disruption of education in human history where over 95% students worldwide were impacted.

The closure of campuses affected more than 220 million higher education students worldwide.

Most institutions had to pivot to emergency remote teaching. Many did not have adequate technology infrastructure. The mobility of international students plummeted with countries losing large revenues from student fees. Budget cuts were imposed by governments — research reliant on practical work and external collaborations suffered most.

A survey conducted in Europe found that most teachers live-streamed lectures synchronously. A large number of teachers also used asynchronous approaches by sending pre-recorded videos and audio lectures.

A study in the US and Canada revealed that over 50% of teachers required help with supporting remote students, needed access to digital materials and wanted assistance with technology.

Students too suffered in various ways—and half of them felt that their performance had declined. Many faced challenges relating to technology tools and connectivity and most felt an impact on their psychological well-being.

The pandemic has deepened the existing learning crisis. A study in the Netherlands, records a learning loss of about 3 percentile points with higher losses among students from less-educated homes. But was it only a learning loss? Amidst this learning loss was a 'learning gain' where over and above the curriculum, both teachers and learners learnt to be resilient, managed their time better, acquired basic computer skills to learn and collaborated on various social media platforms. All these are relevant skills that will help teachers and students be better prepared for the future.

At this time, many universities which had resisted offering online courses started offering academic and professional development courses.

Another silver lining was the global acceptance of distance and online learning. It would have taken years of advocacy to achieve the overnight transition to remote learning. A recent study in the UK found that the majority of higher education students rated the quality of online learning as excellent.

The second major disruption is the phenomenal growth in technologies.

The recent Educause Horizon report sums the top technology trends and practices: AI topping the list followed by blended course models, learning analytics, micro credentials, OER and online learning. What implications do these developments have for higher education? These changes signal the need for reform in three key areas: curriculum; teaching learning and assessment; openness and flexibility.

This Gartner Hype Cycle shows how technology moves from an initial phase of innovation to inflated expectations which cannot be fulfilled and this then leads to a phase of disillusionment before maturing and being adopted for mainstream purposes. The rise of MOOC is a good example of how they moved from an innovation in 2008 at the University of Manitoba to a situation when the international press declared 2012 as the year of the MOOC. Today the dust has settled down and MOOCs have been integrated productively into some mainstream HEIs such as MIT with its Micromasters initiative. However, if we review developments over the last fifty years, we find that the many innovations driven by technology have not been adopted at the speed and scale at which they emerged.

We speak of the fourth industrial revolution today – what has been the impact of these revolutions on disruptive innovations in education? In the first industrial revolution when the steam engine was invented, higher education made a transition from being elite to one which anyone could aspire to. The second industrial revolution was marked by the assembly line and mass production, when it became possible to produce self-instructional booklets and offer correspondence courses. The rise of the computer and internet in the third revolution led to the rise of open and distance learning and open universities and in the fourth revolution marked by AI and Robotics, we have OER, MOOCs, micro-credentials.

We are on the cusp of the fifth industrial revolution where there will be better interaction between humans and machines. This will provide teachers with the opportunities to facilitate personalised learning and better inclusion especially for persons with disabilities. ODL was seen as a second chance second choice option in higher education meant for those who had neither access nor opportunity for campus-based education. It served a specific need in society and harnessed technologies to reach the unreached with flexible learning options. As its quality and relevance was established, its methods began to be adopted by campus institutions giving rise to blended, flexible and online learning.

Open and distance learning has developed over the years. Prof Taylor's five generations of distance learning models sums up the evolution from correspondence education to multi-media to online provision.

Blended and hybrid modes provide opportunities for learning to those who cannot access purely online provision. Traditionally, open and distance learning has always adopted a blended approach keeping in mind issues of social justice. Research shows that blended learning is more effective in developing countries (John Baggaley). The role of ODL becomes even more important as the global community seeks to transform education by providing quality learning opportunities to all.

First, how do we increase access? Distance education has been used around the world to democratise higher education. The 33 open universities in Commonwealth countries cater to over 5 million learners annually. How can we deploy MOOC platforms to move from mega to giga institutions?

Second, quality. Research shows that there is 'no significant difference' between distance and traditional classroom instruction in terms of learning outcomes; yet there is a lingering perception, that distance education is not as effective as class-based education. In fact, the research shows that students in blended learning performed marginally better than those in the classroom. How can this mode become the preferred option?

Third, costs. Distance learning costs substantially less than campus provision. Another study found that while face to face costs per participant in a teacher training course were USD 6.7, the same training was offered online at half the costs with comparable outcomes. How can higher education be made more affordable so that no one is left behind?

Fourth, inclusion. Studies show that more PWD join ODL institutions as they don't need to travel to campus, seek accommodation near the institution. ODL is more flexible and offers content in various formats so learners can read, watch or listen to lectures. ODL provides a degree of anonymity where students with disabilities can interact with professors and peers without feeling discriminated. How can we make higher education more accessible and inclusive?

The pandemic led to innovations where ODL was harnessed for poverty alleviation. The Open University of China trained 50,000 villagers in rural areas for livelihoods.

As countries skill and reskill citizens for the new normal, ODL will have a key role to play. The COL-Coursera Workforce Recovery project trained over 150,000 Commonwealth citizens, many of them first-time online learners. Establishing help-desks to provide learner support and counselling resulted in higher completion rates. Since ODL is a viable option, how can it be effectively deployed for livelihoods?

The third major disruption that we are witnessing is climate change. The climate crisis is one of the defining issues of our times, especially for the Commonwealth, with a disproportionate impact on its 32 small states.

Last year in British Columbia, the location of COL headquarters, we witnessed an unprecedented rise in temperatures to almost 50 degrees C which can be expected in the desert areas in my country India but certainly not in Canada. British Columbia also experienced vast flooding and forest fires. Recent reports have found that humans are the primary cause for the adverse changes to the planet's

ecosystem. Since we are responsible for the current climate crisis, what is it that we need to do to mitigate the impact and prevent future climate-related disasters?

How does the climate crisis effect the education sector? According to UNICEF, more than 3000 classrooms and over 330,000 students were affected when Cyclone Idai, hit Mozambique. Similarly, Hurricane Dorian destroyed 90% of the infrastructure in The Bahamas. The tsunami in Tonga and the floods in Pakistan have disrupted education yet again. As we have seen, climate-related natural disasters have major, detrimental impacts on education. Entire schools can be destroyed or irreparably damaged, leading to thousands of displaced students, unable to continue their education. Critical data and student records may be wiped out entirely, leading to the collapse of entire systems.

The education sector too contributes to both direct and indirect emissions, with an impact on environmental degradation and associated economic costs. As Bill Gates has pointed out in his book—How to Avoid a Climate Disaster—cement, steel and plastic, essential for construction are the biggest emitters of carbon. Can distance and online learning lower the carbon footprint of education?

Recognising the need to raise awareness and build the capacity of Commonwealth citizens to adapt to and mitigating climate change, COL engaged with key stakeholders in 26 countries to identify their priorities and concerns. Stakeholders stressed the need for urgent and immediate climate action and for promoting disaster response and recovery. Building the capacity of teachers and empowering youth was proposed as another way forward. Promoting collaboration and coordination between education and environment ministries and involving the private sector would be another.

The result of these deliberations is a document: Transforming Education for Climate Action: Report to Commonwealth Ministers of Education. This report provides a road map for how ministers of education can climate proof education systems, implement a green learning agenda that builds skills for blue and green economies, and promote education for climate action. This would require policy development, resource allocation and effective implementation.

The recommendations of this report also focus on the important issues of quality, equity, and justice. In many countries girls are more vulnerable to climate change and disasters. One impact of the climate crisis has been to bring attention to climate justice and to recognise the need for providing equitable access to women and girls in STEM subjects. There is a greater focus today on breaking gender stereotypes and promoting women and girls' access to coding and construction, traditionally male domains from which they have been generally excluded.

The crisis has led to research in whether adopting distance and online learning can promote environmental sustainability. The SusTEACH project, supported by 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 learning-related carbon footprint of the distance learning group is nearly three times less than that of the face-to-face group.

We have seen that the education sector was not prepared for the unforeseen disruptions. Let these challenges become the opportunity for us to refresh, rethink and redesign our policies and practices.

The pandemic created a momentum for self-directed learning. How can we build on this experience to create an ecosystem that promotes lifelong learning for all? Lifelong learning includes the whole spectrum of formal non-formal and informal learning. Simply reforming current education systems will not be enough. Countries will need to continually skill and reskill their workforce, both young and old, throughout their lives.

Open universities already have a history of providing lifelong learning. Some of our mission statements already express a commitment to lifelong learning, as you can see in the case of the Open University of Malaysia, Sukkhothai Thamathirat Open University and the Open University of Sri Lanka.

Providing access to higher education to large numbers was one of the key contributions of open universities. Providing access is no longer enough so we need to rethink this role. It is imperative to prepare learners to be employable. This will require a balance between theory and practice; a focus on hard as well as soft skills, a curriculum that addresses the needs of the labour market. The orientation will change to providing certification based on proven competence rather than the number of hours attended.

To create a higher education system that is responsive to the market needs and future requirements, it is necessary to look at the different stages of the employability pathway and to re-think our priorities.

As the climate crisis assumes greater urgency, we need to integrate key sustainability concepts into the curriculum. This would mean adopting a green learning agenda. This agenda would focus on developing the skills for green jobs that would help make the transition to a low carbon economy; green life skills for a more sustainable future and skills for a green transformation that addresses social justice.

How do we redesign our pedagogy and make it more fit for purpose? Recent research supports the call for blended approaches to teaching and learning. Learners want engagement and instant feedback. We also need to guide learners to become self-directed and autonomous so that they are well prepared for learning throughout life.

Since we are no longer testing only knowledge but also skills and competencies, we need new ways of assessing performance. Openness and flexibility requires that we recognise prior learning and make it possible for learners to transfer their credits anytime anywhere. AI-based assessment constantly provides 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. Micro-credentials are leading to shorter, just-in-time courses that can be taken at one's own pace or time. Formal assessments and proctoring systems suffered major setbacks during the pandemic —where

institutions adopted innovative approaches to build flexible models and make assessments more authentic.

Open universities need to redesign learner support by integrating the psycho-social dimension and paying greater attention to the well-being of staff and students. 24/7 online hubs and call centres can prove to be very helpful if they are run effectively. Learning analytics have helped to provide personalised learning and improvements in learning outcomes.

Refreshing, rethinking and redesigning will require disruptive innovations. Disruptive innovations happen when stakeholders such as parents, teachers and the labour market are involved. Fostering their participation would enable the transformation of creativity into innovation.

Technology is leading to various innovations in teaching and learning. But technology by itself is an invention. It is only when technology is 'domesticated' according to specific needs and contexts, that innovations happen.

As we know, innovations are not about technology alone--they can relate to products, processes, models, methods—even external relations and partnerships.

We also need to ask—innovations for whom and innovations for what? Its not enough to have an innovative pilot project—how can we achieve scale? How ethical are our innovations and what will be the impact on people and the planet?

Dealing with disruptive change will require an innovation mindset. One element of this would be to regard every challenge as an opportunity. Another would be to take risks and learn from failures. Finally, we need to adopt collaboration and sharing as a strategy.

I thank you for your attention.