



Systemic Change through a New Paradigm in Global Education

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Education is positively correlated with every metric of human welfare and wellbeing. Higher levels of employment, productivity, income, equity, health, environmental awareness, cultural integration, civic consciousness, and societal participation go with higher levels of education. Education is one of the greatest organisations humanity has developed. It encapsulates all the knowledge we possess and presents it to our children so they can acquire in a period of 12-15 years what has been gathered by humanity over millennia. Education is a tool for conscious social evolution. Meeting SDG4 is fundamental to meeting the other 16 SDGs.

The present system of education the world over has great scope for improvement, but education, in any form, particularly at higher levels, is itself a critical, unmet need in large parts of the world. There is an enormous qualitative gap between the exclusive group of world-class institutions and the tens of thousands of other institutions with shortages of faculty members, underfunded and inadequate facilities, and high student-instructor ratios. The focus of this note however, is another gap, that of quantity. Global tertiary enrollment is projected to rise from 216 million in 2016 to 380m by 2030 and nearly 600m by 2040, and this will still leave hundreds of millions of youth without access to higher education. College acceptance rates are already as low as 2% in some countries. If the future demand for higher education is to be met through the currently prevailing approach, it will require the founding of four new universities with 40,000 students every week for the next 15 years. Where will global society find the qualified instructors, facilities, and financial resources to achieve such phenomenal growth?

The quantitative gap between educational aspirations in society and the incapacity of the current system to meet the demand can be bridged only by a radically new global system that uses advancements in Information and Communications Technology to complement the existing system. The COVID-19 pandemic has made us conscious of how critical a viable and resilient system of education is to society. It has also demonstrated that alternative and complementary models can be quickly harnessed to reduce vulnerability and enhance accessibility, affordability, and quality of the global delivery system. Major elements of this new model are already being implemented, but they have not yet been shaped into a coherent, coordinated universal system that will multiply the benefits and dramatically reduce the barriers to education for all. A hybrid model of education that combines the value of face-to-face interaction with the power of digital learning can be used to design a global, world-class system of higher education that is affordable, accessible, and relevant to everyone everywhere.

A major feature of such a model will be a global delivery system for lectures by the world's leading experts and the best quality Open Educational Resources, delivered digitally in all major languages through low-cost digital devices. The lecture system ensures universal access to high-quality content at the lowest possible cost. It draws on both existing formal educational resources in the present system as well as non-traditional sources. In April 2020, colleges and universities closed down due to the pandemic, disrupting the studies of 220 million college students in 170 countries. A global digital delivery system that provides quality lessons directly to a digital device is a reliable method that will be a proof against such disruptions in the future.

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Developing countries face a critical shortage of teachers. For instance in India, 38% of the faculty positions in the well-financed premier universities are vacant for want of funds and qualified teachers. The vacancy rate is even higher in private and state-run universities. The Indian government aims to increase the national Gross Enrolment Ratio from its current 27% to 50% by 2035. To achieve this target, the government needs 3.3 million more teachers, a 235% increase from the current availability. Even if the country were to find the resources to build these new institutions and equip its classrooms, laboratories, and libraries, where can it find the 3.3 million teachers? The use of recorded lectures from the world's best institutions can partially meet the need, at least of knowledge dissemination. Even where such a critical shortage does not exist, when teachers need no longer deliver lectures, they can become more productive as facilitators of learning. Precious classroom time can be spent in more interactive, collaborative, and mentoring activities.

In a world where the cost of education is rising rapidly beyond the reach of many students, online learning represents a way to deliver education at a fraction of the cost of traditional classroom education. In the US, over 60% of all college students take on debt to pay for their education, with the average loan debt per student being over \$37,000. The total student loan debt outstanding in 2020 was \$1.6 trillion. More than 60% of Chinese parents and 70% of Indian parents spend over a third of their income on their children's education. ICT can reduce the cost of the delivery of knowledge. When students listen to one-way lectures online instead of in the classroom, the hybrid model reduces the time students spend in campus and opens up possibilities such as completing a four-year degree in less time. This has the potential to make college education accessible for more people.

Digitisation broadens the concept of the textbook to encompass reservoirs of quality content offered by digital archives, online libraries, online publications, and multimedia content that can meet all types of learning needs. Digital learning content can be replicated and distributed at a fraction of the speed and cost of printed material. It can be updated

constantly and translated readily into regional languages. While the expansion of traditional educational facilities is time-consuming, bureaucratic, and expensive, online education can be rapidly and exponentially expanded to disseminate knowledge and raise the average level of education.

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Online education can be paced to adapt to the speed and capacity of each individual student. It can be customized and specialized to meet varied interests and needs. Those who need to drop out of college because of personal, social, or financial constraints need no longer compromise on their education because of competing priorities. Digital education, once the digital gap is bridged, can make education far more inclusive and accessible than it is today.

Separating certification from instruction can liberate the delivery of knowledge from accreditation. Breaking the monopoly which existing institutions have for certifying knowledge acquisition opens the field for a wide range of non-traditional educational sources and resources to supplement the formal system. It also facilitates the customization of massified, standardized courses and programs so that students can acquire knowledge customized to meet their interests and applications from any source, formal or informal, and have it validated through accredited third-party agencies.

We need new credentialing systems based on the premise that learning involves much more than merely the acquisition of specific course content. Measures need to be refined to assess the acquisition of a much wider range of competencies than mere courseware. These can shift the focus from certification of courses taken by students to validation of the actual competencies a person has acquired, regardless of whether they were obtained through traditional classroom instruction, online learning, on-the-job learning, or other forms of life experience. Such new models can decouple the educational and certification processes, and in the process make both more effective.

The proven technology needed to support such a system worldwide already exists. Low-cost devices and the internet require only political will to make them available to all. The costs of illiteracy, low-quality education, and unemployment far outweigh the costs of investment needed in the infrastructure required.

When the world switched to the online model in 2020, we did not have the luxury of debating the pros and cons of digital education, we had little choice. But as we gradually move towards normalcy, we can study the system we adopted objectively. We are still trying to improve centuries-old classroom education; online education that is merely a few years

old will clearly need much planning and improvement. It may be a poor substitute for an education at elite, research-oriented, well-funded, progressive institutions that constantly push the boundaries of knowledge and introduce innovations in every aspect of education for millions of youngsters. But a hybrid model will make the difference between receiving an education, any education, and remaining uneducated for hundreds of millions of people.

The possibilities of ICT in education have not yet been fully explored. Once we learn to do that, train our teachers, and offer to our students the best of a blended model, using face to face setting where possible, complemented by online learning, we have the opportunity, for the first time ever, to provide every human being with the means to acquire an education that is personalized, self-paced, person-centered, relevant, integrated, affordable and of high quality.

Interpersonal interaction has a value that digital meetings cannot replace, and technology offers possibilities that traditional methods cannot match. Together, they can offer us the solution we have been looking for. A hybrid global model of education where technology complements rather than replaces person-to-person interaction can dramatically strengthen the capacity of the global delivery system to achieve UN SDG No.4 of “inclusive and equitable quality education” and “lifelong learning opportunities for all”.

The World Academy of Art and Science can bring stakeholders together and facilitate the creation of a global system designed from the beginning with the future needs of all humanity in mind and tailored to deliver world-class education to many students who seek it wherever they are in the world. The creation of such a system of education is one of the most potent and effective means for ensuring global human security.

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