



A New Paradigm in Global Higher Education for Sustainable Development and Human Security

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Abstract

Every institution of higher education and every government is trying to overcome the problems it faces and improve the reach, relevance, financial viability and effectivity of education. But no one is thinking globally for solutions that will be optimal from the perspective of humanity as a whole. The enormous challenges we face in education today can best be solved only by including system-wide action at the global level. A new paradigm needs to be clearly formulated, designed and implemented. This paper briefly outlines the nature and magnitude of the challenges in higher education today, and identifies promising signs of a new paradigm waiting to emerge. That will require a new kind of leadership that thinks and acts globally. Such a paradigm can make an immense contribution to addressing global problems, implementing the UN Sustainable Development Goals and promoting greater human security for all.

Education is an essential instrument and catalyst for social transformation. At the same time, the global education system itself is in need of radical transformation to upgrade capacity, quality, reach, and relevance. The current model of education was designed at a time when knowledge was scarce, sources of knowledge were limited, classrooms were essential for knowledge dissemination, and higher education was limited to a privileged few. Today the world needs a comprehensive global strategy that makes far better use of the existing resources, utilizes the potential of Information and Communications Technology, applies innovative, learner-centred pedagogy to provide affordable, interactive, personalized, relevant, quality education for all. Such a new paradigm in global education will make it a powerful catalyst for social transformation and fulfilment of the United Nations' Sustainable Development Goals.

1. Quantitative Gap between Educational Aspirations and Capacity

The current education system and existing infrastructure combined with the growing college-age population and rising demand for tertiary education result in an ever-increasing quantitative gap between educational aspirations in society and the capacity of the current system to meet the demand. Of the nearly 60,000 students who applied to Harvard University this year, the University accepted less than 2,000 to the Class of 2025. Such acceptance rates of less than 5% are common among the Ivy League universities in the US. The gap between supply and demand is even greater in colleges and universities in many other parts of the world, such as Brazil, Mexico, Nigeria and India, where the acceptance rate can be as low as 2%.

Global tertiary enrolment is projected to rise from 216 million in 2016 to 380 million by 2030 and nearly 600 million by 2040*, and this will still leave hundreds of millions of youth without access to higher education. If this demand for higher education is to be met through the currently prevailing approach, it will require the founding of four new universities each with 40,000 students every week for the next 15 years. Where will global society find the facilities and financial resources to achieve such phenomenal growth? How will we reduce, rather than further widen, the gap in quality of instruction, while keeping pace with the ever-accelerating pace of new knowledge acquisition? How will we find all the qualified instructors who will be needed?

2. Shortage of Teachers

The Indian government aims to increase the national Gross Enrolment Ratio from the current 27% to 50% by 2035. To achieve this target, the government has decided to add 35 million new seats in Higher Education Institutions and hire 3.3 million more teachers, a 235% increase from the current availability of 1.4 million. Even if the country were to find the finance, infrastructure, and other resources to build these new institutions and equip its classrooms, laboratories and libraries, where will it find the 3.3 million teachers? The current faculty shortage in the country's premier institutions is 38%, with vacancies in leading management institutes as high as 74%.

* <https://monitor.icef.com/2018/10/study-projects-dramatic-growth-global-higher-education-2040/>

Every part of the world faces such shortage to varying extents. Up to 50% of the staff at public universities in Kenya teach at more than one university. They do part-time jobs in an attempt to meet the teacher shortage. The average lecturer-to-student ratio is 1:500, and in some cases 1:900. This shows how acute the shortage is. UNESCO recommends a ratio of 1:45, which is itself inadequate to provide quality education. The Inter-University Council for East Africa that regulates higher education in the region reports a stark level of unpreparedness among graduates for the job market. Over 60% of graduates in Uganda and Tanzania, and over 50% in Kenya, Burundi, and Rwanda have been perceived to be unfit for jobs. Similar rates prevail in India and other nations around the world.

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3. Challenges of Quality

Global higher education also faces an enormous and ever-widening qualitative gap between the small, elite, exclusive group of world-class institutions and the tens of thousands of institutions with high vacancy rates among faculty, severe shortages of qualified instructors and inadequate ongoing training for those in service, underfunded and inadequate facilities, and very high student-instructor ratios.

A quantitative gap in the demand and supply of education is widespread in developing regions of the world, but the quality deficit is universal. This is reflected by the results of a global survey in which 43% of organizations acknowledge a skills gap in their workforce today, and the rest expect it in the next few years*.

Until the onset of the COVID-19 pandemic, our classrooms largely resembled the classrooms of earlier centuries. Other than a select few progressive institutions, most of our schools and colleges worldwide are still based on the lecture model emphasizing the passive transmission of knowledge from instructor to student. Students are taught to learn individually and compete with one another, while at the workplace they can become successful only as good team workers with communication, collaboration, networking and leadership skills. So the way they are taught in the classroom is almost the exact opposite of how they must learn to function in the workplace.

4. Cost of Learning

Affordability represents another critical challenge in education today. This impacts accessibility to learning and therefore equality of opportunity. In the US, over 60% of all

* <https://www.mckinsey.com/featured-insights/coronavirus-leading-through-the-crisis/charting-the-path-to-the-next-normal/mind-the-skills-gap>

college students take on debt to pay for their education, with the average loan debt per student being over \$37,000. From 2008 to 2018, the average tuition at four-year public colleges increased by 37%, and net costs by 24%. The total US student loan debt outstanding in 2020 was \$1.6 trillion. Elsewhere, more than 60% of Chinese parents and 70% of Indian parents spend over a third of their income on their children's education. The future of many existing educational institutions is already under siege, due to declining numbers of students, rising costs and reduced public support. Significant innovations to support social, cultural and systemic change will require structural investments and long-term thinking about education, training and research, which will impact costs further unless an alternative or complementary delivery system can be developed based on a different approach.

5. Other Key Challenges in the Future of Education

5.1. Fragmentation of Knowledge

Higher education began centuries ago with a focus on a mere handful of subjects. Today more than 1000 disciplines and subdisciplines are being offered at universities. Fuelled by the rapid accumulation of information, this multiplication of disciplines results in a progressive narrowing of field and scope of knowledge in each specialized discipline—so higher levels of specialized expertise are accompanied by decreasing width and breadth of knowledge even in closely related fields. Thus, specialization simultaneously enhances and limits the knowledge and competency of specialists. Economics was taught for more than a century without reference to the environment. Advanced studies in science and technology are accompanied by little or no exposure to the social consequences and policy implications of the application of science and technology in a real-world context.

Treating each academic discipline as a separate compartment of self-contained knowledge and pursuing it in isolation results in fragmenting knowledge. In our attempt to arrive at rational and scientific facts, we divide and subdivide reality into an increasing number of silos with too little interaction, relationship and integration with one another. As a result, silo-based academic knowledge has become increasingly mechanistic, reductionistic, divorced from wider social context, human needs and values. It is inadequate to prepare current and future generations for life in an increasingly complex, interconnected world in which knowledge of the relationships between fields and disciplines is as important or more important than knowledge within a narrowly specialized field. The current system supported the destruction of human and natural capital in the name of progress. It has not fully succeeded in building the social and cultural conditions for inclusive innovation and for a global society that is more equitable, open and supportive. It has been unable to root out prejudice, racism, discrimination and other social ills. It continues to prepare or ill-prepare youth for a world that no longer exists and no longer functions as it did in the past.

We are witnessing a society that, on a local and global level, is marked by increasing inequalities and asymmetries; a society in which the 'new' inequalities of a cognitive and cultural nature are defined and made concrete. We need to change the logic and organizational cultures of our institutions, which are still built upon the logic of separation and confinement

of disciplinary sectors, which translate into separations between people, their experiences and lives. Emotion, creativity and imagination must be brought back into educational and training processes. It is necessary to go beyond false dichotomies, in particular those that mistakenly contrast the specialization of knowledge, and skills with their complexity and interdisciplinarity. We need a transdisciplinary education that possesses the depth and insight needed to plumb the rich complexity of life and the world. An education that provides students with inter-sectorial, integrated perspectives is essential to equip them to meet the challenges of the future.

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5.2. Changing Role of Teachers

Instructors were delivering lectures to pupils centuries before the printing press was invented. Hand written books were rare and so precious that they had to be chained to library shelves. Knowledge could be acquired solely from scholars, and a lecture was the only method for delivering it. Youngsters had to travel to centres of learning, sometimes to another country to continue higher education. Today when all the information in the world is available as text, audio and visual material to anyone, anywhere in the world with a digital device and an internet connection, oral instruction in the classroom is no longer the sole or best source from which students can acquire information. When information can be obtained anywhere at anytime, classroom-time spent with teachers and peers can be used more creatively and effectively.

More than teachers, we need facilitators of learning who promote values-based learning explicitly. They need to foster interdisciplinary and intersectorial knowledge and thought, and the capacity to calculate the cost-benefit ratio on every planned action from the sustainability point of view. Learning how to develop sustainable relationships with ourselves, others and the world is imperative. So we need to retrain teachers and empower them to become effective facilitators of learning and role models of ethics and sustainability.

5.3. Future Disruptions

In April 2020, colleges and universities around the world closed down due to the pandemic, disrupting the studies of 220 million college students in 170 countries.* Even as epidemiologists warn us of other pandemics that may follow, environmentalists are clear that the disruption caused by COVID-19 may have been sudden and dramatic, but its magnitude

* <https://www.worldbank.org/en/news/immersive-story/2021/01/22/urgent-effective-action-required-to-quell-the-impact-of-covid-19-on-education-worldwide>

and long-term impact will be insignificant compared to what could be expected from climate change. We may never be able to go back to relying completely on face-to-face classroom learning. And even if a return to the past were to be possible, it would be suboptimal. We need a future-proof method that will not be held hostage to disruptions as yet unknown. It is time to start educating and training teachers and researchers in unpredictability and building a more resilient culture better adapted to tolerate and flexibly adapt to error and uncertainty.

6. A Radically New Approach to Global Education

The existing model of delivery system inherited from the past is clearly inadequate and incapable of fully meeting current and future global needs in terms of capacity, quality, accessibility and affordability. Piecemeal strategies, local initiatives and uncoordinated efforts by governments and educational institutions may marginally address issues of immediate concern to some degree, but they cannot provide optimal solutions of sufficient magnitude to meet the needs of humanity.

Educational institutions are preoccupied with addressing their specific problems at the local level. State and national governments are preoccupied with fashioning remedies for their own populations. But the educational challenge we describe is global in scope and, it can best be addressed by thinking and evolving globally rather than merely focusing on local and national solutions.

There is an urgent need for thinking beyond existing models to conceive, develop, and experiment with new models that supplement, complement and enhance the reach, quality and cost-effectiveness of the existing system. It will require systemic change at the global level in every aspect of education—knowledge delivery systems, evaluation, accreditation, content, pedagogy, and teacher training.

6.1. Online Education

The remarkable advances in technology during the past few decades have opened up promising alternatives at a much lower cost than the existing model. The resistance to change that retarded widespread adoption of online learning has been shattered by the pandemic. COVID-19 has radically altered the situation. The suspension of physical classroom education spurred a sudden transition to online learning at all levels of education around the world. The results have been mixed due to the lack of trained and experienced instructors working in the new medium, and a broad array of other difficulties. But recent experience confirms that online learning has an important role to play in the future. Its problems can be addressed in a fraction of the time and at a fraction of the cost of expanding conventional delivery systems to accommodate the growing number of students.

Online education can also be the answer to the problem of teacher shortage. The model allows for institutions to tap into some of the best expertise available anywhere in the world on every subject. Lessons, lectures or other online resources that are identified as good quality content can be shared and used by students and universities worldwide. Every institution, regardless of its geographic location, funds and infrastructure, can access them.

Automatic voice translation makes it possible to render the content into any language. That way, students everywhere can have access to the best quality lessons offered by the world's best instructors on each subject. Research confirms that student-centred education is much more effective than traditional education. It also confirms the effectivity of student-centred methods even when used online.

Technology also makes it possible for us to tap a huge reservoir of existing unused and underutilized educational resources. Retired lecturers, seasoned professionals in every field, and non-academic subject experts can be engaged to share their knowledge and experience. These processes and strategies must be pursued with the awareness that our hyper-technological and hyper-connected civilization requires more than technical knowledge, technical skills and hyperspecialized figures, and the human factor cannot be marginalized in the name of technological solutionism. It is also essential to ensure that, in these processes, the focus is on people, the quality of social relations and wider social impact, not merely on the effectiveness of connection technologies and/or new hyper-connected communication environments.

6.2. Personalized Pedagogy and Curricula

The digital space opens up new possibilities that have not been available in traditional classrooms so far. Open Educational Resources (OER) give students access to a wide selection of no-cost sources. Digital content can be revised and updated constantly at a speed that printed books cannot keep pace with. The up-to-date curricula can be personalized to meet individual aspirations. The types, methods and levels of pedagogy can be customized based on individual learning capacities and preferences. The speed of progression and modes of information transition—verbal, written and visual—can be adapted to the needs of each individual learner. 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. *It is possible, for the first time ever, to provide every human being with the means to acquire an education that is personalized, self-paced, person-centred, relevant, integrated, affordable and of high quality.*

6.3. Separating Education Delivery from Certification

The traditional system of certifying education by those who deliver it created a near monopoly on knowledge delivery and deep resistance to change among institutional knowledge providers. Universities are no longer the sole repository of knowledge and teachers no longer the primary medium for the transfer of knowledge. Universal access to OER and knowledge from non-traditional sources are deinstitutionalizing learning. New credentialing systems need to be introduced based on the premise that learning involves much more than merely the acquisition of specific course content. Systems are also needed to support the acquisition of a much wider range of competencies than the standardized courseware. Our evaluation cultures must also be changed. Not everything that is 'qualitative' can be translated into 'quantitative'. The issues, however, are profound and complex. We need to be cautious in resorting to facile shortcuts, reductionism and determinism.

The pandemic has spurred several innovations in assessment and certification, such as microcredentials, career certificates, and nanodegree programs. It has broken the monopolistic high-cost system for knowledge certification. *The separation of knowledge delivery from credentialing will make it possible for many different types of institutions—public, private and CSO—to expand their educational offerings, since standardized, credible credentialing will then be available from independent sources, through government, universities, businesses in different fields of competence and independent expert agencies. Such new models can decouple the educational and certification processes, and in the process make both more effective.*

6.4. Competency-Based Education

Competency-based education (CBE) is one model that separates certification and delivery of education. CBE programs enable students to advance through a program based on demonstrated mastery of competency rather than on credit hours.* CBE lets students apply their work and life experience to their education. Students—either through workplace training, outside reading, or life experience—who acquire the competence and knowledge required for a particular subject can apply for evaluation and earn credits without having to attend classes. In the US, 600 colleges and universities now offer some form of CBE. A survey of some 500 American institutions of higher education administered over three consecutive years (2018-2020) shows that 13% have full CBE programs, 47% are in the process of adopting CBE, and another 26% are interested in adopting CBE in the future. CBE saves time and money, creates multiple pathways to graduation, makes better use of technology, and takes advantage of informal and non-formal learning opportunities. Lifelong learning is increasingly becoming necessary to remain relevant at the workplace, and CBE meets this need. CBE should constitute a vital part of future education.†

6.5. Microcredentials

Online EdTech companies, MOOC providers and Online Program Managers offer microdegrees—online, examined, graded, credit-eligible graduate-level courses focused on a specific discipline or skill set. Microdegrees permit students to utilize accelerated, low-cost programs to earn credentials of relevance to their interests and career. These courses are “stackable”. They can be combined to either earn a complete degree online, or reduce the residency period at traditional universities. These programs expand degree access and affordability to students. Some have industry sponsors, who offer internship and placement opportunities.

Some progressive colleges and universities are taking the long-term view, and adopting the digital model even if it is at the cost of their traditional system. Clearly, online and hybrid learning models are going to constitute a growing and integral part of the future. But thus far initiatives have been slow, sporadic and largely focused at the institutional and local level. Much more can and should be done to extend and accelerate the development of a more effective global delivery system.

* <https://www.insidehighered.com/news/2019/01/28/slow-growth-competency-based-education-survey-finds-interest-and-optimism-about-it>

† <https://www.ed.gov/oii-news/competency-based-learning-or-personalized-learning>

Delivery systems and pedagogy go hand in hand. The relational spaces within the educational and training processes must be reconstituted. This change must be systemic and take into full account a socio-emotional perspective. A paradigm shift is also needed from passive to active learning, from information transfer to developing the capacity for independent thinking, from subject-centered to person-centered education, from abstract theory to contextual knowledge, from narrow disciplinary specialization to broader multi- and transdisciplinary and intersectoral perspectives.

Efforts to address the global dimensions of the educational challenge require new thinking and fresh strategies to answer the following questions:

1. What will be the most effective approach to address the very rapid growth in global quantitative demand for higher education?
2. What lessons can be drawn from the COVID-19 pandemic regarding the feasibility of a hybrid global delivery system that combines online information transfer with physical classroom interaction?
3. What would be the most effective means for reducing the high cost of higher education globally?
4. What would be the pros and cons of modifying the present system of certification in higher education so that knowledge delivery and certification of competencies can be independently acquired?
5. What strategies can be adopted to address the vast shortage of highly qualified instructors for higher education around the world?
6. Are technological systems and hyper-connected environments capable of recreating the complexity and dynamism of educational relationships?
7. How can online or hybrid systems compensate for the barriers to personal, physical interaction in online learning systems?
8. What methods and epistemologies are needed to implement such programmes?

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