

Reforms in Education – Challenges for the 21st Century

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The origins of education are in curiosity. Primitive man was curious at the phenomena of nature. He wondered about the sun and moon, he wondered at rain, thunder and lightning, he wondered at the changes of seasons, he wondered at the behaviour of animals and above all, he wondered about what he could do to gain mastery over nature. This ancient spirit of enquiry, curiosity and wonderment is captured in the hieroglyphics of Egypt, in the rock paintings of Orcha in Madhya Pradesh, in the drawings and sculptures of ancient Babylon. From the beginning of mankind human beings wanted to understand the world around them and this craving for understanding grew over the years. This quest for better understanding led to the first steps in education, the first steps in creating knowledge and the first steps in passing on knowledge to others. Ancient society was so structured that the pursuit of knowledge could not be done by all because life was harsh and the struggle for survival took up all time and energy. Yet from these ancient times one can discern a striving for knowledge, efforts at organised education and the development of new frontiers of knowledge which led to the building of pyramids, the building of the great temples in Luxor and Carnac, the creations of the Hanging Gardens of Babylon and the cities of Mohenjodaro and Harappa. It is very difficult to appreciate today that without formal methods of study and learning, such wonders of the world were created and the foundations of modern civilisation were laid. All this was possible because education nurtured a deep sense of inquiry, a quest for knowledge and continuous striving for new inventions and discoveries. It is true

that education was confined to a few and such cultivation of knowledge created an elite group in society be they the wise men of Africa or the Mandarins of China or the priests in Europe or the Brahmins in India or the philosophers of Greece and Rome. Access to education had to be restricted because methods of transmittal were not known. Knowledge could only be passed on by word of mouth as in the Guru-Shishya Parampara or by painfully written manuscripts on papyrus or parchment paper or by the even more difficult method of writing on stone tablets, while today we possibly do not appreciate how difficult it was to transmit knowledge because there was no printing press, no television and no internet. Yet we marvel at the frantic pace at which knowledge grew. The invention of the sailing boat which travelled to far off countries, the invention of the compass, methods of harnessing fire, methods of agriculture, researches into ancient medicine, the discovery of the zero in mathematics and the development of ideas of democracy in ancient Greece make us realise how creative education was in spite of difficult circumstances. This, friends, was the origin and real purpose of education – to create new horizons of knowledge, to expand these horizons continuously, to enable men and women to explore the unknown and this created people who became thinkers, whose minds were set free by education and they continuously pushed forward the frontiers of civilisation. Education in this sense and during these phases of civilisation had very little correlation with earning of livelihoods or making of a career. It is true that education was elitist in nature and in that sense the concept of education was different from the progressive character of education as we understand it today. But it is also true that the progress in the history of mankind was created by such

education which was creative in nature and opened the frontiers of the mind for those who pursued it.

The scenario on education started changing with the invention of the printing press and with new forms of economic activity developing in Europe. With the availability of the written word in printed form, study became easier and access to education was open to many more. Also new occupations and vocations were developed leading to cluster of craftsmen coming together as guilds. This led to development of studies pertaining to specific areas of activity rather than knowledge in general. It is from the fifteenth or sixteenth centuries that specific activity-based education systems started taking shape as opposed to classical education or the study of pure science. This is the beginning of what we know as Arthakari Vidya. Today much of education is the study of specific activities, specific skills, occupations or vocations which has the objective of gaining mastery over such specialised activity and to a great extent the pursuit of knowledge for knowledge's sake has taken a backseat. I would not like to pass judgment whether this is good or bad but to a great extent this was inevitable.

Today the study of specific skills has opened new opportunities, new careers and new lives for many and that is the primary reason why education is seen today as a stepping stone to success as an opportunity for the masses to escape from the clutches of poverty. To remember the Bengali saying "Para Sona Kare je, Garighora chare se" – that is if you study, you will be able to travel in cars and carriages. In other words, education has become valuable as this leads to a profitable occupation. Also education for the masses was designed in such a way that people could be trained for jobs and vocations in large numbers and

could thus uphold the economic structure. Therefore, the shift in the focus of education which took place about five centuries back was a major watershed in human history and was the precursor for education for the masses. The question today is whether mass education which was designed for an industrial society can deliver the goods for a post industrial society. In other words, in a knowledge based society in which it is necessary to push forward the frontiers of knowledge at a faster pace, can we afford to ignore the creative side of education? And secondly, in India of the 21st century in which 40% of the population is below the poverty line, can we afford not to overhaul the education system which was left behind by the British and not to instal a new system which will be able to meet the aspiration levels of the people which are continuously on the rise? During the course of this paper I shall try to answer these two questions.

Let me start with the education scene in India. The 86th Amendment of the Constitution of India makes education a fundamental right for all children aged 6-14 years. The Govt. has also designed a flagship programme Sarva Shiksha Abhiyan for universalization of elementary education of satisfactory quality by 2010. This ambitious programme of the Govt. aims at opening new schools, strengthening infrastructure in existing schools, providing teacher training, developing learning material, recruiting additional teachers and giving special emphasis to girl students. No doubt a very praiseworthy initiative like the Midday Meal Scheme. But the actual situation remains absolutely pathetic. It is a great pity that in spite of the problems of school education being well known and in spite of vast sums of money having been thrown at the problems, the situation has not improved. The Govt. of India had published a study in 1985 called

Challenge of Education and this study had highlighted the pitiable condition of schooling for children in India. These conditions have remained more or less unchanged over the last twenty-five years. Today of the 200+ million children of school going age 35% drop out after primary school and another 50% after upper primary, of the 20 million youth of graduating age only three million actually make it through college. Even the rates of literacy continue to be unsatisfactory in most of India with the sole exception of Kerala. The Govt.'s avowed aim of vocationalisation of education remains a distant dream. The aim was to ensure that 25% of students at the secondary level are given opportunities to pursue vocational studies by the year 2000 but this has not been achieved. To put the problem in perspective 62% of our total population of 120+ crores are dependent on agriculture but Indian agriculture is no longer able to support such large numbers. We are therefore witnessing a large scale shift of population from rural areas to urban centres. Also the total number of workforce in India will go up from the present figure of 48 crores to about 70 crores in the next 15 years or so. Today we are observing that large parts of India because of poverty, social deprivation and lack of education and opportunities have become zones of social unrest and civil strife and are under so called Maoist influence. Are we looking at an India of 2020 in which large numbers of people of working age crowd into towns and cities seeking work opportunities but without adequate education and skills and therefore our towns also become hubs of social unrest? Our policy makers say that India's biggest strength is our population as by 2020 India will have the largest segment of its population in working age group of 25-60, a percentage higher than even that of China and much more than Europe or North or South America. This is what is called the demographic dividend. But this

could easily turn into a demographic disaster if we are not able educate these large numbers.

Let us go deeper into the matter of school education. The Govt. plays a pivotal role in school education as a very large number of schools are Govt. schools. But to describe the state of education in Govt. schools let me turn to the very moving Book called "The Beautiful Tree" by James Tooley who is researching how poor people in Africa and Asia and especially in India are trying to educate their children. Tooley's findings on Govt. schools are that in most of the schools teachers are absent, teachers don't come on time and even if they come they do not teach properly during teaching hours and even more often teachers don't teach in the school as this forces students to seek private tuitions from them. Tooley also found that in Govt. schools teachers at times discriminate against students coming from very poor families irrespective of their brightness or I.Q. The physical conditions of these Govt. schools especially in rural areas is also well known. Apart from crumbling or non existent physical infrastructure, Tooley has found in his researches in Andhra Pradesh that even text books purchased for Govt. Schools by the Education Dept. for free distribution were only purchased on paper and a large proportion was not reaching the children. Amartya Sen had also carried out earlier studies on Indian education and in his book India: Development and Participation came to similar conclusions about education for the poor in India. In his more recent study done by Pratichi Trust, Amartya Sen has come to similar shocking conclusions about schools in rural Bengal. He has apparently discovered Govt. schools that only exist on paper. And all this in spite of the increasing amount of allocation for education as

percentage of GDP as well as increasing amount in absolute numbers, in spite of the Sarva Shiksha Abhiyan, in spite of World Bank and DFID giving large sums of money to the Central Govt. and various State Govt.s to improve school education. What then is the answer? Is the answer throwing more money into Govt. Schools? The Govt. had tried to improve Govt. schools by trying to involve local NGOs and parent associations in the management of these schools but this did not work in the poor areas as these external interventions were not effective to counteract Govt. inaction and Govt. bureaucracy. I think the answer lies in two different directions. Firstly we must adopt a policy of encouraging more and more private schools to come up especially in the poorer areas. This sounds like a contradiction as the common concept is that private schools are only for those who can afford to pay more. But the Indian experience is that a large number of private schools have come up in poorer areas of towns which charge tuition fees of not more than Rs.100/- per month and in these schools the teacher attendance is better, the school dropout rates are lower and standards of teaching are higher. Amartya Sen found that in some areas in India 30% of children in villages and 80% in urban centres were attending these non Govt. schools as parents found them giving better education. Parents were not even tempted by the mid day meal schools offered by the Govt. schools for their children. A study entitled Public Report on Basic Education published by the Oxford University Press covering four North Indian States has also come with similar findings that poor people would rather spend Rs.100/- a month to educate their children in non Govt. schools than send them to Govt. Schools that don't teach.

The first reform, therefore, that I suggest is that active participation of the private sector in schooling must be encouraged. Obviously, this will not mean free play of market forces but there should be a system of accreditation of private schools, some regulation over fees to be charged, quality control review along with the abolition of the present pernicious system of affiliation and over regulation which discourages the setting up of private sector schools that can take up students to the secondary level. It must be remembered that even without this policy change private schools are already a fact of life, both for the poorer sections of society and for the affluent and these have spread to rural areas as well. The mindset of putting more funds in Govt. run schools has to change and a balanced system of subsidising selected students in private schools if pursued carefully and judiciously will go a long way to reduce the cost burden for poor and meritorious students.

The second reform in schooling specially at the primary, pre-primary and secondary levels has to be the delivery of content by the distance learning and electronic methods. The present view is that distance learning is only for higher education. This is not a correct policy. Television which has reached out to all urban sectors and to all villages with electricity must be used for broadcasting academic content for school-going children. This will ensure quality control over what is taught and will provide more interest for students because of the audiovisual format. This will also override the difficulties of poor teacher quality and reduce the requirement of the number of teachers. This model of schooling has been experimented within various under-developed countries and it is high time Indian education policy allowed the digital mode to enter school education.

Apart from school education, the second area which needs to be addressed is the issue of vocational education. Today the facilities for vocational education are inadequate, the quality is abysmal and vocational education is a dead end for those who pursue it. Though the Eleventh Five Year Plan has very ambitious targets for vocational education and has kicked off the idea of the National School Development Mission, the data the Eleventh Five Year Plan document produces for the area of vocational skills makes very sad reading. The National Sample Survey Summary 61st Round results show that among persons of age 15-29 years, only about 2% are reported to have received formal vocational training and another 8% reported to have received non-formal vocational training indicating that very few young persons actually enter the world of work with any kind of formal vocational training. This proportion of trained youth is one of the lowest in the world. The corresponding figures for industrialized countries are much higher, varying between 60% and 96% of the youth in the age group of 20-24 years. One reason for this poor performance is the near exclusive reliance upon a few training courses with long duration (2 to 3 years) covering around 100 skills. In China, for example, there exist about 4000 short duration modular courses which provide skills more closely tailored to employment. The National Sample Survey Summary 61st Round Survey on Employment and Unemployment also indicates educational institution attendance rates (5-14 years) drop by nearly half in the age group 15-19 years and by 86% after the age of 15 years. These results also reflect that 38.8% of the Indian labour force is illiterate, 24.9% of the labour force has had schooling only up to the primary level and the balance 36.3% has had schooling up to the middle and higher level. They also reveal that about 80% of the workforce in rural and urban areas do not

possess any identifiable marketable skills. A basic problem with the skill development system is that the system is non-responsive to labour market, because of a demand – supply mismatch on several counts: numbers, quality and skill types. The quality of the training system is also a matter of concern, as the infrastructural facilities, tool/kits, faculty, curriculum are substandard. The existing institutions also lack financial and administrative autonomy. The testing, certification and accreditation system is weak since the deliverables are not precisely defined.

The above are findings from the Eleventh Five Year Plan document and against the backdrop, the National Skill Development Mission has been set up with the aim at training 50 crore persons in vocational skills by 2022. While the Skill Development Mission has already set up a National Skill Development Coordination Board and a National Skill Development Corporation in partnership with the private sector and has also produced twenty studies in various areas to map the skill gaps in these areas, much more remains to be done. The Govt. had announced ambitious plans to upgrade ITIs. The Govt. has also announced plans to establish 1,500 new ITIs and 5,000 Skill Development Centres through the PPP mode. However the efforts already made have not produced results commensurate with the funds spent. In spite of private sector participation in the ITIs, the Govt. way of working and of imparting useless skills has not changed. Technology in the ITIs is obsolete and the ITIs do not cover many skills which are in demand in the market place. Also, acquisition of vocational skills means taking a foray into a sphere of education which bestows inferior rank. A very skilled machine operator or a very skilled construction artisan may have

undergone vocational training but if he does not have a formal degree from a university, he cannot pursue higher studies in the Indian system and his future growth into managerial ranks and decision making is barred, however good he may be. This puts a stamp of second grade on vocational education and this is a national disaster. We need a major reform which will link vocational education with mainstream education and give ample opportunities to the brighter among those who have only learned some skill to migrate to higher learning and to improve their condition in life. We also need participation of the private sector in setting up vocational institutes. This, of course, has now been done with the setting up of nursing schools and aviation schools and computer institutes and other similar skill imparting institutes but this process must be encouraged, supported by policy initiatives and spread to the more backward areas of India if we have to cater to a work force of 70 crores in the next 15 years.

The next area I would like to discuss is that of college and university education. This is where India is supposed to have succeeded best. We produce annually the largest number of trained engineers, computer experts and scientists in the world. Silicon Valley and NASA are run by Indian engineers. The research facilities of the world's largest pharma, bio-chemistry and life science companies are located in India. Bangalore is the hub of IT back offices for the U.S. corporate sector and we have centres of excellence like the IITs, IIMs, Indian Institute of Science, ISB Hyderabad, etc. The success stories of these institutes has encouraged the Govt. of India to announce the setting up of more IITs, more IIMs, more Central universities and such other centres of high learning. These are all indeed significant achievements but if we step a little away from the highly

publicised centres of excellence and look at what kind of education is on offer for the majority of Indian students, the reality is quite different. Prime Minister, Dr. Manmohan Singh said two years ago that more than 60% of Indian Universities and 90% of colleges are below average quality. More than 3 million students graduate every year from these universities but only 10 – 15% are equipped with skills to start work. Among engineers who graduate, only a quarter have the skills to start work in a global standard industry. According to a recent World Bank report India will suffer a shortfall of more than half the skilled human resources needed to modernise its economy. Apart from the quality problems there are also problems in numbers. Currently India's colleges and universities enrol only 10% of the college going population against 20% in China, over 15% in Asean countries and about 60% in the US. In case we have to raise the college enrolment to 15% -- the stated target of the Eleventh Five Year Plan this will mean increasing the number of schools and colleges in the country by 50%. There is also another statistic which is mind boggling. India sends every year over Rs.30,000 crores as outward remittance for Indian students studying abroad. This is a sad commentary on the quality of higher education available in India. If this money was invested in creating 10 lakh good A-grade branded college seats per year, the mad scramble for admissions to the centres of excellence would lessen in intensity. Also a question which needs to be answered is how research oriented and how innovative are these IITs and IIMs and how do they benchmark against the best in the world? The Columbia University in US alone is accredited with producing 47 Nobel prize winners. The track record of Berkely in California and Heidelberg in Germany are also similar. Let us compare this with our Indian achievements to see in perspective how our best institutes compare with the best

in the world. So, therefore, there is not only a deficit in seats in good colleges and post graduate institutes but there is also a need to upgrade our institutions still further. India has tremendous opportunities in the fields of bio-chemistry, health care, IT, contract research and financial services to cater to global needs but to encash these opportunities India will require our higher education institutions to churn out a steady supply of large number of top end students, a steady supply of very large number of good reliable students and also a steady supply of many more average students who will do the medium level and lower end jobs. Unfortunately, the capacity of our higher educational system is such that this is not at all assured.

What exactly are the ills of the higher education sector and how does one go about reforming them?

Firstly the system is under highly bureaucratic and multiple controls and regulations exercised by the Central and State Governments, statutory bodies such as UGC, AICTE, the Medical Council, the Dental Council, Bar Council, National Council on Teacher Education, Distance Education Council, etc. In addition, the universities affiliate colleges and impose further bureaucracy on them. All this does not lead to quality control but leads to layers of management, excessive paper work, rigidities and delays.

Secondly, the system is heavily subsidised by the Govt. and imposes high financial burdens and there is little accountability as to how well the money is spent.

Thirdly, salary and compensation for teaching staff is poor in spite of the Sixth Pay Commission and there is a great measure of faculty shortage.

Faculty are forced to do more class work and more repetitive work as this leads to greater remuneration and ignore research, publication and continuing education for themselves.

Fourthly, most institutions offer outdated programme with inflexible structures and content. While good universities across the world review and revise their syllabus frequently, Indian universities are averse to doing so.

Fifthly, infrastructural facilities in many colleges and universities and institutes range from inadequate to dismal. This includes laboratory facilities and IT facilities.

Sixthly, with recent liberalisation there has been mushrooming growth of private colleges, private universities, private institutes and deemed universities, many of which are promoted by dubious groups and offer degrees and diplomas against money. These institutes are inadequately supervised, regulated and reviewed and have been able to spread corruption to the highest echelons of our education system as evidenced by the recent arrest of top AICTE officials.

What has happened is that the demand for college seats and university seats has created degree churning and diploma churning factories of poor quality which hand out degrees to students without heed for their employability, their skills and their knowledge. This, in turn, increases the mad scramble for seats at the well-known institutions and colleges and leads to frustration for those who cannot get in. Teachers are encouraged to aid and abet this degree awarding mission of the colleges and universities and pursuit of knowledge is not a priority. The less said about research in most of our institutions the better it is.

How to start reforms in higher education is not such a difficult question to answer. Our present HRD Minister, Mr. Kapil Sibal has already spelt out certain intentions which seem laudable but how far the Govt. can implement these is doubtful. It must be remembered that unlike many other areas, educational reforms in India have not been carried out at all and we still follow the old British system of repetitive studies, learning by rote, reproducing at exam time and getting a degree. Lord Macaulay had an avowed objective of producing best babus for the British Raj and he designed a system which was suitable for that purpose. It is difficult for existing institutions to get away from this pattern overnight unless we make basic change in the playing field. The first major reform which is necessary is to open the higher education arena to the Private Sector in such a way that profit making institutions can come in. Today the present laws allow only non-profit making bodies from the Private Sector to start colleges, institutes and universities. This leads to a travesty of truth as private players set up these institutions only with a profit making objective. This policy has resulted in large business houses taking up education only as corporate social responsibility and not as mainstream business activity. This policy has resulted in politicians and dubious business groups entering the field of private education and giving it a bad name. This has to change. The Govt., which today spends very large amounts of money in subsidising colleges and universities should divert a part of such funds to award scholarships to deserving students in these private institutions so that the benefit goes directly to the beneficiary. Let the reputable business houses of India enter the field of education with an avowed profit making objective and let them compete to set up many more centres of excellence.

The second reform needed is opening of education internationally. Let the Indian colleges and universities be free to set up campuses abroad which by the present policy parameters is very difficult. Let them compete on foreign shores and learn the best practices globally. Similarly, let foreign universities and colleges set up campuses openly instead of doing so with collaborators and franchisees. Let there be cross-fertilisation of ideas, let there be exchange of students and faculty and collaborative research. As in the fields of business you will find that this will strengthen Indian educational institutes and not weaken them. The third major reform will be in the regulatory environment. We need to abolish the affiliation system between the colleges and the university. We need to abolish the multiple regulators in the Centre and in the States. Universities should do quality control, conduct examinations, set the standards. The regulators should lay down policies, do overall review and be open to changes in the environment. Thirdly, all private universities and deemed universities and private colleges and institutes which operate today must be reviewed by a stringent process and the ones of disrepute should be closed down. There should also be major reforms in course content, designing of syllabus, methods of teaching, methods of appointment and promotion of faculty. The Yashpal Committee on reforms of higher education which has recently submitted its report has laid down an excellent road map for reforms in higher education.

I shall now come to the end of this paper by going back to the topic of education, creativity and knowledge. Modern education as we know it was built on the Industrial age factory models to teach basic reading, writing and arithmetic _____ three Rs, a bit of history and other subjects _____ the overt curriculum. Beneath

it was the covert curriculum that was far more basic. It consisted of three courses_____ punctuality, obedience and repetitive work _____ the basic training requirements to produce reliable, productive factory workers. Will the 21st Century world require just these capabilities? We are told today that in the post industrial age we are getting into a knowledge economy and the creation of value will require creation of new knowledge. We have seen that the creation of knowledge was triggered by the basic urge of curiosity. The question is do modern methods of teaching encourage the spirit of inquiry or do they only encourage the learning of lessons by heart. Albert Einstein said that “it is in fact, nothing short of a miracle that the modern methods of instruction have not strangled the holy curiosity of inquiry”. Questions are will our current approach to education be adequate to equip the children of today to face the demands of a knowledge economy. Can we continue our assembly line approach to teaching our children rather than acknowledging and nurturing the unique gifts and talents that each one of them represents? Should education be restricted primarily to the first twenty five years of our lives? Or should be focus of education shift to enable us to learn all our lives? A recent study at Harvard uncovered the fact that upto the age of four almost all children are at genius level, in terms of multiple frames of intelligence _____ be it mathematical, interpersonal, linguistic, musical, artistic etc. But by the age of twenty the genius level proportion of the tested population dropped to 2%. We are educating our children to take the intelligence out of them. Instead we need to nurture and develop the multiple frames of intelligence within children. We need to fuel imagination which Einstein said is more important than knowledge. Our schools and colleges are good at cramming knowledge into students. This model will not work for the 21st Century as the quantum of

knowledge has become so vast that it would take several life times even to master a single discipline. What we need therefore is schools teaching children how to learn more, for schools to kindle the love of learning in children so that they learn life long. Also in our era of super specialization, we are developing groups of peoples who understand their own fields extremely well but falter when it comes to communicating with and integrating with people in other disciplines. This is how we are today more antagonistic towards each other and more destructive of what is common including the earth's resources. At our colleges and universities we have followed policies of fragmenting our educational enterprise into cubicles. We have overlooked that new knowledge and new insights have often originated at the boundaries of disciplines. We have tended to imprison disciplinary studies in opaque walls. This has restricted flights of imagination and limited our creativity. Most instrumentalities of our education harm the potential of the human mind for constructing and creating new knowledge. We have only emphasized delivery of information and rewarding capabilities of reproducing information.

This does not help in creating a knowledge society. This is particularly obnoxious at the university level because one of the requirements of a good university should be to engage in knowledge creation – not just for the students but also for society as a whole.

I think we have to rethink the entire character of education if we have to prepare our succeeding generations for the 21st century. In the 21st century much of repetitive work will be done with the support of technology without human intervention. Geography will no longer be a barrier to communication and

interchange of ideas and services, global divisions of labour will be as never before and aspiration levels of all people will rise so that knowledge will have to be used for greater good of many rather than for a few. In the light of these global trends how should education change itself and reorient itself.

Firstly, we must allow the school system to discover the natural aptitude of children so that they can pursue different paths to excellence. Learning should go beyond knowing facts and figures. Children need to be shown how to be self-aware and to examine their lives and discover a sense of purpose.

Secondly, high school and college curricula should focus more on building skills and capabilities in multiple disciplines rather than in narrow fields. Today the best management institutes are reemphasising the teaching of disciplines such as science, language, philosophy, comparative literature, political science in order to give students a better understanding of the world.

Theoretical education should be supplemented by practical work which is just not summer internships but work in problem solving, working with communities around the teaching institutes to break the divide between theoretical knowledge and practical understanding of the world.

And above all these reforms cannot be ushered in by regulatory changes. We need to start a debate and discussion on the future of education and create self knowledge and self awareness in our colleges and universities so that the urge for reform comes from within. After the global financial crisis, almost all leading business schools in the U.S. have started such a process of introspection and have come out with startling agendas for reform.

Let me conclude by quoting from my favourite story in the Upanishads. When Nachiketa, the young martyr faced Yamaraja and was offered two wishes as a reward for his courage and virtue, he asked for the Var (boon) of Brahmgyan. This is self knowledge – knowledge which enables us to rise to a higher spiritual plane and to gather inner strength. The purpose of all education should be to help us to discover and understand ourselves so that we have better understanding of the world. This is the core of reform in education that is needed for the 21st century.