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Higher Education in the Digital Age: Possibilities and Challenges

Abstract

National Education Policy (NEP) 2020 of India broadly aims to revolutionize the Indian Education System by integrating digital technology to enhance accessibility, quality, and equity in education. Thus, it aims to build the foundation of education based on the Constitutional values. The policy emphasizes the modernization of education through digital tools, aiming to fill gaps in equity and academics. This is a high ideal which if put into practice would revolutionise not only our educational system but the society, polity and nation.

It is also pertinent to note that the NEP 2020 is committed to recognizing, identifying, and fostering the unique capabilities of each student, by sensitizing teachers as well as parents to promote each student's holistic development in both academic and non-academic spheres. Further it talks of full equity and inclusion as the cornerstone of all educational decisions to ensure that all students are able to thrive in the education system.

While the history, heritage and horizon of the country provides enormous scope for the above mentioned goals and objectives, the challenges in accomplishing these objectives also need to be taken into serious consideration and probable action. It is undeniable that the unprecedented digital development has resulted in unprecedented innovation and accessibility in education. But it has also posed a challenge that the students now rely more on technology than the classroom teaching. If our educational policies, programs, pedagogies, systems and structures do not seriously and systematically work out a blend between digital growth and constitutional cum human values, then the country would produce malicks, bureaucrats and babus but not citizens who abide for, by and of the history, heritage and horizon of our country. If this is not attempted early, it would be too late to rectify our education, environment and existence.

Keywords: Higher Education, Digital Age, Possibilities, Challenges, Heritage, Horizon

Introduction

National Education Policy (NEP) 2020 of India broadly aims to revolutionize the Indian education system by integrating digital technology to enhance accessibility, quality, and equity in education. Thus, it aims to build the foundation of education based on the Constitutional values. The policy emphasizes the modernization of education through digital tools, aiming to fill gaps in equity and academics. This is a high ideal which if put into practice would revolutionise not only our educational system but the society, polity, economy, education, and nation.

Linking Digital India Campaign and Education, NEP 2020 states "India is a global leader in information and communication technology and in other cutting-edge domains, such as space. The Digital India Campaign is helping to transform the entire nation into a digitally empowered society and knowledge economy. While education will play a critical role in this transformation, technology itself will play an important role in the improvement of educational processes and outcomes; thus, the relationship between technology and education at all levels is bi-directional".

It is a given fact that digital and technological development has been unprecedented and unimagined. It is affecting all aspects of human life. While modern education contributed to the development of digital age, digital technology in turn is influencing all aspects of human life. The growth and reach of the digital technology is slowly engulfing the various streams of our life and work.

People are of the view that digital technology is so broad today as to encompass almost everything. No product is made today, no person moves today, nothing is collected, analyzed or communicated without some 'digital technology' being an integral part of it. That, in itself, speaks to the overwhelming nature of digital technology. It is so useful that in short order it has become an integral part of all of our lives.

Possibly 40 years before this was not thought off. May be those involved in the technological development and the scientists had some idea of what is coming. But common global citizens were not even aware of this revolution. It is bombarding the human beings all over that it would be impossible to carry out our life without the digital world. But it should also be kept in mind that digital world has not reached or affected all the citizens in the same manner.

Paul Saffo, a leading Silicon-Valley-based technological forecaster and consulting professor in the School of Engineering at Stanford University, said, "I have had an email address on my business card since 1982, and carry enough electronics on my person to get nervous in lightning storms. Digital connectivity has become like oxygen, utterly essential to my research. The net effect of these innovations has been to tie me more closely to other individuals and extend my interpersonal connections well beyond the pre-internet links of in-person interactions and telecommunications". It is this sense of the digital users which is worth taking note of and addressing the issues around it.

Various studies have highlighted this central fact that higher education is at an inflection point, driven by global trends such as digitalization, the personalization of learning, and the integration of emerging technologies. These changes are redefining the educational landscape, forcing institutions to adapt and develop innovative strategies that respond to the needs of a technologically advanced society. The massification of higher education poses unique challenges and opportunities, by increasing access to learning, but also by demanding more adaptive and personalized teaching methods.

It is also pertinent to note that the NEP 2020 is committed to recognizing, identifying, and fostering the unique capabilities of each student, by sensitizing teachers as well as parents to promote each student's holistic development in both academic and non-academic spheres. Further it talks of full equity and inclusion as the cornerstone of all educational decisions to ensure that all students are able to thrive in the education system.

While the history, heritage and horizon of the country provides enormous scope for the above mentioned goals and objectives, the challenges in accomplishing these objectives also need to be taken into serious consideration and plan probable action. It is undeniable that the unprecedented digital development has resulted in unprecedented innovation and accessibility in education. But it has also posed a challenge that the students now rely more on technology than the classroom teaching. This article tries to explore the possibilities and challenges inherent in digitilisation of education and value component in digital education in India.

Digital Age

As digital innovation is emerging in a fast track and engaging human beings, one realises the impact it has made on human life. Many studies point out to

the fact that the digital revolution has changed social relationships and the way we communicate. In some countries, mobile payment transactions are responsible for over 40 per cent of GDP. Mobile apps are used to deliver education as well as providing timely information to farmers to enhance their productivity. In some other countries digital platforms are used to access training materials from all over the world and disseminate to the participants of trainings or organisations. People also use digital tools to plan and develop products in a way that would not have been possible only a few years ago. Developing games and apps requires varied expertise, and collaboration is the key in this. The new tools for collaborative work allow those involved in this to work together and to provide virtual access to potential partners/clients to test products no matter where they are in the world.

This is otherwise referred to as the Technological Age, Information Age, Digital Age, and the Age of AI or Artificial Intelligence. Thus, this is a historic period in the 21st century characterized by the rapid shift from traditional industry that the Industrial Revolution brought through industrialization, to an economy based on information and communication technology. The digital age, also called the information age, is defined as the time period starting in the 1970s with the introduction of the personal computer with subsequent technology introduced providing the ability to transfer information freely and quickly. The rapid turnover of data is supported by the development of information and communication technology (ICT).

Types of Digital Technologies: It is important at this juncture to spell out the types of digital technologies as of now. Digital technology comes in many forms because our world is now interconnected. All access to knowledge, information, and personal data can be accessed through digital technology. Here are the types of digital technology commonly used: 1) Computers, smartphones and Hardware; 2) Internet, Networks and Communication; 3) Software; 4) Online Services; 5) Information Systems and Data Processing; 6) Information Security; 7) Artificial Intelligence (AI) Technology. These are the broad spectrum under which the digital world is growing in a fast and unprecedented manner today.

Thus, the digital age refers to the use of technologies, computers, soft wares and internet, etc. to procure, preserve and present information. This has had an overall impact on all our activities, programs and policies. While, the digital age has come with many possibilities, it has also ushered in lots of challenges.

Impact of Digital Age

It is pertinent at this juncture to observe the impact of digital age. Digital connective technologies in the 21st century have been deeply impacting all domains of life including the social, economic and the political. Such technologies of the 21st century have triggered dramatic changes in the ways people interact with content, communicate with one another and function in the society as well. Furthermore, the drastic changes are not simply restricted to increased opportunities for written, audial and video communications through highly interactive media. The opportunity to access and communicate with others located in distinct parts of the same country of residence, or even the whole world in a wider context, and the distinct new ways to interact, share and relate to the information others have shared via new media have even taken part in pressurizing key governmental processes.

Digitalization refers to the use of digital technologies in the educational process. This includes the use of online platforms for content delivery, communication between teachers and students, and assessment of learning. On the other hand, personalization of learning involves adjusting teaching and learning methods to meet the needs of each student. This may involve applying adaptive technologies that facilitate student progress at their own pace and creating educational programs that consider each student's individual interests and abilities.

In addition to increasing ways of communication, these new technologies have caused drastic changes in how people access information. Print books and encyclopaedia in the traditional sense are not the sole information holders but information is now distributed across the network of connected digital technologies that allow access anywhere anytime wherever such connections are possible. Similarly, teachers and instructors are not the sole depositories of knowledge as in the past. The digital world is emerging as one of the potential source of information and knowledge

Higher Education and Digital Age

The National Education Policy, 2020 also points to the impact of digital age on education. Given the explosive pace of technological development allied with the sheer creativity of tech-savvy teachers and entrepreneurs including student entrepreneurs, it is certain that technology will impact education in multiple ways, only some of which can be foreseen at the present time. New technologies involving artificial intelligence, machine learning, block chains,

smart boards, handheld computing devices, adaptive computer testing for student development, and other forms of educational software and hardware will not just change what students learn in the classroom but how they learn, and thus these areas and beyond will require extensive research both on the technological as well as educational fronts.

P. Aşkar writing as early as 2013 summarized the digital advancements forcing Higher Education Institutions (HEIs) to transform and adapt to the 21st century. Among the forces for a reform in HE structures are; knowledge access and dissemination roles shifting away from HE; digital platforms bearing new interaction and affective expression schemes, new ways to express culture, its related artefacts, and values; social media effects; big data and learning analytics; massive online open courses and open educational resources; educational games and the advancement of digital platforms enabling increased interaction and collaboration between and among instructors and learners. However, it has been highlighted in the literature that the change pressures triggered by the digital connective technologies haven't found ample voice from HEIs and that they are struggling in their efforts to adopt to the digital age.

Let us at this juncture examine the interaction that is going on between the digital age and the stake holders of education.

1) *The Learner*: One of the fundamental elements pressurizing HEIs to change is associated with the learner. Not only is the population of learners increasing, but also the learner profiles are changing and diversifying. More and more people are searching for professional and personal development outside the classroom environment to face personal and professional life in the 21st century. Additionally, technological advancements are deeply transforming the qualifications that the workforce need to develop today and in the future such that it is estimated that around 65 per cent of the primary school children today will work in jobs that do not exist now.

2) *The Instructor:* The advancements in digital connective technologies in the 21st century trigger another change pressure in the roles and responsibilities of the instructors at the HE. Additionally, instructors also are required to be equipped with new sets of skills and qualifications in the digital age. The past decades when the instructor was the sole information and knowledge provider is making way for an age in which information and knowledge is distributed across digital networks accessible anytime and anywhere wherever connections

are possible. This means learners now have the opportunity to access information and knowledge not only at schools from the instructors or at libraries from printed books, but also from digital repositories, web sites, social media and online learning communities and networks.

The American Association of Colleges of Teacher Education (AACTE) and P21 published a joint report on the skills that an instructor should develop in the 21st century. Successfully aligning technologies with content and pedagogy and developing the ability to creatively use technologies to meet specific learning needs; Aligning instruction with standards, particularly those standards that embody 21st century knowledge and skills; Balancing direct instruction strategically with project-oriented teaching methods; Applying child and adolescent development knowledge to educator preparation and education policy; Using a range of assessment strategies to evaluate student performance and differentiate instruction; Participating actively in learning communities - tapping the expertise within a school environment, mentoring, knowledge-sharing, and team teaching; Acting as mentors and peer coaches with fellow educators; Using a range of strategies to reach diverse students and to create environments that support differentiated teaching and learning; Pursuing continuous learning opportunities and embracing career-long learning as a professional ethic. It is a fact that the roles and qualifications of the instructor is changing and the instructor also need to change herself or himself.

3) *The Learning Environment.* The current emerging understandings on how learning occurs should be addressed before dealing with how the digital innovations are shaping the learning environments and the associated changes observed in the learning environments in the digital age. We are observing a shift from the traditional learning through information acquisition models towards collaborative knowledge construction models of learning in the digital age. In this age, in line with the pedagogical shifts, informal learning plays a vital role in shaping the learning activities of the individual. For this reason, developing collective cultural practices along with both organizational and physical structures to support collaborative knowledge construction gains particular importance for educational institutions.

The pedagogical shifts triggered by the digital innovations requires the transition from one dimensional learning spaces - classroom, library, lab - to multidimensional collaborative learning spaces - physical, virtual and online-.

4) *HEIs:* The Australian Council for Research and Technology Development proposes that fundamentally, higher education institutions can pursue two different paths in their strategic approach to digitalization. On the one hand, digitalization can be used for modernization. In this case, existing *challenges* will be addressed by adopting digital solution strategies. On the other hand, higher education institutions can deploy digitalization to shape their institutional profile – in this case, *institutional identity* will be directly linked to digital formats.

Possibilities and Challenges of Digitilisation of Higher Education

Yet, the real transformation lies not in the increased and diversified ways of accessing information, rather in the increased opportunities for individuals to contribute to content production and knowledge building. Today, each and every individual has the potential to not only consume, but also produce information. The individual's production and dissemination activities play vital roles both in the academic realm and in the social concerning particularly areas of administrative processes in which the individual wishes to take part. The age we live in shows fundamental differences in how the society functions as a whole in that the world is connected through digital means in an unprecedented scale.

The European Union is of the view that digital technology is driving innovation across every aspect of life, including education. This brings opportunities in schools, colleges, universities, lifelong learning and training. However, educational technologies are not magic bullets. Just as they offer great benefits, they also create challenges, which educators need to explore and address to help shape the future of education for the benefit of all.

Digitilisation of education offers possibilities for the transformation of distance learning at the Open University if a new pedagogy for online learning is evolved. In this regard, one makes education better by implementing pedagogical change through technology in a modern institution.

But there are many challenges that need to be kept in mind. How to design a 21st-century online course that makes learning happen for all, especially for those who are left out by the digital divide in a vast country like India? Also, the implementation of pedagogical and technological innovations faces challenges such as resistance to change in pedagogical methodology, the digital skills gap between teachers and students, and insufficient technological infrastructure.

Along with the digital divide one also need to pay attention to the rural-urban divide, rich- poor, and Mother Tongue - English divides.

Further, those who are concerned about the side effect of digitalisation of education point out that the implementation of pedagogical innovations in learning is a challenge, since innovation is not only about implementing virtual tools, nor is it simply about using applications; To innovate is also to generate change, which implies taking risks to obtain new knowledge and results, and this requires clear criteria to assess and measure its impact. Innovation in higher education can also involve changes in the organizational structure of educational institutions.

One thing is certain, students will need greater self-reliance to keep focused on learning, and for this they will need support and robust, safe and reliable learning spaces. As educators one has to create these spaces, offer this support and ensure the learning content is delivered to fit this new way of learning.

Keeping these above facts in mind, development of teacher training programs need attention: Create professional development programs focused on modern pedagogy and digital didactics. These programs would include workshops, seminars, and courses that present the advantages of new methodologies, such as flipped teaching, and provide practical examples of their successful implementation. A key element would be to involve teachers in the design process of these programs to ensure their relevance and increase acceptance.

It is a fact that the degree of personalisation a teacher can provide is often limited by their capacity and pressures such as the size of the group or class, and the pressing need to get through the lesson or seminar. It is argued that in these circumstances artificial intelligence (AI) might be an effective solution. When you think about it, AI is already a regular aspect of students' everyday lives, from Alexa, through Instagram filters, to chatbots. But in a country where the vast population suffers due to digital divide, how can this be possible. This question needs to be answered first before even embarking on digitilisation of our higher education.

This concern also needs to be taken note of. Developing and applying digital education tools must never become the goal itself. It's always a mean to enhance the learning, to create better insights and to help people change their behaviour. One area where foster learning is needed is the area of sustainability, or you could say creating a more sustainable future. Science does tell us that we have not more than 10 years now to actually change the way that we use the resources

of our planet, the way that we design our transportation and energy systems, and the way that we take care of the species on our own on Earth. So in order to get there in time, we need to start thinking about how to create the knowledge, the actions that are needed.

If our educational policies, programs, pedagogies, systems and structures do not seriously and systematically work out a blend between digital growth and constitutional cum human values, then the country would produce malicks, bureaucrats and babus but not citizens who abide for, by and of the history, heritage and horizon of our country. If this is not attempted early, it would be too late to rectify our education, environment and existence.

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