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The Vision of National Education Policy-2020 on the Use of Educational Technology and the Road Ahead

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Abstract:

This paper is a report on an exploration carried out in response to the National Education Policy (NEP 2020) avowed by the Government of India in 2020. The paper explores the vision of the policy regarding the use, utility and roadmap for effectively transforming the educational scenario of the country. As the policy envisions sustainably transforming India into 'an equitable and vibrant knowledge society' and sets an aim of making the education system 'second to none' by 2040 with a belief in the educational technology in its abilities to bridge the 'digital divide' through 'disruptive technologies'. In the light of the vision, aim and principles of NEP, the paper probes into the policy for its take on the Educational Technologies and juxtaposes it to the requirements and necessary initiatives most needed to be taken to bring the dream of the policy into reality. The nature, scope and potential of the educational technology identified by the policy makers are outlined in order to get a clearer view of the targets set. Elaborations on the new trends and developments in the technology enhanced pedagogical practices are supplied with the status of the application of digital technologies across the globe. The necessary recommendations are also incorporated into the paper.

The inventions in digital technology are highly important in all aspects of modern life. The application of the technology in educational sector today is multifold. The ICT is instrumental in providing greater access and deepening the reach of the resources in the remotest parts and metro-cities alike. The convenience, ease of use and the affordability make it the most pervasive technology ever used by the mankind. The technology does not only offer benefits to the users and to the business firms producing the tools and providing the services, it is equally beneficial in creating new jobs, new business enterprises, and service sectors. India's National Educational Policy too has taken note of it in these words:

"With various dramatic scientific and technological advances, such as the rise of big data, machine learning, and artificial intelligence, many unskilled jobs worldwide may be taken over by machines, while the need for a skilled workforce, particularly involving mathematics, computer science,

and data science, in conjunction with multidisciplinary abilities across the sciences, social sciences, and humanities, will be increasingly in greater demand"
(NEP 2020)

The goal set by the policy is to, "have an education system by 2040 that is second to none, with equitable access to the highest-quality education for all learners regardless of social or economic background" (NEP 2020). To make this a realized dreams, the policy aims to make the technology available everywhere, even at the remotest parts of the nation. The national government has started an initiative of "Digital India" in order to equip the nation with important digital connectivity and infrastructure. The policy has set a principle to do "extensive use of technology" (NEP 2020) in not only in administration or auxiliary sectors of education but in the pedagogical and research fields also. The policy also notes that the current society is not solely based on the industrial produces but it actually needs to be a knowledge society. Therefore, the vision of the Policy is of transforming India into "sustainably

into an equitable and vibrant knowledge society, by providing high-quality education to all, and thereby making India a global knowledge superpower" (NEP 2020).

The policy identifies our nation as a 'global leader in information and communication technology' and also credits the 'explosive pace' of ICTs and creativity of the techno-savvy teachers, students and entrepreneurs for impacting education in multiple and hitherto unforeseen ways.

To give a platform for 'free exchange of ideas' regarding ICT National Educational Technology Forum (NETF) will be established with multiple functions like advising, articulating and envisioning the use and directions of technological interventions in pedagogy. Educational software will be developed across all languages and e-content will be uploaded on DIKSHA and SWAYAM platforms. A clear mention to "disruptive technologies" NEP admits the inability of our present education system to "cope with these rapid and disruptive changes places us individually and nationally at a perilous disadvantage in an increasingly competitive world" (NEP 2020, 23). It also anticipates the redundancy of certain jobs in future and the consequential need for 'de-skilling' and 're-skilling' the employees. The need for research and preparedness for the new disruptive technologies is also underlined. As the policy has been made official during the pandemic, it states, "The recent rise in epidemics and pandemics necessitates that we are ready with alternative modes of quality education whenever and wherever traditional and in-person modes of education are not possible" (NEP 2020, 24).

It also points to the fact that, "The benefits of online/digital education cannot be leveraged unless the digital divide is eliminated through concerted efforts, such as Digital India campaign and the availability of affordable computing devices." (NEP 2020, 24). Teaching skills in a traditional class and online class also are different. Different challenges have been identified by NEP in conducting online examinations like "limitation on the types of questions that can be asked in an online environment, handling network and power disruptions, and preventing unethical practices" (NEP 2020, S.24). In its key initiatives, a need to invest in creation of "open, interoperable, evolvable, public digital sector" has been set as target and a

determination to address the digital divide is also pronounced. The training and incentives for teachers, online assessment and examination bodies, and blended models of learning through both creation and dissemination of digital content has also been clearly planned. While paying attention to the online teaching platforms and tolls, it has also set up a mechanism for laying down standards.

Though the current transformative innovations observed in digital technology have their roots around half a century ago, the real impetus to its growth and wide access is a thing of the past half a century. The innovations and technical iterations are believed to be great liberating forces. The technologies have often disrupted the way the processes and the products were generated. It also has liberated those with no access to opportunity from the old ways of business. In this transformative change, the recent advancements in the computational technology through miniaturization and portability mainly embodied in mobile technology have played a major role. Its pervasive presence, addictive lure and deep reach across the socio-economical divides of the humankind have brought many unprecedented transformations in the way we used to carry out our enterprises. Today, Information and Communication Technology (ICT) is mostly accessed through personal and portable devices. The rise of the 'big data' and the new version of the internet termed as 'web 2.0' have opened up a plethora of means and methods for almost everything. In the nineteenth century, people worried about the "information flood." In the twentieth century, it became the "information explosion"—and now, everything that came before is dwarfed by "big data" (Buckland 2017).

However, not all the technologies being used in educational sector are of great import in pedagogical context. Many times a sense of wonder and a handy variety are all that the use of them suggests. The tools and technologies in practice in educational sectors are generally called as Digital Pedagogy or Educational Technology. Though any living, vibrant and dynamic thing as the use of ICT in pedagogy is hard to encapsulate in a definition, yet an all encompassing definition of educational technology attempted by Universities and Colleges Information System Association (UCISA), UK goes like this: "Any online facility or system that directly

supports learning and teaching. This may include a formal VLE, e-assessment or e-portfolio software, or lecture capture system, mobile app or collaborative tool that supports student learning. This includes any system that has been developed in-house, as well as commercial or open source tools" (Flavin 2017 7). This is more preferable definition than the rest because it includes online and offline modes of technology as well as the data creating tools and data sharing services neither excluding the miscellaneous multimedia sharing nor the well-organized online courses, paid or otherwise.

As pedagogy, by its very nature, has been inclusive and adaptive to the tools and techniques of the times. The pedagogues all over the world are experimenting to effectively apply the ICT in the teaching-learning process and, the possibilities are immense. Yet, some digital tools and technologies available today are more useful than others so they need to be hand-picked through rigorous output based evaluation and recommended regarding their optimization to suit the local needs. In the absence of such selection and in the presence of multitudes, all seem to be viable options or none so. It limits the application of education technologies in the daily practice. Michael Flavin rightly challenges the assumption that a wide range of technologies is used to support learning and teaching and argues instead that, "students and lecturers use a small range of technologies to accomplish a wide range of tasks" (Flavin 2017). To reduce the gap between available tools and those in actual practice, more research in this area is required.

Though there is a general tendency towards a supportive and commendatory discourse, often without statistics proving it, about digital technology in pedagogy as efficient and economical! Though the picture does not emerge out as dark, a close look at few recent happenings in digital pedagogy puts forward a gray picture regarding the plausibility of it. For instance, through the experience of online modes of teaching during the recent lockdowns, the academia has learned the hard truth—the ostensible claims of digital technology being effective in bringing in the economy of efforts, ease of use, and economy of resources have mostly failed. Further, the costs of infrastructure, installation, access and maintenance of digital technology have far exceeded the estimates. Recent online modes of teaching have

laid bare the actual possibility and the impossibility. It has dawned upon the academicians that digital pedagogy was not meant to replace the actual classroom teaching instead, it was meant to assist it only.

To exemplify more, much hyped mode of course learning encapsulated as MOOC has proved to be not such an upheaval after all. Number of dropouts soaring high, the ratio of enrolment and successful course completion is not very encouraging. 'E-book'— the revolutionary technology in text production, distribution, storage and consumption has only appeared to be a passing phase. The e-books are reported to have decreased in sale from 2014 onwards giving way to an increase in the sales of print books (Smale 2017, 43). However, digital pedagogy is a thriving multibillion dollars business enterprise and it will continue to attract more research output in terms of more sophisticated and user friendly pedagogical tools, gadgets and services. The above facts and figured only caution us about what has a temporal vogue and what's going to stay longer.

A look at the market value of the paid online courses and additional coaching by a senior contributor to the Forbes magazine TJ McCue reveals that the E-Learning industry in the USA only is set to climb to \$325 billion by 2025 (TJ McCue 2018). Conversely, in an article published in The Economic Times by KaavyaChandrasekaran estimates of the same in India that the 'edtech' industry in India is estimated to reach \$30 billion by 2031 (Chandrasekaran 2021). It is evident that in a country of more than 250 million students in schools, there is a great market value of the paid educational services in India.

A look at the use of educational technology in USA in 2008 shows that the educational sector in India still does not completely match with the one in USA fifteen years ago. There is a great digital divide in the access, connectivity and competent use of the technology in the various parts of the nation as well as across the different strata of the society. With the advent of more portable, handy and affordable advanced devices the picture is changing for good. The picture of digital use in the USA is described by Keller as "Today, in USA for instance, most colleges have online registration, links with other libraries, websites for administration, research is enabled with

sophisticated tools, special buildings for IT infrastructure” (Keller 2008). There has been a great transformation in the use of digital technology through mobile devices. A speculative view about it in 2017 was very much rightly accurate that the mobile devices will be “cost-effective” to “incorporate students’ own devices into higher education.” (Smale 2017). The teachers had already started making the use of mobile device in 2017. “For example, some faculty have experimented with ways to integrate smartphones into classes as student polling or response technology” (Smale 2017).

Research has also come out that the use of digital technologies depends also on economic conditions. While in the western countries it has come out that the students are more likely to use technology for academic purposes if they own it (Smale 2017). The institutional infrastructure has many limitations like timings, number of users, and immediate need. Personal devices are at hand they offer many possibilities. It will be required to consider this fact. Privacy of login data is also a reason why students may want to use their personal devices. However, mobile technologies are of more use due to their pervasive presence and their ease of use. The applications provide the customised features of often those softwares which are heavy and used often on desktops ex. Word, excel, ppt and others.

In comparison to the laptop, Mobiles are portable, light weighted and hand held as well as they have their own data access capacity, so they are mostly used by the students. and If we compare the data of the users of mobile devices from India and the USA, we find that in the USA, 86% of the college going students have their own smartphones. On the contrary, the reach of the digital technology needs to be extended to the remotest parts in India. We also take for granted that most students who use smartphones necessarily possess the other skills or they are techno savvy. Multimodal literacy is undervalued in comparison to the alphanumeric literacy. The fact is that the students are still in the learning phase, they are exploring the possibilities. They require training in the safe, proper and productive use of their devices. Language as a barrier in accessing the data also needs to be taken into account. A proficiency in English is required for

the students to get the actual benefits of the digital revolution.

To sum up, National Educational Policy 2020 has taken a due note of the significance of educational technology. Its aims are to seek benefits of the technologies in bridging the digital divides in the country and realize the potential of the digital tools and technologies as the great equalizing forces. However, all that goes by the name of educational technology does not prove to be of equal utility. There is a necessity of carrying out empirical research in the actual usefulness of the technology. We also need to train the teaching staff or upgrade their skills for effective use of technologies. Though experiences of the teachers world-wide are of high importance, there are also many variables creating impediments in prescribing the tools for the entire nation. A tool in other countries may be more than it could be in our educational conditions and vice versa. Therefore, the pedagogues need to be more experimenting and choosing the best for their students.

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